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Mobuoy Road Waste Site Remediation Stage 1 – Phase 1 Services, Task Order 1

Updated Detailed Quantitative Risk Assessment (DQRA)

Project No: MOBUOY-TTE-XX-XX-RP-I-0013
Status: S4

TETRA TECH

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October 2022

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PRESENTED TO	PRESENTED BY
Northern Ireland Environment Agency (NIEA), Department of Agriculture, Environment and Rural Affairs (DAERA)	**Tetra Tech Ltd**

EXECUTIVE SUMMARY

The Brief	Tetra Tech Limited (Tetra Tech) were appointed by Northern Ireland Environment Agency (NIEA), an executive Agency within the Department of Agriculture, Environment and Rural Affairs (DAERA) under the Mobuoy Road Waste Site Remediation Project to undertake all aspects required to recommend and implement a remediation strategy for the Mobuoy Road waste site in Co. Londonderry. As part of this brief, Tetra Tech have completed a review of existing environmental risk assessments. This information is presented in the Tetra Tech report 'Risk Assessment Review & Site Investigation Scope Design' Project No. MOBUOY-TTE-XX-XX-RP-I-0001, dated September 2021. The information gathered was used to inform the scope of further site characterisation works (i.e., a Ground Investigation) and subsequent risk assessments, as per Task Order 1.16 of the Scope of Services (revision 1), March 2020 and to inform an update to the existing DQRA, (Sirius 2017). This document presents an Updated Detailed Quantitative Risk Assessment (DQRA) as detailed at Task Order 1.16 of the Scope of Services.
Report Context	This document updates the previous DQRA completed by Sirius, 2017 and is informed by additional site investigations and monitoring works completed from October 2021 to May 2022. The DQRA completed by Sirius deals specifically with risk to water receptors only and the update presented here reflects the same. The recent site investigation includes further characterisation of wastes, soils and assessment of ground gas conditions to inform future remediation design. This information will not be considered (unless relevant in the assessment of risk to water receptors) but will be considered further during the development of the Remediation Options Appraisal and Remedial Strategy. The works have been completed in accordance with current Land Contamination Risk Management (LCRM) Guidance, Environment Agency, October 2020. The findings of the Updated DQRA will be used to inform the development of an Optimum Remedial Strategy reflective of the future land use as informed by the site vision masterplan.
Site Context	A summary of site conditions is presented in the Scoping Study (Tetra Tech, September 2021) referred to previously. The site assessment will refer to two areas or parcels of lands described as Campsie Sand and Gravels (CS&G) located to the west of the Mobuoy Road and City Industrial Waste (CIW). These areas have been further segregated or zoned based on their waste and/or contaminant characteristics.
Summary of additional site investigation & monitoring works	The recent exploratory works designed and overseen by Tetra Tech were carried out between October 2021 and May 2022.The works were completed principally over three phases (1-3) as summarised below. The site investigation and monitoring works were completed by site investigation contactor Causeway Geotech Ltd (CGL). **Phase 1 -** Involved the completion of 41no. boreholes and the excavation of 44no. trial pits. Boreholes were generally progressed to depths of c.10-15 mbgl (meters below ground level) and trial pits excavated to depths up to 4 mbgl. **Phase 2 -** Involved the completion of 30 no. boreholes. Boreholes were progressed typically to depths of c.10-15 mbgl (meters below ground level). Four no. trial pits were excavated in the southwest of CS&G to depths up to 4 mbgl.

	Phase 3 - Involved the progression of 5no. boreholes and 8 no. trial pits. Boreholes were typically progressed to depths up to 13 mbgl and targeted an area of tarry waste deposition in the central CIW site. Trial pits were typically excavated to depths of c. 7 mbgl with 8 no. in the area to the south of CIW.. **Soils Sampling -** Representative soil samples were typically collected at pre-determined intervals during borehole progressions and trial pit excavations, generally every 1m or as informed by onsite visual and/or olfactory observations. Trial pits were primarily but not exclusively excavated to assist in the characterisation and classification of wastes and soils, particularly in areas of the site which will require removal or relocation of soils/wastes to support the future integration of the A6 road scheme. **Groundwater and leachate Sampling -** Groundwater and leachate sampling comprised the retrieval of 94no. samples during the initial phase of investigation with a further 50no. samples collected in phases 2 and 3. **Surface water Sampling -** samples were also collected from surface water features including ponds, tributaries and the River Faughan which bounds the site along its western boundary. **Ground Gas Monitoring -** Ground gas was monitored on 4 occasions by the CGL on between January and June 2022. **Permeability Testing -** Ten variable head tests were completed by CGL at pre-determined locations as informed by the Scoping Study (Tetra Tech, September 2020). Further details are presented in this report.
MPRT (Mobuoy Project Remediation Team) Quarterly Monitoring Data	The current site assessment data (Tetra Tech 2021/22) has been augmented following a review of the quarterly monitoring data (2017-2021) provided by the NIEA's MPRT as part of their ongoing Environmental Monitoring Programme. Further details are presented herein.
Updated Conceptual Site Models (CSM) (Pre-Updated DQRA)	Following the completion of the additional site investigation, monitoring and sampling works the Conceptual Site Model (CSM) (Sirius DQRA, 2017) has been reviewed and updated where applicable to reflect current site conditions. PCoCs (Potential Contaminants of Concern) observed generally remain consistent with those observed during earlier phases of site investigation since 2016. With respect to heavy metals, the main PCoC's are iron, manganese. Lower concentrations of nickel, zinc, copper, lead and cadmium have also been detected. Ammonia has been recorded site wide. There are localised areas of elevated organic pollutants, particularly in the central area of the CIW site. These organic pollutants are linked to the deposition of tarry wastes which have been observed on site from the 1970s and confirmed through recent site investigations. Analytical data supports a direct correlation between observed tarry waste signatures detected in groundwater within Zone 3 and those observed within Zone 8 to the immediate west and down hydraulic gradient. A series of CSMs have been developed for assigned source areas which will be used to inform future risk assessment.

Updated DQRA Summary

Tetra Tech has adopted the same modelling approach taken by Sirius in their 2017 DQRA, but with the benefit of a significantly increased data set which has enabled greater understanding of ground conditions, migration pathways, and contaminant types. The existing monitoring network has been enhanced with the progression of a further 67 no. monitoring wells. These monitoring wells have been sampled in addition to the existing network to inform current site conditions. Long term monitoring data provided as part of the NIEA's EMP (Environmental Monitoring Programme) has also been used to inform the updated assessment.

Detailed quantitative risk assessment of specific source areas was undertaken in accordance with the Environment Agency's Remedial Targets Methodology (RTM) for assessing risk to controlled waters. The assessment was undertaken using the modelling software ConSim to complete level 3a groundwater modelling and to derive SSAC (site specific assessment criteria) protective of groundwater.

Additionally, water balance modelling was then undertaken to determine separate SSAC, based upon contaminant fluxes in groundwater and surface water, compared with volumetric flow rates within the river Faughan. Using detailed flow data for the River Faughan, it is possible to calculate the maximum load of each potential contaminant of concern that could enter the River before the concentration threshold for that contaminant would be breached within the surface water. Based on the known flux rate of each contaminant, it is also possible to calculate the concentration (site specific assessment criteria) of each contaminant within each source that would not result in such a breach. In essence, the water balance modelling constitutes a Level 4 assessment under the remedial target methodology.

The two approaches are complementary and provide equally important information about the different pathways which are potentially operating at the site. Furthermore, cross-referencing between the two methods allows the overall risk assessment to be refined so that a robust and balanced overall assessment is made.

More weight is attached to exceedances of the water balance derived SSAC, as these include the effects of dilution within the River Faughan. By comparison, the ConSim derived SSACs are inherently conservative as they are derived from the modelling of a continuous groundwater source, which in some cases is located extremely close or adjacent to the River Faughan itself.

Modelling indicates a moderate risk associated with PAH species, aromatic hydrocarbons and BTEX compounds in Source Areas 3,8 and 5. Benzene and Naphthalene come closest to exceeding the water balance derived SSACs in source areas 3,8 and 5 of all contaminants considered.

Moderate impacts have also been assigned to BTEX, PAH and aromatic hydrocarbons in Source Zones 1,2,3, 6 and 7. However, when dilution is accounted for in the River Faughan, it is considered unlikely that the EQS would be exceeded in the river, even with dilution reduced by a factor of 10.

Ammonia, cadmium, zinc, nickel and free cyanide have also been assigned moderate risk ratings across several source zones. Due to the limited dilution available within the shallow aquifer, and generally short travel times from the source areas to the river receptor, the ConSim modelling predicts that contaminated groundwater will reach the bank of the river at concentrations in excess of the EQS. However, when dilution within the river is factored in, it is unlikely that they will have a measurable impact upon the River Faughan. -consequentially, they are assigned a moderate risk rating. Cumulative impacts from the site are not expected to result in a breach of EQS, as demonstrated by a whole site dilution model.

	Model limitations, calibration and sensitivity have been reviewed and discussed. ConSim modelling is estimated to be conservative, overpredicting downgradient groundwater concentrations – the level 3a modelling is therefore assessed as highly conservative. The ConSim modelling is sensitive to aquifer hydraulic gradient and conductivity, but a good fit has been found for aquifer baseflow between the ConSim and water balance models.
Conclusions & Recommendations	The completion of an additional c.81no. boreholes and 60no. trial pits has significantly enhanced our understanding of the site and the contamination issues. This has enabled us to build on the work completed in 2017, refine and update the Conceptual Site Model and considerably reduce uncertainty in respect of contamination risks to the water environment. Contaminant modelling completed as part of this assessment has benefited from the data captured as part of the c.141no. additional investigation points completed since 2021. The Tetra Tech updated DQRA found that based on several lines of evidence, the overall impact of the Mobuoy Road site on the River Faughan is likely to be low. This is consistent with the earlier DQRA findings by Sirius in 2017. It is recognised that in undertaking detailed quantitative risk assessment of the Mobuoy Road sites, simplification and assumptions have been made as part of the modelling of these complex and heterogenous source areas. Local variations in both physical geological and hydrogeological parameters, and contaminant concentrations mean that simplification of the modelled system have been necessary. However, where assumptions and simplifications have been made, every effort has been made to make sure that the assumptions err on the side of caution and adopt as conservative an approach as possible. ConSim modelling indicates that when current groundwater quality concentrations are modelled using realistic aquifer parameters, predicted groundwater concentrations for multiple contaminants of concern are likely to exceed their respective environmental screening criteria at the site boundary / the banks of the River Faughan. However, when dilution in the River Faughan is taken account of, the water balance modelling demonstrates that it is very unlikely that the level of impact will be sufficient to compromise the quality of the River Faughan in terms of its suitability for drinking water abstraction at Cloghole. Even during drought conditions, the contaminant flux leaving the site is limited compared to the flow in the River Faughan and contaminants of concern are expected to remain essentially undetectable. The appropriateness of relying upon dilution within a receptor to reduce the level of risk is considered a special case within the Remedial Target Methodology. Relying upon dilution within the River Faughan may be considered appropriate in terms protecting the downstream surface water abstraction. However, such an approach allows some derogation of and prevents the utilisation of shallow groundwater resources within proximity of the Mobuoy Road site. The loss of such potential future utilisation of the superficial groundwater resource should be weighed against the actual likelihood or practicality of such a future abstraction taking place from the shallow aquifer.

The shallow River Faughan Groundwater Body (GWB) is not only a contaminant pathway but is also categorised as an environmental receptor in its own right for the purpose of risk assessment under statutory protection obligations. Remediation is necessary to improve the quality of the groundwater locally and achieve betterment of the chemical status of the Faughan Groundwater Body, which in turn will reduce the risk to the River Faughan. Remediation will provide increased confidence in the water quality of the River Faughan and subsequently improve the long term security of the public drinking water abstraction downstream of the site.

The DQRA findings provide a strong basis for the subsequent Remedial Options Appraisal and Optimum Remediation Strategy development.

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GLOSSARY OF ACRONYMS

Acronym	Description
AA	Annual Average
ACMs	Asbestos Containing Materials
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
C&D	Construction and Demolition
CEMP	Construction Environmental Management Plan
CIEH	Chartered Institute of Environmental Health
CIW	City Industrial Waste
CLEA	Contaminated Land Exposure Assessment
CoCs	Contaminants of Concern
CS&G	Campsie Sand and Gravel
CSM	Conceptual Site Model
DWS	Drinking Water Standard
DQRA	Detailed Quantitative Risk Assessment
EA	Environment Agency (England and Wales)
EMP	Environmental Monitoring Program
EQS	Environmental Quality Standard
FoS	Factor of Safety
GAC	Generic Assessment Criteria
GQRA	Generic Quantitative Risk Assessment
HOST	Hydrology of Soil Types
ICT	Integrated Consultancy Team
LoD	Limit of Detection
LCRM	Land Contamination Risk Assessment
LQM	Land Quality Management Ltd
MAC	Maximum Allowable Concentration
M-BAT	Metal Bioavailability Assessment
Mbgl	Meters Below Ground Level
MDP	Mini Drive-point Piezometers
MORECS	Meteorological Office Rainfall and Evaporation Calculation System
MPRT	Mobuoy Project Remediation Team

Acronym	Description
MTBE	Methyl tert-butyl ether
NIEA	Northern Ireland Environment Agency
PAH	Polycyclic Aromatic Hydrocarbon
PCoC	Potential Contaminant of Concern
PDFs	Probability Density Functions
PLL	Potential Pollutant Linkages
PNEC	Predicted No Effect Concentration
PoSPark	Parks and Open Space
PRA	Preliminary Risk Assessment
QA/QC	Quality Assurance/Quality Control
RTC	Remedial Target Criteria
RTM	Remedial Targets Methodology
S4ULS	Suitable for Use Levels
SSAC	Site Specific Assessment Criteria
SVOC	Semi-volatile Organic Compound
TSV	Threshold Screening Value
TPH	Total Petroleum Hydrocarbon
VOC	Volatile Organic Compounds
WFD	Water Framework Directive
WHO	World Health Organisation

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1. INTRODUCTION

1.1. INSTRUCTION

Tetra Tech Limited (Tetra Tech) were appointed by Northern Ireland Environment Agency (NIEA), an executive Agency within the Department of Agriculture, Environment and Rural Affairs (DAERA) under the Mobuoy Road Waste Site Remediation Project to undertake all aspects required to recommend and implement a remediation strategy for the Mobuoy Road waste site in Co. Londonderry.

1.2. BRIEF

This document presents an Updated Detailed Quantitative Risk Assessment (DQRA) as detailed at Task Order 1.16 of the Scope of Services. The update was possible following a review of existing relevant data. The DQRA has also been augmented with additional site investigation and associated, monitoring and sampling data. The review of existing data and development of the additional site investigation scope is presented in the Tetra Tech report 'Risk Assessment Review & Site Investigation Scope Design' Project No. MOBUOY-TTE-XX-XX-RP-I-0001, dated September 2021.

These works and assessment have been completed in accordance with LCRM Guidance[1].

1.3. LEGAL CONTEXT

Part III of the Waste and Contaminated Land (Northern Ireland) Order 1997, has been enacted but is not yet in force, outlines the regulatory regime under which land and water contamination issues in Northern Ireland are assessed and managed. The Order defines contaminated land as:

"Any land which appears to a district council in whose district it is situated to be in such a condition, by reason of substances in, on or under the land, that:

- *Significant harm is being caused, or there is a significant possibility of such harm being caused; or*
- *Pollution of waterways or underground strata is being, or is likely to be, caused."*

Inherent in this definition is the requirement for contamination risk assessment to be undertaken on a site-specific basis, as the potential for harm is determined by the site's end use and its specific environmental setting.

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[1] *https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm*

The following enacted legislation are also considered relevant to the current commission.

- The Water Supply (Water Quality) Regulations (Northern Ireland) 2017
- The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017
- The Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015
- Groundwater Regulations (Northern Ireland) 2009
- Environmental Liability (Prevention and Remediation) Regulations (Northern Ireland) 2009
- The Hazardous Waste Regulations (Northern Ireland) 2005
- The Surface Waters (Abstraction for Drinking Water) (Classification) Regulations (Northern Ireland) 1996

This is list is not intended to be exhaustive and does not refer to various secondary legislation and subsequent amendments.

1.3.1. Pollutant Linkage Concept

In the context of land contamination, there are three essential elements to any risk:

- A contaminant source – a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters.
- A receptor – in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property, or a water body.
- A pathway – a route or means by which a receptor can be exposed to, or affected by, a contaminant.

Each of these elements can exist independently, but they create a risk only where they are linked together, so that a particular contaminant affects a receptor through a particular pathway. This kind of linked combination of contaminant–pathway–receptor is described as a **pollutant linkage**.

1.3.2. Conceptual Model

An important thread throughout the overall process of risk assessment is the need to formulate and develop a **conceptual site model (CSM)** for the site, which supports the identification and assessment of pollutant linkages. A conceptual model represents the characteristics of the site in diagrammatic or written form and shows the possible relationships between contaminants, pathways and receptors (pollutant linkages).

A series of updated CSMs will be developed following a review of the existing site information and the additional data gleaned following the additional site investigation and monitoring works completed as part of the current commission.

1.4. TERMS AND CONDITIONS

Tetra Tech was appointed via competitive tender under the Tender Mobuoy Road Waste Site Remediation Project Integrated Consultant Team (ICT) Services, Project No: 692187ATC to support an updated risk assessment and development of an optimum Remedial Strategy for the site.

This report represents an update to the DQRA (Sirius, 2017) as set out at Task No. 1.1.6 and will support future risk assessment and remedial design. It is not intended for use by any third party unless specifically stated by the ICT.

1.5. PROJECT BACKGROUND

The Mobuoy Remedial Project herein referred to as the 'site' is located on the outskirts of city of Derry/Londonderry on the Mobuoy Road. It encompasses an area of approximately 46ha and currently consists of two distinct parcels of land identified as City Industrial Waste (CIW) and Campsie Sand and Gravels (CS&G). The site is located within an area of agricultural fields and is bound to the western boundary by the River Faughan. Site location and site plans are presented as Figures 1 and 2 respectively.

The City Industrial Waste site is located to the east of the Mobuoy Road and covers an area of approximately

14Ha. It comprises of a former waste processing facility, closed landfill and an area of former sand and gravels extraction located approximately 100m east of the River Faughan. A closed landfill is located on this site characterised by a rectangular shaped plateau elevated approximately 4 m above the level of the former CIW waste processing facility. Wastes in the area were proven to be up to 14m in thickness.

It is understood (Mills Report[2]) a landfill site owned and run by Derry City Council was present from 1980. In 1996, CIW was granted a waste disposal license to operate on the site. By 2004, a Materials Recycling Facility (MRF) had been created. A Closure Notice for the landfill site was issued in 2008.

The Campsie Sand and Gravel site is irregularly shaped elongated north to south and covers an area of approximately 33Ha. The western boundary of the site is bound directly by the River Faughan, and an earth embankment runs along the majority of the boundary although is locally absent. The southern portion of the site is transacted by an unnamed tributary of the River Faughan and is accessed by an earth bridge to the south of the disused processing area. The southern area of is characterised by undulating scrub land with various engineered surface water channels and areas of ponded water.

Current estimates of waste volumes deposited provided by the NIEA[3] suggest the site contains approximately 1,165,000m^3 of infill which includes construction and demolition waste, domestic wastes, metallic wastes and a mixture of all of these.

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[2] A review of waste disposal at the Mobuoy site and the lessons learnt for the future regulation of the waste industry in Northern Ireland, Christopher Mills, December 2013

[3] FAQs – Mobuoy Remediation Project September 2021 *(http://www.daera-ni.gov.uk/publications/mobuoy-road-waste-project-documents)*

A series of environmental risk assessments (refer to Section 2, below) have been completed following a number of site investigation, surveys and subsequent monitoring works with surveys generally appointed post 2015. The premise of these assessments has been generally to characterise the risk posed to the environment following the unauthorised waste deposition and to inform the site Remedial Options Appraisal and Remedial Strategy.

The NIEA's MPRT (Mobuoy Project Remediation Team) continue to monitor the site as part of an Environmental Monitoring Programme (EMP) which was ongoing at the time of writing.

1.6. REPORT CONTEXT

This document updates the DQRA completed by Sirius, 2017 and is informed by additional site investigations and monitoring works completed from October 2021 to May 2022 and data collected by NIEA from July 2016 to May 2021. The DQRA completed by Sirius deals specifically with risk to water receptors only and the update presented here will reflect the same. The recent site investigation also included the characterisation of wastes, soils and assessment of ground gas conditions. This information will be used to inform the site's remedial design.

The findings of the Updated DQRA will be used to inform the development of an Optimum Remedial Strategy reflective of the future land use as informed by the site vision masterplan.

2. SUMMARY OF PREVIOUS ASSESSMENTS

As stated, the Tetra Tech report ‘Risk Assessment Review & Site Investigation Scope Design’ (September 2021) presents a review and summary of environmental risk assessments relevant to the assessment of site conditions which included the Sirius DQRA report (2017[4]).

For reference purposes and to inform the context of this report a brief summary of the report is presented below.

2.1. SIRIUS GEOTECHNICAL AND ENVIRONMENTAL: DETAILED QUANTITATIVE RISK ASSESSMENT, REPORT C6669A, JANUARY 2017

The assessment included a review of previous site investigation information to develop the preliminary risk assessment (PRA) and conceptual site model which was used to establish potential contaminant linkages requiring further investigation by detailed quantitative risk assessment. Data gaps were identified to inform additional targeted fieldwork and monitoring which was used to develop an updated conceptual site model as the basis of this detailed quantitative risk assessment.

A revised risk assessment of potentially important contaminant linkages was carried out together with recommendations for the next steps in the contaminated land management process.

The Risk Assessment was considered on the basis of site zones as derived via the WYG PRA, 2016 report. These are summarised below.

Table 2-1 - Description and rationale for source zone selection -Sirius (WYG PRA 2016)

Source zone reference	Description	Contaminants of concern identified based on PRA
Source zone 1	Area of unauthorised landfilling in the north of the City Industrial Waste site. Comprising mixed organic, domestic and construction and demolition type wastes.	Elevated leachable / dissolved concentrations of metals, sodium, chloride, sulphate, Total Petroleum Hydrocarbon (TPH) compounds (including benzene, toluene, ethylbenzene and xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs) and phenols.
Source Zone 2	Area of the historic closed (formerly permitted) landfill, which contains mixed domestic and construction and demolition-type wastes. Thin bands of clay strata are present near the surface and forming horizontal bands within the waste.	Elevated leachable / dissolved concentrations of metals, sodium, chloride, sulphate, Total Petroleum Hydrocarbon (TPH) compounds (including benzene, toluene, ethylbenzene and xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs) and phenols.
Source zone 3	Area to the southwest of the closed landfill, un-investigated at the time of the PRA but potentially the location of tarry wastes described within historic reports.	Potential for elevated leachable / dissolved concentrations of PAHs, TPH compounds, BTEX, VOCs, SVOCs and phenols associated with tarry wastes reported to be buried centrally in the City Industrial Waste site.

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[4] *SiRiUS Geotechnical and Environmental: Detailed Quantitative Risk Assessment, Report C6669A, January 2017*

Source zone reference	Description	Contaminants of concern identified based on PRA
Source Zone 4	Raised area of waste material deposited towards the south-eastern area of the City Industrial Waste site. Previous investigations indicated domestic and construction and demolition-type wastes in this area.	Elevated leachable / dissolved concentrations of metals, chloride, PAHs, TPH compounds, BTEX, organophosphorus pesticides and phenols.
Source zone 5	Area of former Campsie Sand and Gravel where historic documentary evidence suggested that tarry wastes may have been deposited.	Potential elevated leachable / dissolved concentrations of PAHs, TPH compounds, BTEX, VOCs, SVOCs and phenols associated with tarry wastes.
Source zone 6	Area in the central southern part of Campsie Sand and Gravel were previous investigations had identified hydrocarbons.	Elevated leachable / dissolved concentrations of metals, ammoniacal nitrogen, chloride, PAHs, TPH compounds, BTEX, VOCs, SVOCs, organophosphorus pesticides and phenols.
Source zone 7	Localised area of construction and demolition type wastes in the north of Campsie Sand and Gravel site.	Elevated leachable / dissolved metals, ammoniacal nitrogen and chloride and slightly elevated leachable / dissolved concentrations of TPH compounds and benzene.

Additional contaminants of concern considered were ammoniacal nitrogen, dissolved manganese and dissolved iron. These were present across the wider site area at concentrations which exceed their respective generic assessment criteria.

2.1.1. Sirius Additional Site Investigation and Monitoring

Table 1 of Appendix B of the Sirius report identifies actions arising from the PRA. Further investigations to address data gaps were completed by Causeway Geotechnical between 23rd May and 5th October 2016 and comprised:

- Mechanical excavation of 33 No. trial pits (Refs. TP01 to TP32 and TP27A), to a maximum depth of 4.8m below ground level (bgl).
- Drilling of 7 No. cable percussion boreholes (Refs. BH01 to BH07), to a maximum depth of 14m, including installation of groundwater monitoring wells to maximum depth of 14m bgl.
- Drilling of one hand-held window sample borehole (Ref. WS01) on the eastern bank of the River Faughan, to a depth of 3m bgl.
- Performance of nine variable head permeability tests in the natural strata within selected cable percussion boreholes.
- Sampling of lagoon bed sediment and surface water at five locations across the two larger surface water bodies in the north (Refs. LP1 to LP5), by aid of a boat and grab sampling device.
- Installation of four stainless steel driven piezometers (Refs. PIEZO01 to PIEZO04) in the hyporheic zone beneath and adjacent to the eastern bank of River Faughan, to a maximum depth of 2.5mbgl.
- Installation of four data loggers within selected monitoring wells across the site (Refs. BH02, BH05, BH06 and WYG BH122). One data logger was also installed within the surface water collection lagoon in the south-west of the City Industrial Waste site.

- Installation of two electronic channel flow meters (Refs. FLOW METER 1 AND FLOW METER 2) within the tributary of the River Faughan at two separate locations along its course; and,
- Collection of weather data from local Meteorological Office recording stations.

2.1.2. Sirius GQRA

An initial generic quantitative screening of results against generic assessment criteria was carried out to identify contaminants of concern for detailed quantitative risk assessment within each area. In addition, a review of site wide groundwater data was conducted to assess the general chemical quality of the shallow aquifer beneath the site and to identify other potential contaminant sources.

Table C1 Appendix C of the report presents maximum and minimum concentrations for each source area which are compared against GAC (generic assessment criteria). The GAC adopted for Freshwater were The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2011 - Inland waters, Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010 and Freshwater EQS (AA). DWS (Drinking Water Standards) adopted were The Water Supply (Water Quality) (Amendment) Regulations (Northern Ireland) 2010 (SR 128) operational since 20 April 2010 and the Surface Water (Abstraction for Drinking Water) Classification) Regulations Northern Ireland 1996.

2.1.3. Source Zones 1, 2 & 3

Source zones 1, 2 and 3 were assessed together as comprising a single source area as there was not considered to be a discernible difference in terms of contaminant concentrations, waste types or hydrogeological behaviour that would result in a practical distinction between these areas in terms of risk assessment modelling.

Generic quantitative screening indicated that metals (aluminium, arsenic, chromium, copper, iron, lead, nickel and zinc), PAHs, aliphatic and aromatic hydrocarbons, BTEX components, some phenols (e.g., 4- methylphenol) and ammoniacal nitrogen were present at concentrations in excess of generic thresholds applied. Elevated concentrations of chloride, sulphate and nitrite are also present which appear to have been compared with available DWS in the absence of EQS.

Soil data from this area indicated elevated concentrations of iron, manganese and zinc within the waste compared to other parts of the site. Ammoniacal nitrogen concentrations of up to 470mg/kg were recorded. Generally, no notably elevated concentrations of PAHs were found within the waste materials, but elevated concentrations of hydrocarbons were apparent. Detectable but generally low concentrations of BTEX compounds and other VOCs, including N-propylbenzene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, 4-isopropyltoluene, 1,4-dichlorobenzene and 2-methylphenol, were identified. Phenolic compounds were detectable but not found at notably elevated concentrations in soil.

2.1.4. Source Zone 4

Slightly elevated concentrations of some metals (chromium, copper and lead) were identified within groundwater in zone 4, together with elevated concentrations of dissolved iron. Slightly elevated concentrations of BTEX and PAHs were also identified although concentrations of these were generally within the same order of magnitude as the generic assessment criteria. Concentrations of manganese were elevated but to a much lesser extent than in zones 1, 2 & 3.

Soil data from within zone 4 indicate relatively high concentrations of iron in soil (14,000-19,000mg/kg).

Average ammoniacal nitrogen concentrations of 137mg/kg were found, with a maximum concentration of 840mg/kg reported. Generally low but detectable concentrations of hydrocarbons, phenolics and BTEX compounds were also present in soils.

2.1.5. Source Zone 5

Additional investigation of this area did not identify the suspected source of tarry materials and demonstrated predominantly natural strata free from waste materials. On this basis Source zone 5 was not taken forward for detailed quantitative risk assessment.

2.1.6. Source Zone 6

Several metals were identified within groundwater in this area at concentrations above generic assessment thresholds, however, average concentrations were only slightly above the criteria and remain within the same order of magnitude in all cases, except for iron and manganese, the concentrations of which were described as ‘greatly’ elevated.

TPH was identified as comprising predominantly aliphatic EC6-8 substances at an average concentration of 1.3mg/l. Phenolic compounds are also present with an average 4-methylphenol concentration of 2.7mg/l detected. Ammoniacal nitrogen concentrations of up to approximately 700mg/l have been detected in BH203, with an average of 240mg/l calculated for the zone. Investigation of the soils in this source area indicated elevated concentrations of iron, PAHs, TPH (<1000mg/kg) and detectable concentrations of phenolics were identified within 4 of six samples from this area.

2.1.7. Source Zone 7

Several metals, hydrocarbon fractions and BTEX compounds were detected in groundwater at concentrations slightly above generic assessment criteria although the margins of exceedance are generally small. No significant phenolic compounds have been identified within this source area. Ammoniacal nitrogen concentrations of up to 1012 mg/l have been recorded with an average concentration of 980mg/l.

Investigation of soils in source zone 7 indicated concentrations of iron between 17,000 and 21,000mg/kg and ammoniacal nitrogen of between 46 and 210mg/kg.

Concentrations of TPH in the region of 2,000mg/kg were detected in one sample of soil tested, other detectable

BTEX and VOCs present in soils.

2.1.8. Source Zone BH206

Groundwater obtained from BH206 has consistently been found to contain elevated concentrations of BTEX compounds with benzene and toluene concentrations notably higher than those recorded in zones 1, 2 & 3 to the north. Sirius considered this as a localized source area although no evidence of impacts was noted in the wastes investigated.

Investigation of soils in the area around BH206 locally identified low level hydrocarbon impacts (total <1000mg/kg). Maximum concentrations detected (470mg/kg) were of aliphatic EC21-35 hydrocarbons. A detectable concentration of xylene of 1.6mg/kg was recorded.

2.1.9. Groundwater external to source areas

Analytical results for site groundwater in areas out with the main source zones, including those wells downgradient of the main source areas, did not generally exhibit signs of impact with hydrocarbons, phenolic compounds or VOCs.

Sirius considered ammoniacal nitrogen, manganese and iron concentrations observed believed likely to be a combination of natural background concentration due to the chemical composition of the natural geological setting, together with an additional component derived from the waste sources and, in the case of iron and manganese, the hydrochemical effects of historical on-site processes such as sand and gravel extraction. Ammonia detected within surface waters within the catchment is very likely to be present due to the predominant agricultural land use in the area surrounding the site.

Sirius considered dissolved manganese and iron are also likely to be present in groundwater as a by-product of microbial activity which takes place during the degradation of (natural or waste-derived) organic contaminants in oxygen-depleted groundwater (reducing conditions).

Other potential contaminants of concern were not generally detected in groundwater at concentrations exceeding generic threshold criteria outside of the above-defined source areas.

2.1.10. Sirius Hydrogeological Model

Additional monitoring data obtained as part of Sirius' site investigation was used in conjunction with the information gathered by WYG in 2016 to obtain a level of understanding of the site hydrogeology. This information was used to inform further DQRA.

2.1.11. Shallow aquifer

Site investigations encountered natural drift deposits comprising a clayey gravelly sand or sandy gravelly clay with local areas of sandy silts and sands. These strata were interpreted as Alluvium, River Terrace Deposits and Glacio-fluvial Sheet Deposits, respectively, and form the primary pathway for lateral migration of groundwater in the sub-surface. There are areas within the western part of the site where waste materials encroach into the upper parts of the saturated aquifer, however, within the area of the site adjacent to the river, natural materials predominate over the full thickness of the saturated zone, and it was therefore considered that these materials that will act as the primary control on groundwater flow towards the River Faughan.

To the east of Mobuoy Road within the main waste disposal area (zones 1, 2 & 3) there is a greater thickness of waste material below the saturated zone. Groundwater level monitoring generally indicates that groundwater within this waste mass is in hydraulic continuity with the surrounding shallow aquifer.

2.1.12. Hydraulic Conductivity Testing

A total of 11 in-situ permeability tests were performed within boreholes which suggested a high degree of permeability. Testing noted a high degree of spatial variability within the shallow drift strata which was considered to be associated with relatively minor variability in clay content within the soils. Sirius concluded that a reasonable range for aquifer hydraulic conductivity at the site scale is in the region of approximately 3 to 5m per day.

2.1.13. Groundwater flow

Groundwater flow direction was determined to be toward the River Faughan with localised variance anticipated due to geological permeability variations. Hydraulic gradients across all phases of monitoring have been found to vary between approximately 0.0019 and 0.02.

2.2. SURFACE WATERS CHARACTERISATION & SAMPLING

2.2.1. Surface Water Pond 1 (within Source Area 1, City Industrial Waste Site)

This body of water covers an area of approximately 2.6ha. The elevation of the pond is approximately 15m AOD and is perched significantly above the level of groundwater within the underlying wastes. The base of the pond was dipped in several locations and found to be up to approximately 3.5 m deep. Based on information from adjacent boreholes, there was consequently approximately 2.5 to 3.0m of waste assumed to be present below the water surface. Chemical analysis of the water quality within this pond did not generally indicate elevated concentrations of contaminants.

2.2.2. Surface Water Pond 2 (Large Surface Water Pond within Northern part of Campsie Sands and Gravels)

This body of water covers an area of approximately 4.9Ha. The elevation of the pond surface is approximately 5.0m AOD and is perched above the level of groundwater within the underlying aquifer. The base of the pond was dipped in several locations and found to be between approximately 3.0m and 5.2m deep. Based on information from adjacent boreholes, it was concluded that there is not a significant quantity of waste material beneath this pond.

Chemical analysis of the water quality within this pond did not generally indicate significantly elevated concentrations of contaminants.

2.2.3. Surface Water Pond 3 (Surface Water Lagoon in City Industrial Waste Site)

The surface water lagoon located in the south of the former City Industrial Waste facility is a man-made and purpose-built feature of approximately 20m by 50m. The elevation of the surface water is approximately 7.0m AOD. Concentrations of potential contaminants within the lagoon were not generally detected at elevated concentrations over the monitoring period since 2015. Concentrations of ammoniacal nitrogen of up to 9.0mg/l and zinc of up to 25mg/l were detected, exceeding relevant generic thresholds. Sirius suggest likely sources are waste materials placed on hard standing leaching and being transported to the lagoon.

2.2.4. Surface Water Tributary

A surface water tributary is present which discharges into the River Faughan within the southern part of the former Campsie Sands and Gravels site. Flow and rainfall monitoring suggested it unlikely that the surface water tributary receives significant base flow from groundwater beneath the site but comprises predominantly surface water flow from both the site and the wider catchment upgradient of the site. Chemical analysis undertaken indicated the following which is of significance for future risk assessment modelling.

- Background concentrations of ammoniacal nitrogen, iron and manganese were somewhat elevated within the surface water tributary upstream of the site. It was considered that these concentrations are representative of background levels within the catchment caused by natural geological conditions and anthropogenic activity such as agriculture.
- Concentrations of ammoniacal nitrogen, iron and manganese increase downstream indicating that an additional component, due to inputs from the site are potentially present.
- Concentrations of contaminants of concern specifically associated with identified source areas within the conceptual site model (e.g., hydrocarbon components and phenolic compounds) have not been detected within the surface water tributary.
- Evidence from monitoring carried out by NIEA in October 2014 following a period of heavy rainfall identified leakage of leachate from source zone 4 directly into the stream channel. However, no significant adverse effects could be detected downstream or within the River Faughan. Following this observation NIEA installed a new trench and bund to prevent future leakage occurring.

Based on water quality monitoring results collated via the NIEA Environmental Monitoring Plan (EMP), no evidence of discharges or chemical impacts originating from the site to the tributary were recorded on any other occasion

2.2.5. Updated CSM – Potential Pollutant Linkages (PPLs) to be investigated via DQRA

Following Sirius's review the following PPLs were identified for further assessment via DQRA:

Table 2-2 - Summary of Contaminant Linkages Requiring Further Assessment by DQRA, Sirius 2017

Source Zone	Pathway	Contaminant of concern	Risk rating
Zones 1 to 3	Shallow Aquifer Transport	Metals, PAHs, TPH, sodium, chloride, ammoniacal nitrogen and phenols	High
Zone 4	Shallow Aquifer Transport	Metals, PAHs, benzene, toluene, phenols and ammoniacal nitrogen	Moderate
	Surface water (Tributary)	PAHs, manganese, ammoniacal nitrogen	Low to Moderate
Zone 6	Shallow Aquifer Transport	Metals, PAHs, TPH, BTEX, sodium, chloride, phenols, ammoniacal nitrogen, diazinon	Moderate
Zone 7	Shallow Aquifer Transport	Metals, PAHs, TPH, BTEX, sodium, chloride, ammoniacal nitrogen	Moderate
Zone BH206	Shallow Aquifer Transport	TPH and BTEX	Moderate
Whole Site	Shallow Aquifer Transport	Iron, manganese, chloride and ammoniacal nitrogen	Moderate to High
	Surface Water Tributary	Iron, manganese, chloride and ammoniacal nitrogen	Low to Moderate

Tetra Tech would note that Zone 5 has been excluded from the table above without explanation. The River Faughan was used as the principal water receptor and site-specific assessment criteria developed protective of the river were also considered to be protective of the wider shallow alluvial aquifer.

2.2.6. DQRA

RTM Level 3a assessments have been carried out for the identified contaminants of concern to establish source zone specific remediation criteria for soils, leachate and groundwater which will be protective of identified water receptors. The model was implemented using the ConSim model v.2.5, which was developed to follow the RTM process and is a probabilistic model that allows data inputs to be defined in terms of statistical probability density functions (PDFs).

Compliance criteria (target concentrations) were based on Environmental Quality Standards (assumed to be WFD NI 2011) and/or drinking water standards (DWS) where these are available, to be protective of the local surface water environment and the drinking water abstraction at Cloghole located downstream of the site. Where both criteria exist for a contaminant, then the lower of the two has been adopted for calculation.

For the purposes of the assessment a concentration of 10µg/l has been adopted for each TPH fractions. Sirius state that this is <50µg/l, which is compliant with the DW1 threshold for abstraction of drinking water with minimal treatment as defined within The Surface Waters (Abstraction for Drinking Water) (Classification) Regulations (Northern Ireland) 1996.

2.2.7. Water Balance Modelling

The model has been used to estimate relative concentrations within surface water channels and contaminant flux for the underlying shallow aquifer under existing site conditions. Calculations have been performed to derive site-specific remediation criteria that are protective of the River Faughan.

The water balance model does not consider attenuation processes such as dilution, dispersion and degradation, which are modelled within ConSim. The water balance model is therefore highly conservative when assessing source areas that are not located immediately adjacent to the receptor. On a site-wide basis, infiltration was considered to account for the great majority of aquifer flow.

Particularly within zones 1, 2 and 3, subsurface transport pathways were considered to be driven almost exclusively by infiltration with predicted infiltration rates exceeding the anticipated groundwater base flow rates. This was considered consistent with the hydrogeological appraisal of this area. Infiltration rates were therefore considered to be of primary importance in controlling contaminant migration within this area of the site. There was no significant difference between chloride concentrations in upstream and downstream samples from the tributary.

2.2.8. ConSim & RTM modelling

Sirius have applied a risk rating system to inform risk assessment outcomes as per Table 8.5 of the report.

Modelling indicated a high level of risk for iron, manganese and ammoniacal nitrogen present within source groundwater in zones 1 to 3. A potential moderate level of risk was identified associated with chromium, nickel and zinc, the more mobile hydrocarbon fractions and phenolic compounds. Risks associated with other contaminants of concern within zones 1 to 3 are low. Sirius suggest limited dilution by the upgradient aquifer and limited attenuation afforded by the predicted short travel times.

Outside of this combined source, potential moderate levels of risk from hydrocarbons and benzene were primarily associated with source zones 6, BH206 and, to a lesser extent, zone 7. Potential moderate risk from phenolic compounds were associated with source zone 6, and a potential moderate risk associated with very localised Diazinon contamination was also identified within this source zone. Potential moderate levels of risk from specific metals including chromium, nickel and zinc have also been identified within some source areas.

On a site-wide basis, moderate to high risks were reportedly associated with iron, manganese, and ammoniacal nitrogen. All were reported as present at elevated background concentrations given the environmental setting of the site and water balance modelling suggested that potential impacts to the river from the site itself are more limited.

Biodegradation

Sirius indicated that they applied worst case' values measured in the field (i.e., the longest environmental half-lives) for each of the contaminants of concern.

Sirius state that background geology and hydrochemistry indicate that there is an abundant source of respiratory substrates for anaerobic microbial biodegradation, such as manganese and iron. Elevated concentrations of dissolved iron and manganese, which would be products of contaminant biodegradation, were reported as widely present in the groundwater and particularly so in close proximity to source areas.

Sirius state that calibration of observed contaminant concentrations within downgradient wells against concentrations predicted by the modelling, even after adjusting for aquifer flow, suggests that the models over-predict the magnitude of impacts for organic substances and ammonia compared to actual conditions. It was considered likely that actual rates of biodegradation are higher than those used within the model. Site specific data on degradation characteristics would assist in future modelling.

Travel Times

Travel times for low molecular weight organic compounds (e.g., phenols, hydrocarbon fractions <EC10) to the River Faughan were predicted to be in the order of 3 to 5 years. Sirius suggest that these substances should already have reached their maximum equilibrium concentrations within the aquifer. The fact that models appear to over-predict concentrations of these substances compared with observed values confirms that the predictions are conservative.

Travel times for ammonia were in the order of 7 to 25 years depending on the source zone and distance to the river indicating that concentrations should already be close to equilibrium.

Travel times for PAHs were in the order of 30 to 200 years, varying with source and distance to the river. Travel times for metals are between approximately 200 and 23,000 years. Shortest travel times are predicted for chromium and longest for lead, which is related to the differing environmental partitioning behaviour of these substances. Arsenic and lead showed travel times that are sufficiently long (i.e., >5000 years in all cases) such that they are not considered to present a viable risk to the river.

Surface Waters Assessment

Surface water analysis did not identify any significant impacts for organics (hydrocarbons, phenolics and PAHs). Except for one occasion in October 2014, no evidence of impact to the tributary stream from site specific contaminants has been detected in surface waters. There was occasionally evidence of increasing concentrations of ammonia in the downstream surface water tributary compared to background concentrations although the trend was not sustained.

Sirius state that background concentrations of manganese, iron and ammoniacal nitrogen are present within the surface water tributary and the River Faughan because of local geological conditions and other sources such as agriculture.

2.2.9. Extreme Events

Sirius used water balance modelling to predict storm and drought risks via anticipated flux changes. The net effect of a storm event was anticipated to be a slight increase in overall contaminant flux due primarily to runoff from the area of hardstanding *via* the lagoon. However, this would be significantly offset in terms of concentration impacts to the river by increased surface water flow rates.

The net effect of a drought scenario was less easily predicted than for the storm event. However, it was considered that drought conditions would present a higher potential risk to the river than under the storm scenario. Sirius considered future 50-year climate change prediction data and concluded that the drought conditions are more likely to occur based on current projections.

2.2.10. Summary & Conclusions

Sirius conclude that several lines of evidence are available which indicate that the level of impact to the River Faughan is very low. Site boreholes external to the main identified source areas, including those located adjacent to the river and within the riverbed (hyporheic zone) did not indicate elevated concentrations of contaminants derived from within the main source areas present on the site.

Predicted contaminant fluxes for more ubiquitous compounds (ammoniacal nitrogen, iron and manganese) were reported as small in comparison with background fluxes with the river system and the risk to the River Faughan was described as low in the wider environmental context.

Concentrations and loads within some areas of the site are such that levels of impact during an extended period of drought could potentially approach Environmental Quality Standards (EQS) concentrations and so could conceivably result in short-term adverse impacts to the environmental quality of the river. Modelling demonstrated that it was very unlikely that levels of impact could be sufficient to compromise the quality of the River Faughan in terms of its suitability for drinking water abstraction at Cloghole. Even during a drought period potential inputs from site groundwater were considered limited compared to river flow. Levels of impact associated with point sources in the main areas of deposition were considered low to moderate.

2.2.11. Post DQRA CSM

The following potential unacceptable risks were identified by Sirius as potentially requiring remediation (as per Table 10.2 of the report).

Table 2-3 - Sirius Post DQRA Contaminant linkages potentially requiring remediation

Source Zone	Pathway	Contaminant of concern	Risk rating
Zones 1 to 3	Shallow Aquifer Transport	**Iron, manganese, ammoniacal nitrogen**	**High**
	Shallow Aquifer Transport	Chromium, nickel, zinc, PAHs, aliphatic EC5 to 10 hydrocarbons, aromatic EC7 to 16 hydrocarbons, phenols	Moderate

Source Zone	Pathway	Contaminant of concern	Risk rating
Zone 4	Shallow Aquifer Transport	PAHs, manganese, ammoniacal nitrogen	Moderate
	Surface water (tributary)	PAHs, manganese, ammoniacal nitrogen	Low to moderate
Zone 6	Shallow Aquifer Transport	Chromium, zinc, PAHs, aliphatic EC5-10 hydrocarbons, aromatic EC7-16 hydrocarbons, benzene, phenols, diazinon	Moderate
Zone 7	Shallow Aquifer Transport	Aliphatic EC8-10 hydrocarbons, ammoniacal nitrogen	Moderate
Zone BH206	Shallow Aquifer Transport	Aliphatic EC6-10 hydrocarbons, aromatic EC7-16 hydrocarbons, benzene	Moderate
Whole site	Shallow Aquifer Transport	Manganese	High
	Shallow Aquifer Transport	Iron, ammoniacal nitrogen	Moderate
	Surface water (tributary)	Iron, manganese, ammoniacal nitrogen	Low to moderate

2.2.12. Remedial Options Appraisal & Strategy

Sirius outline a number of considerations without prejudice that may be relevant in the future design of the remediation works.

- Surface water drainage from the former City Industrial Waste area via the on-site lagoon was an important pathway for the transport of ammoniacal nitrogen, and potentially iron and manganese, into the surface water system. Whilst the effects of the additional contaminant load via this pathway on the River Faughan are not generally detectable downstream of the site, this linkage was assessed as being of moderate risk rating and addressing this pathway was considered to offer an "easy win" in reducing the flux of contaminants into the River Faughan.

- The highest predicted potential short-term risks to the River Faughan were from low molecular weight hydrocarbons in the vicinity of BH206. Downgradient monitoring wells did not show that the predicted levels of impact were being realised and there was currently no evidence of hydrocarbons approaching or reaching the river itself. Sirius suggested that further investigation of the aquifer conditions in this area of the site may enable an increased understanding of site-specific degradation processes to be established which could be used to refine the risk model and explore the potential for medium to long term remedial approaches such as monitored natural attenuation or enhanced bioremediation.

- Monitoring carried out by the NIEA has shown the potential for localised direct seepage of leachate from source zone 4 into the tributary during very wet periods. High stream flows during such events means that the actual level of impact is low. Some recent remedial measures have been implemented but potential direct seepages cannot realistically be assessed by DQRA, so mitigation of direct linkages should be specifically considered within the remedial options appraisal.
- Infiltration rates are critical to controlling the rate and mass of contaminant flux within the shallow aquifer and are particularly important for source zones 1-3 where upgradient aquifer flow is likely to be very limited by geological conditions.
- Surface water bodies are an important source of shallow groundwater recharge and reduce the effect of surface runoff to divert water away from the wastes. Pond 1 within source zones 1-3 is of particular significance as it contributes significantly to infiltration rates within that source area by retaining runoff and providing a medium-term buffer to sustain infiltration during dry periods.
- Remedial options should fully consider the potential effects of extreme weather events including storm and drought and should take account of the likely effects of medium-term climate projections, which suggest that more frequent extreme weather events are likely. The highest potential risk to the quality of the River Faughan is likely to be realised during extended periods of drought.

3. ADDITONAL SITE INVESTIGATION & MONITORING WORKS, TETRA TECH 2021/22

A Scope of Works (SoW) to inform the update of the DQRA, including the integration of the proposed A6 roads scheme was developed in the Tetra Tech Risk Assessment Review & Site Investigation Scope (September 2021). On the basis of the observations following the initial proposals (Phase 1) additional phases of investigation were carried out, (Phases 2 & 3). Site investigation location plans are included at Figure 3. Details of the site investigations including subsequent monitoring data and assessment are presented below and will be used to update the existing DQRA to be reflective of current site conditions.

3.1. SITE INVESTIGATIONS

In total 76 no. boreholes and 56 no. trial pits were progressed as part of the recent phase of site investigation and overseen by Tetra Tech between November 2021 and May 2022. The rationale for these works is presented in the Tetra Tech Site Investigation Scope (September 2021). The investigation works were aimed principally at the retrieval of relevant site data to inform the update to the existing DQRA (Sirius 2017) and inform the development of a Remedial Options Appraisal and Remediation Design. Exploratory works were also completed to inform the proposed A6 integration with respect to the characterisation of waste type and volume present where the roads scheme interacts with the site (refer to Figure 4). Trial pits were generally adopted in these areas occasionally supported by the progression of boreholes where deeper depth assessment was required. The characterisation of wastes with respect to future A6 proposals remains technically outside the scope of this report unless it’s shown to have direct relevant to the DQRA, e.g. informing source zone characteristics.

3.1.1. Phase 1

The progression of 41 no. boreholes and excavation of 44 no. trial pits. Thirty-seven boreholes were progressed via cable percussive (CP) techniques to depths of c.10-15 mbgl (meters below ground level), five no. to shallower depths (<6 mbgl) via window sample percussion and trial pits excavated to typical depths of up to 4 mbgl. Five no. boreholes were progressed to and beyond rock head to inform the site’s hydrogeological conditions. Groundwater monitoring and sampling comprised sampling of 94 no. wells inclusive of new and existing boreholes.

3.1.2. Phase 2

The progression of 30 no. boreholes. Boreholes were progressed to depths of c.10-15 mbgl (meters below ground level). As part of this phase of works 9 no. overwater boreholes were progressed (BH639 to BH643) in the northern lagoon at CS&G and 4 no. boreholes BH603, BH607, 608 and 609 in the north of CIW. Boreholes at CS&G typically were progressed up to 10 mbgl and at CIW to 4 mbgl. (BH603 was terminated during progression at 3 mbgl due to occurrence of significant ground gas travelling up the borehole casing and trigger personnel monitors of drilling crew). Groundwater monitoring and sampling comprised 50 no. monitoring wells from newly progressed borehole and as informed by the initial monitoring round. An additional 4 no. trial pits were excavated in the southwest of CS&G to depths up to 4 mbgl to investigate an area of suspected tarry waste.

3.1.3. Phase 3

The final phase of works included the progression of a further 5 no. cable percussion boreholes to further delineate the tarry waste deposition at lands to the north of CIW yard. An additional 8 no. trial pits were excavated in the area to the south of Zone 4. This work was necessary to help characterise the extent of waste deposition, inform the risk assessment and to assist in the characterisation of wastes which are likely to require removal ahead of the proposed A6 road scheme. Exploratory logs for all newly progressed monitoring wells are presented at Appendix 2.

3.1.4. Existing Monitoring Well Sampling

Tetra Tech have been provided with an inventory of all existing monitoring wells onsite by the Mobuoy Remediation Project Team and have placed reliance on it. Fifty-nine no. existing monitoring wells were also included in the current sampling inventory to provide a continuous and contemporary assessment of site conditions. Wells were subject to the same development procedures and sampled adopting a similar methodology to newly progressed wells.

3.1.5. Groundwater and Leachate Sampling Methodology

The Tetra Tech Risk Assessment Review & Site Investigation Scope (September 2021) sets out the recommended methodology for the retrieval and assessment of groundwater and leachate samples. All monitoring and sampling works were completed by the appointed site investigation contractor Causeway Geotech Limited (CGL) supported by independent site supervision by the Mobuoy ICT (Tetra Tech).

Samples were retrieved from monitoring wells following appropriate well development which included the removal of three well volumes or until dry a minimum of 72-hour post well completion

All existing and recently installed boreholes were monitored for the presence of groundwater on 2 no. occasions following well installations. Where sufficient groundwater was present to facilitate the collection of a representative sample following well development this was achieved via low flow sampling techniques. The optimum sampling opportunity was achieved based on stabilisation of the parameters including pH, temperature, dissolved oxygen, oxidation-reduction potential (ORP) and electrical conductivity with flow rates rate during established within the recommended range of between 0.1-0.5 litre per minute (l/min).

A second round of targeted groundwater sampling was undertaken in wells located in suspected higher risk areas as informed by the initial monitoring round test results. A copy of the low flow sampling records for sampled boreholes for the initial and later monitoring rounds are provided at Appendix 3 and 4. Field chemistry data will be used in conjunction with other suitable lines of evidence to assess aquifer assimilation capacity with regard to contaminant degradation via natural attenuation during later DQRA.

Water quality samples were submitted to an accredited laboratory for the following suites of analysis:

- Heavy metals.
- Speciated Phenols
- TPHCWG (Total Petroleum Hydrocarbon Criteria Working Group).
- MTBE and BTEX compounds.
- Speciated polycyclic aromatic hydrocarbons (PAHs).
- PCBs (polychlorinated biphenyls) (WHO (World Health Organisation) 12 Congeners).
- Volatile and semi-volatile organic compounds.
- Pesticides.
- Several Inorganic Parameters and
- MNA (monitored natural attenuation) parameters including (alkalinity, Dissolved methane, Dissolved CO_2, Manganese II, IV & total, iron II, III and total, Nitrate as NO3, Nitrite, sulphate, sulphide, total inorganic & organic carbon)

The selection of determinand suites was based on the reviewed data sets (principally Sirius 2017 and the NIEA's MPRT EMP data) and was subject to refinement by the Mobuoy ICT following acquisition of initial baseline monitoring data.

3.1.6. Light and Dense Non-Aqueous Phase Liquid (LNAPL/DNAPL)

All monitoring wells were assessed for the presence of LNAPL/DNAPL during the monitoring and sampling phase. NAPL was detected at one location (BH03) at a depth of 10.4-11.5 mbgl. Depth to base of the well was recorded at 11.82 mbgl. It was not possible to obtain a sample of the NAPL due to the depth and viscosity of the LNAPL; it was observed to be a low viscosity, dark brown tar like substance.

3.1.7. Surface Water Sampling

Surface water sampling has been undertaken of relevant surface water features including onsite ponds and lagoons, tributaries and the River Faughan. To ensure continuity with the MPRT's EMP (Mobuoy Project Remediation Team Environmental Monitoring Programme) surface water samples have been retrieved from similar locations (Annex D11 – Mobuoy surface water monitoring locations, presented at Figure 5 for reference). The following locations were selected for surface water sampling; SW1, SW9, SW3, SW4, SW5, SW6, SW7, SW13, SW14, SW10, pond 5, pond 4, pond 2, 3A&B and the lagoon. Recommended test suites are similar to those outlined for groundwater sampling to include additional water quality parameters calcium to inform metal bioavailability assessments.

Where EQS for metal compounds are listed as bioavailable appropriate derivation of site-specific assessment criteria has been undertaken as set out in legislation to inform risk e.g., using the Metal Bioavailability Tool where applicable. The derivation of site specific EQS for metals will assist in determination of the site's sensitivity to metal toxicity.

3.1.8. Soils Sampling

In an effort to characterise site conditions with respect to wastes present, superficial deposits and to inform risk to ground and surface water, sampling of soils during exploratory works was undertaken.

Where sufficient soils matrix was present to facilitate the retrieval of a representative soil sample this was obtained. Samples were retrieved at approximate 1m intervals or change of strata and exploratory logs provided to the Tetra Tech Investigation Supervisor for scheduling.

The scoping study recommended the excavation of 47 no. trial pits (TP601-TP647) primarily to inform waste classification for materials likely to require removal to support the future A6 road scheme integration. Soils sampling at those boreholes to be progressed within or proximal to the proposed A6 corridor has also been used to assist in the classification of these materials to inform future remedial design.

Laboratory test suites for soils are similar to those to be applied for groundwater and leachate testing and included the following determinand suites.

- Heavy metals.
- Speciated Phenols
- TPHCWG (Total Petroleum Hydrocarbon Criteria Working Group).
- MTBE and BTEX compounds.
- Speciated polycyclic aromatic hydrocarbons (PAHs).
- PCBs (polychlorinated biphenyls) (WHO (World Health Organisation) 12 Congeners).
- Volatile and semi-volatile organic compounds.
- Pesticides.
- Asbestos in soils.
- Several Inorganic Parameters and
- Waste Acceptance Criteria (WAC) testing (to inform future waste classification)

A number of samples were selected for soils leachate testing, generally where there was significant evidence (visual/olfactory) of contamination to assist in the definition of a soil source with respect to future contaminant fate and transport modelling.

3.1.9. Laboratory Protocols

The appointed Site Investigation contractor used a UKAS accredited laboratory Eurofins Chemtest Limited to analyse all environmental samples collected.

The adoption of EQS applicable at the time of writing were informed by the WFD 2015 in the first instance. This requires appropriate filtration as set out in legislation applicable to the analytes to be tested. The testing laboratory undertook appropriate filtration prior to sample analysis.

Quality Controls Sampling

Appropriate calibration of field monitoring equipment was carried out prior to commencement of sampling events. A copy of the outputs is provided at Appendix 5.

All sampling equipment was decontaminated prior to use and in a manner whereas not to introduce sample bias. Dedicated in well piping was used to prevent cross contamination between monitoring wells.

Quality Control (QC) Laboratory Testing

As stated, a UKAS accredited laboratory was appointed to undertake all analysis. A QC programme was implemented to include the retrieval of 10 no. duplicate field tests from monitoring wells and surface waters sampled following the initial monitoring event, five of which were sampled in triplicate by the NIEA's MPRT. Further details are provided at Section 6.11.

All groundwater and leachate samples were retrieved via low flow sampling where possible and supporting low flow reports are provided at Appendices 3 & 4 demonstrating effective parameter stabilisation and hence optimum sampling opportunity prior to retrieval of the sample. In some instances, the depth to water precluded the possibility of collecting samples using the low flow method. In these instances, a grab sample was retrieved via a clear plastic bailer.

3.1.10. Ground Gas Monitoring

The current phase of site investigation included additional ground gas monitoring visits to inform the existing ground gas risk assessment. These works are not considered directly relevant to the update of the DQRA unless explicitly stated.

3.1. GEOLOGY AND HYRDOGEOLOGICAL SETTING

Borehole and trial pit exploratory logs for all investigation points progressed as part of the recent phase of works are presented at Appendix 2.

3.1.11. Superficial Deposits

Historical investigations have effectively characterised the underlying drift geological sequences present across the CS&G and CIW sites. Whilst there is some variability in thickness deposits comprise glaciofluvial sheet deposits (sand and gravel), alluvial (clays, silt, sand and gravel) and river terrace deposits of similar composition. Occasional and what tended to be localised pockets of peat deposits were reported in lands to the immediate south of the CIW yard and in localised areas in the southwest of the CS&G site.

3.1.12. Solid Geology

Solid geology below the study area is recorded to comprise metamorphic psammite and schist of the Londonderry Formation. Following the recent phase of exploratory works bedrock or suspected bedrock was encountered in 7 no. boreholes and 2 no. trial pits all of which with the exception of BH636 were located in the north-western area of CIW.

Suspected bedrock was detected at shallow depths (< 0.5 mbgl) in overwater boreholes progressed in the north-eastern pond (BH607, BH608 & BH609) and also in boreholes BH601R, BH602R and BH603R with bedrock suspected at BH601R, BH602R and BH603R at c. 7mbgl. More competent bedrock was encountered at BH610 at 4.8 mbgl and described as a very weak very narrowly foliated grey Pelite.

Bedrock was encountered at BH636 in the northern CS&G area at 11.5 mbgl described as psammite.

3.1.13. Superficial Aquifer

Sirius 2017 stated '*there are areas within the western part of the site where waste materials encroach into the upper parts of the saturated aquifer, however, within the area of the site adjacent to the river, natural materials predominate over the full thickness of the saturated zone, and it was therefore considered that these materials that will act as the primary control on groundwater flow towards the River Faughan*.' Recent investigations would generally support this assessment although there a number of wells progressed in close proximity to the river where standing water levels were recorded at the base of waste depositions or slightly above e.g., BH637 progressed in the northeast of CS&G reported waste to c. 5.1 mbgl and recorded a depth to groundwater at 4.37 mbgl. Similarly, BH628 progressed in the southwest of CS&G reported waste to 2.2 mbgl and recorded a standing water level of 2.14 mbgl.

Observed site conditions to the east of the Mobuoy Road on the CIW site are generally consistent with those observed previously with an increased inclusion of the waste depositions within the saturated zone. The central CIW area or former landfill does see a reduced interaction with respect to waste deposition and saturated zone although there are wastes present within the upper saturated zone also.

3.1.14. Groundwater Flow Modelling

Groundwater flow conditions have been characterised based on hydrogeological monitoring data collated following the recent phase of sampling and monitoring works. Recorded groundwater standing levels have been compensated to mAOD (meters above ordnance datum) using monitoring well surveyed height data. Groundwater flow mapping is presented at Figure 6.

Groundwater flow direction is consistent with historical assessment (WYG PRA 2016, Sirius DQRA 2017) which suggests a general westerly trend toward the River Faughan. There is a minor southerly component observed towards the southern boundary of the CIW site, towards the tributary located south and east along the eastern boundary of the south-eastern area of the CS&G site toward the tributary present along the southern boundary of this area, although the principal component is a westerly direction.

3.1.15. Surface Water Level Monitoring

Causeway Geotech Ltd installed a series of surface water loggers for the period 17/08/2022 to 21/09/2022 to inform surface water level monitoring at the river Faughan. Level loggers were installed at four locations (SW6, SW7, SW10 an SW14, refer to Figure 5) considered to be upstream midstream and downstream along the river course. Level logger data from installation locations SW6 (upstream) and SW10 (downstream) was recorded, loggers installed at locations SW7 and SW14 were lost during the monitoring period, assumed to have been dislodged by flood events. Level data was recorded every 15 seconds during deployment with c. 3300 measurements collated over the period. Logger output data is included at Appendix 19 for reference. Level data variations are generally consistent across both monitoring locations with the notable exception of a number of spikes or marked increases which correlate with flood events of varying magnitude. The most significant level increase (c. 1.75m) was recorded commencing the 3rd September, peaking on the 4th September and returning to near base level on the morning of the 5th September. Lesser level increases (c. 0.3m above base) occurred from the 9th to the 10th and 11th to the 13th September with level data outside of these events remaining broadly consistent.

3.1.16. Conductivity Testing

Table 5.1 Sirius 2017 presents conductivity values for multiple strata. In addition to this a number of variable head permeability tests have been completed in the following boreholes in accordance with the various parts of BS EN ISO 22282. The test results will be considered further with regard to contaminant fate and transport modelling within the DQRA.

Table 3-1- Permeability Test Locations

Borehole	Target Strata	Rationale	Conductivity Value (K) (m/s)
BH121	Sand	Down gradient of suspected tarry waste area zone 4	$3.90E^{-05}$
BH205	Sand	CS&G, down gradient central CIW	$3.85E^{-06}$
BH302	Sand & Gravel	CIW, immediately down gradient tarry waste area CIW	$9.59E^{-07}$
BH610D	Bedrock	Upgradient well, CIW north. Bedrock installation to inform water balance and risk assessment	$2.52E^{-05}$
BH620	Sand	CS&G main yard area, down gradient central CIW	$1.22E^{-05}$
BH630	Sand	CS&G, southwest, down gradient tarry waste deposit	$1.63E^{-05}$
BH633	Silty Gravelly Sand	CS&G central, area between tarry waste impact at CIW and river	$2.69E^{-06}$
BH636D	Bedrock	Central north CS&G. Bedrock installation to inform water balance and risk assessment	$6.99E^{-06}$
BH651	Sand	Central north CS&G. Down gradient of zones 1-3. Potential migration pathway	$1.37E^{-05}$
BH670	Sand	Immediately down Gradient tarry waste CIW	$2.03E^{-05}$

3.2. CONTAMINANT ASSESSMENT METHODOLOGY

Recent data sets have been assessed against appropriate TSVs (threshold screening values) to inform future risk assessment.

3.2.1. Water

Groundwater, leachate and surface water samples have been assessed via comparison with appropriate assessment criteria in accordance with Freshwater criteria provided in the Water Framework Directive 2015 or by direct comparison with the Freshwater Environmental Quality Standards (EQS) or, UK Drinking Water Standards (DWS), WHO (World Health Organisation standards for Drinking Water) or other appropriate guidance values.

The River Faughan forms the western site boundary and a superficial sand and gravel aquifer underlies the site. Groundwater flow mapping indicates a general flow direction to the west and southwest. The River Faughan and the shallow aquifer system are considered as critical receptors and as such the appropriate Threshold Screening Values (TSVs) are considered to be EQS in the first instance. The River Faughan is used as a potable supply with an abstraction located at Cloghole approximately 2.1km downstream of the Campsie S&G site. This supply is pumped to the Northern Ireland Water, Water Treatment Works (WTW) at Carmoney. Relevant Drinking Water Standards are applied where applicable.

In respect of Petroleum Hydrocarbons for comparison WHO Values (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO) have been considered.

3.2.2. Bioavailability

The toxicity of metals is dependent on a range of water quality parameters in addition to water hardness, principally pH and dissolved organic carbon (DOC). The WFD Daughter Directive on priority substances (2008/105/EC) (Annex 1, Part B3) states that Member States may take account of the effect of hardness, pH or other water quality parameters that affect the bioavailability of metals. The new freshwater EQSs developed for copper, zinc and manganese, which are UK Specific Pollutants have been derived as bioavailable EQSs and take into account consideration of pH, DOC and calcium. The revised EQS for nickel (an EU priority substance under WFD) is also expressed as a bioavailable concentration. These recommendations have been transposed within local legislation (WFD, 2015[5]).

The input values for each of the three parameters can be either an individual sample result or a summary value derived from sampling results for a relevant time period, e.g., a calendar year or a 3-year time period under WFD. For both pH and calcium where a summary value is used the average is recommended but for DOC the median value is recommended[6].

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[5] The Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015

[6] UKTAG Guide to the Metal Bioavailability Assessment Tool (M-BAT) Water Framework Directive: River and Lake, July 2014

The NIEA quarterly monitoring data has been adopted for the period of approximately January 2017 to June 2021 to provide a suitable baseline data set as suggested for the determinands DOC (dissolved organic carbon) and pH. Calcium was not assessed as part of the NIEA quarterly monitoring test suite. Calcium concentrations indicative of the River Faughan recorded following the recent phase of site investigation (Tetra Tech, January 2022 (refer to Appendix 9) have been adopted. This approach is considered appropriate with reference current legislation and associated M-BAT Guidance.

Table 3-2 below presents median (DOC) and mean values for the adopted data sets at locations considered to be representative of the River Faughan (refer to Figure 5).

Table 3-2- Adopted M-BAT Parameters

Monitoring Location	DOC (dissolved organic carbon)	pH	Calcium
SW5	4.43	6.97	30
SW6	9.12	7.56	22
SW7	8.86	7.43	25
SW8	9.24	7.5	*NM*
SW10	6.33	7.45	21
SW13	7.83	7.57	24
SW14	8.03	7.58	25
Median / *Mean*	**8.03**	*7.58*	*24.5*

The adjusted screening criteria for the relevant metal compounds are detailed at Table 3-3 below.

Table 3-3 - MBAT adjusted Screening Values for Heavy Metals (Risk to Surface Water)

Heavy Metal	EQS* (ug/l)	PNEC**(ug/l)
Copper	1	34.94
Manganese	123	276.92
Nickel	4	14.98
Lead	1.2	9.64
Zinc	10.9	37.15

** EQS (Environmental Quality Standard)*

*** PNEC – Predicted No Effect Concentration*

3.2.3. Human Health

The DQRA primarily assesses the risk to the water environment and recognises the resource value of the receiving watercourse alongside the potential human health impacts of the surface water abstraction downstream in the assessment of risk. The recent phase of investigations has included significant solids analysis to inform source zone characterisation with respect to future DQRA, to inform future waste characteristics (type and volume), remediation design and future materials management with respect to the A6 road scheme. An initial assessment of reported contaminant concentrations is provided here to inform risk to health, and it is anticipated this assessment will be considered in more detail as part of the future remedial options appraisal and remediation design.

In order to assess the human health and environmental risks posed by potential contaminants within the underlying soils the criteria adopted should be appropriate for the proposed end use. Generic assessment criteria are contaminant concentration values used for comparison purposes to assess the risk associated with contaminant concentrations found on site and are derived using non-site-specific information.

Following the UK CLEA methodology, generic assessment criteria in the form of CIEH/LQM S4ULs (Chartered Institute of Environmental Health/Land Quality Management Suitable For Use Levels) Threshold Screening Values (TSVs) have been used to highlight contaminants present at the site which pose a risk to human health. These criteria have been developed to assess risk to health from a broad range of contaminants in soils. The S4ULs are all based on Health Criteria that represent minimal or tolerable levels of risks to health as described in the Environment Agency's SR2 guidance[7], ensuring that the resulting assessment criteria are 'suitable for use' under planning.

The risk to construction workers is not considered under the CLEA methodology (CLR 7). It is assumed that health and safety guidelines will be adhered to mitigate/reduce such risk(s). In order to assess the soil analyses results with regard to potential human health risks, Tetra Tech have used generic screening values, referred to as Threshold Screening Values (TSVs) based on CIEH LQM S4ULs[8].

The following land use scenarios have been assessed in the derivation of S4ULs:

- Residential with homegrown produce; (RwHP)
- Residential without homegrown produce (RwoHP).
- Allotments.
- Commercial.
- Public open spaces near residential housing (POS resi); and
- Public Parks (POS Park).

Table 1.1 of the LQM/CIEH Document on the derivation of S4ULs defines exposure assumptions for the derivation of POS resi GACs. It includes predominantly grassed areas adjacent to high density housing with a mixture of open space and covered soil with planting. It assumes that the close proximity to the place of residence will allow the tracking back of soil to the place residence to occur.

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[7] *Human health toxicological assessment of contaminants in soil, Science Report – Final SC050021/SR2, Environment Agency January 2009*

[8] *http://www.lqm.co.uk/publications/s4ul/*

Table 1.2 of the LQM/CIEH Document on the derivation of S4ULs defines exposure assumption for the derivation of POSpark GACs. The document describes this land use as an area of open space usually owned and maintained by the local authority provided for recreational land uses. The key difference is that it is assumed that tracking back of soils into the place of residence will be negligible.

On the basis of the anticipated future master plan as known at the time of writing the site is currently not proposed for building development but instead is likely to be utilised as an open space with some public access anticipated. On this basis and in consideration of the associated relevant assumed exposure assumptions risk to health from contaminants in soil will be assessed against derived S4ULs for land use scenario POS Park GACs**.**

4. SOILS ASSESSMENT TETRA TECH 2022

Approximately 350 no. soil samples were selected for analysis following recent phases of exploratory works. Soil sample data from the recent phase of investigation has been compared with the S4ULs public open space – park (POSpark); GAC (generic assessment criteria). The inclusion of the solids analysis with respect to human health assessment is provided as informative in the context of the Updated DQRA but will be of greater significance regarding future remediation design.

Soil samples were analysed for a range of determinants as set out at Section 3.1.8. The results of the laboratory soil analyses from all available data are summarised in Appendix 6 in which they are compared to the relevant generic assessment criteria (GAC). Laboratory test certificates are provided at Appendix 7.

4.1. HEAVY METALS

All reported heavy metal concentrations were reported below the adopted POSpark GAC with the exception of 1 no. localised exceedance for the Lead at TP635 located in the northern extent of the CS&G site. The reported concentration of Lead in TP635 was 4,600mg/kg at 4.0mbgl, which exceeded the POSpark GAC of 1,300mg/kg. The primary exposure route for this contaminant type is vial direct contact (dermal, ingestion, inhalation of fugitive dusts) therefore at depths greater than 1m risk to health is considered negligible. Lead analysis at shallower depths (2.7 mbgl) reported significantly lower concentrations of 270 mg/kg, therefore assuming site levels are not altered significantly risk to health is considered low.

4.2. TPH, PHENOL, MTBE AND BTEX

4.2.1. TPH

Reported concentrations for speciated TPH fractions (aliphatic and aromatic) were typically reported low or negligible, or less than respective laboratory detection limits. However localised exceedances of aromatic ranges were found in the central section of CIW site (BH673, BH660, BH665, BH673) and western area of CS&G site (BH628). These exceedances are summarised below.

4.2.2. MTBE & BTEX

The reported concentrations in analysed soil samples for MTBE and BTEX were typically below the adopted POS park GAC with the exception of 3no. localised exceedances for Benzene in the central CIW (BH660 and BH671). The exceedances are detailed in the table below.

4.2.3. Phenol

All soil samples analysed for phenols, reported concentrations not in exceedance of the adopted POSpark GAC and the majority of reported concentrations were below laboratory detection limits.

Table 4-1 - Organic Concentrations > Public Open Space – Park GAC

Determinand	Adopted TSV (mg/kg)	Sample Population	Max Reported (mg/kg)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (mg/kg)
Aromatic C8-C10	7200	344	13000	2	BH673 (3.00m) BH673 (4.00m)	12000 13000
Aromatic C10-C12	9200	344	82000	5	BH628 (2.0m) BH660 (9.00m) BH665 (10.00m) BH665 (11.00m) BH673 (3.00m) BH673 (4.00m)	14000 24000 31000 20000 80000 82000
Aromatic C12-C16	10000	344	10000	5	BH628 (2.0m) BH660 (9.00m) BH665 (10.00m) BH665 (11.00m) BH673 (3.00m) BH673 (4.00m)	46000 37000 49000 30000 98000 100000
Aromatic C16-C21	7600	344	7600	5	BH628 (2.0m) BH660 (9.00m) BH665 (10.00m) BH665 (11.00m) BH673 (3.00m) BH673 (4.00m)	19000 19000 26000 16000 53000 55000
Aromatic C21-C35	7800	344	7800	5	BH628 (2.0m) BH660 (9.00m) BH665 (10.00m) BH665 (11.00m) BH673 (3.00m) BH673 (4.00m)	22000 20000 29000 16000 53000 54000
Benzene	90	314	720	3	BH660A (9.00mbgl) BH660A (10.00mbgl) BH671 (2.00mbgl)	190 720 190

All exceedances are reported at significant depth and are therefore not considered to present a significant risk to health assuming site levels are not altered significantly. Contaminant characteristics are indicative of tarry wastes detected in the area and their occurrence will require further consideration within future DQRA modelling source term definition and with respect to future remediation design e.g., classification of materials for offsite disposal and/or potential suitability for reuse assessment.

4.3. PAHS (POLYCYCLIC AROMATIC HYDROCARBONS)

Following a review of the laboratory analysis, a number of PAH compounds, including Naphthalene, Phenanthrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(123cd)pyrene, and Dibenz(a,h)anthracene, were reported above the adopted POSpark GACs for individual compounds of varying magnitude and frequency in the centre of the CIW site (BH660A, BH665, BH673, BH674, BH676, BH659, BH670, BH669, BH666), northern CIW site (BH603, and the west of the CS&G site (BH628, BH629, BH626, BH629). These are summarised in the table below.

Table 4-2 - PAHs > Public Open Space – Park GAC

Determinand	Adopted TSV (mg/kg)	Sample Population	Max Reported (mg/kg)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (mg/kg)
Naphthalene	1200	342	19000	5	BH660A (9.00m) BH660A (10.00m) BH665 (10.00m) BH673 (3.00m) BH673 (4.00m)	2600 5100 7100 19000 2000
Phenanthrene	6200	342	10000	2	BH665 (10.00m) BH673 (3.00m)	8700 10000
Benzo(a)anthracene	49	342	590	8	BH628 (2.00m) BH660A (9.00m) BH660A (10.00m) BH665 (10.00m) BH673 (3.00m) BH673 (4.00m) BH674 (3.00m) BH676 (2.00m)	63 86 230 520 590 65 60 71
Chrysene	93	342	550	3	BH660A (10.00m) BH665 (10.00m) BH673 (3.00m)	210 550
Benzo(b)fluoranthene	13	342	640	19	BH628 (2.00m) **BH628 (1.00m**) BH629(2.0m) **BH629 (0.8m)** BH629 (1.3mbgl) BH659 (11.00m) BH660A (9.00m) BH660A (10.00m) BH665 (10.00m) **BH670 (1.00m)** BH673 (3.00m) BH673 (4.00m) BH673 (5.00m) BH603R (3.00m) BH674 (3.00m) BH674 (4.00m) BH674 (5.00m) BH676 (2.00m) BH660A (12.00m)	76 18 51 42 22 16 110 260 630 35 640 39 16 29 68 37 19 22 17
Benzo(a)pyrene	11	342	970	22	BH628 (2.00m) **BH628 (1.00m)** **BH626 (0.50m**) BH629(2.0m) **BH629 (0.8m)** BH629 (1.3mbgl) BH659 (11.00m) BH660A (9.00m) BH660A (10.00m) BH669 (11.00m) BH665 (10.00m) **BH670 (1.00m**) BH673 (3.00m) BH673 (4.00m)	98 24 18 72 53 27 23 190 420 19 930 31 970 110

Determinand	Adopted TSV (mg/kg)	Sample Population	Max Reported (mg/kg)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (mg/kg)
					BH673 (5.00m) BH603R (3.00m) BH674 (3.0m) BH674 (4.0m) BH674 (5.0m) BH676 (2.00m) BH676 (6.00m) BH660A (12.00m)	25 44 94 55 29 37 17 25
Indeno(123cd)pyrene	150	342	510	3	BH660A (10.00m) BH665 (10.00m) BH673 (3.00m)	230 510 470
Dibenz(a,h)anthracene	1.1	342	23	19	BH628 (2.00m) BH623 (4.00m) BH623 (4.00m) BH629 (2.0m) **BH629 (0.8m)** TP611 (0.50m) TP612 (1.00m) BH660A (9.00m) BH660A (10.00m) BH666 (5.00m) BH665 (10.00m) **BH670 (1.00m)** BH670 (7.00m) BH673 (3.00m) BH673 (4.00m) BH674 (3.00m) BH674 (4.00m) BH676 (2.00m) BH676 (8.00m)	2.8 1.3 1.9 3.8 1.7 1.8 1.4 3.3 5.9 2.1 23 3.6 1.2 20 2.3 2.6 1.4 1.6 1.3

Similar to TPH concentrations reported PAH contaminant concentrations in soils are generally reported at significant depth and are therefore not considered to present a significant risk to health assuming site levels are not altered significantly. Contaminant characteristics are indicative of tarry wastes detected in the area of central CIW and in the southwestern area of CS&G where a shallower and lesser extent of tarry type waste were observed. Their occurrence will require further consideration within future DQRA modelling source term definition and with respect to future remediation design e.g., classification of materials for offsite disposal and/or potential suitability for reuse assessment.

A number of PAH exceedances were reported in shallower soils (<1 mbgl) at boreholes BH626 and BH629 in an area to the southwest of CS&G. Their occurrence will also require further consideration in future remedial design. Immediate risk to health is considered low as the site is not publicly accessible.

4.4. VOCS

All reported VOC concentrations were below the adopted POSpark with concentrations generally less than laboratory detection limits.

4.5. SVOCS

Generally, SVOC analysis reported compound concentrations less than adopted POSpark GAC with the majority of concentrations reported below laboratory detection limits. Localised exceedances of Indeno(1,2,3-cd)pyrene and Dibenzo(a,h)anthracene were reported in the central area of CIW (BH 637, BH665, BH674, BH671 and BH679) and exceedances of Dibenzo(a,h)anthracene was reported in the western section of CS&G (BH628 & BH629). These are summarised in Table 4-3 below.

Table 4-3 - SVOCs > Public Open Space – Park GAC

Determinand	Adopted TSV (mg/kg)	Sample Population	Max Reported (ug/l)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (mg/kg)
Indeno(123cd)pyrene	150	107	780	3	BH628 (2.0m) BH673 (3.0m) BH673 (4.0m)	310 690 780
Dibenz(a,h)anthracene	1.1	107	61	12	BH629 (0.8m) BH628 (1.0m) BH628 (2.0m) BH629 (2.0m) BH665 (10.0m) BH673 (3.0m) BH673 (4.0m) BH673 (5.0m) BH674 (4.0m) BH671 (2.0m) BH671 (3.0m) BH679 (6.0m)	1.3 1.9 28 2.7 12.0 61.0 28.0 2.0 1.60 6.20 5.30 1.3

The risk profile for these reported PAH compound exceedances is generally consistent with that discussed previously with respect to the future DQRA source term definition and consideration within future remediation design.

4.6. PCBS (POLYCHLORINATED BIPHENYLS)

Soil samples were typically analysed for the WHO12 PCB congeners from 81 to 189. POSPark GACs are not available for these congeners, however all reported concentrations were below the laboratory limit of detection.

4.7. INORGANICS

Soil samples were analysed for a range of inorganics, including cyanide, thiocyanate, sulphate (2:1 water soluble) The majority of reported concentrations were below laboratory limit of detection where detected did not exceed the adopted POSPark GACs.

The pH of the samples analysed generally fell within the naturally occurring range of pH 5 to pH 9 with the exception of 29 no. samples, where reported levels ranged between pH 9.1 to pH 11.1. Generally, samples were only marginally exceeding the upper neutral range value of pH 9.

4.8. ASBESTOS IN SOILS

Soil samples were screened for the presence of asbestos fibres and asbestos containing materials (ACMs) with a number of samples subject to further quantification testing following the initial screening process. Table 4-4 below presents a summary of recent test results.

Table 4-4 - Asbestos in soils assessment occurrence

Sample ID (BH/TP and depth)	Quantification (Total %)	Assessment of Risk
BH669 at 9.0mbgl (Chrysotile, free fibres)	0.001	Not considered significant risk as depths >1mbgl
BH673 at 1.0mbgl (Chrysotile, Lagging)	0.001	Not considered significant risk as depths >1mbgl
BH634 at 3.0mbgl (Chrysotile, Fibres and Clumps)	0.015	Not considered significant risk as depths >1mbgl

CIRIA's document C733[9] has been referred to in the assessment or risk from asbestos in soils. The occurrences of asbestos in soils at a number of locations is likely be symptomatic of legacy issues associated with the former waste deposition.

Asbestos was identified at 3no. locations at depths of 1.0mbgl, 3.0mbgl and 9.0mbgl and as no asbestos was identified at shallow depth (< 1mbgl) the risked posed to human health is considered low. The total quantification was reported as <0.001% at 2 no. locations (1.0mbgl and 9.0mbgl) and 0.015% at 1no. location (0.30mbgl). There is currently no GAC for the presence of free fibre asbestos in soils although failure to detect fibres above LOD (<0.001%) using the PCOM (Phase Contrast Optical Microscopy) method is considered a relatively low risk however, the presence of fibre in the soil does remain. A total quantification of 0.015% was reported in BH634 at 3.0mbgl, however, given the depth of the sample the risk posed is considered low. BH669 and BH673 are located in central CIW in the area of tarry waste deposition and BH634 is located to the west of central CS&G. On the basis of the depth encountered and quantification current risk to health is considered low. These results will require further consideration during remediation design to ensure future risk to health is appropriately mitigated.

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[9] *CIRIA C733 Asbestos in soil and made ground: a guide to understanding and managing risks*

4.9. SUMMARY OF SOILS ANALYSIS 2022

Following an assessment of recent soils data captured during the most recent intrusive site investigation, soil contaminant concentrations were generally not reported above GAC assuming a future land use scenario consistent with the assumptions applicable to a POSpark GAC land use. As discussed, a number of localised contaminant concentrations in soils were identified in both CIW and in the CS&G site. These exceedances will be considered further during remediation design to ensure final site levels and reuse of site won soils to do present a risk to health of future site users.

Soils data will be considered further where applicable to inform the definition of source areas with respect to risk to the water environment and the subsequent development of the DQRA, however risk to health from contaminants in soils remains outside the scope of the current DQRA update.

5. LEACHATE ASSESSMENT

A total of 13 no. soil leachate samples were retrieved during the initial sampling round with a further 35 no. retrieved during the second sampling round. The secondary round of sampling was principally informed by contaminant concentrations reported during the initial monitoring round, onsite observations and a review of historical monitoring data. Samples were submitted to a UKAS accredited laboratory for analysis and selected analysis informed by existing site data and observations during exploratory works.

The screening summary sheet presented at Appendix 8 details the selected quality standards used to assess each given contaminant and summarises the associated laboratory data, highlighting any results that exceed the relevant screening criteria. Supporting laboratory test certificates are included at Appendix 7.

For the purposes of reporting the site has been considered as CIW (City Industrial Waste) and CS&G (Campsie Sand and Gravel) - refer to Figure 2.

The results from the soil leachate samples have been assessed adopting the same criteria as that adopted for groundwater and surface water.

5.1. HEAVY METALS

5.1.1. Round 1 - City Industrial Waste

Following a review of round 1 monitoring data, a number of heavy metals were reported above the adopted TSVs in monitoring wells BH644, BH645 BH646 which are located close to the northern boundary of CIW area. These exceedances are summarised in the table below.

Table 5-1 - Heavy metals >TSVs, Soils Leachate Test– Round 1 CIW

Determinand	Adopted TSV (see note 1) (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (ug/l)
Manganese	276.92 (Note 2)	10	1200	3	BH645 at 0.7mbgl BH645 at 3.0mbgl BH646 at 2.0mbgl	1200 380 480
Molybdenum	70	10	92	1	BH644 at 5.0mbgl	92
Nickel	14.98 (Note 2)	10	52	6	BH645 at 0.7mbgl BH645 at 3.0mbgl BH645 at 9.0mbgl BH646 at 7.0mbgl BH644 at 5.0mbgl BH644 at 8.0mbgl	24 24 15 23 15 52
Antimony	5	10	27	2	BH644 at 5.0mbgl BH644 at 8.0mbgl	27 7.6

Note 1 - Adopted TSVs are EQS unless otherwise stated.

Note 2- MBAT PNEC calculated value

AA – Annual Average

MAC – Maximum allowable concentration

Following a review of the heavy metal concentrations reported following monitoring round 1, nickel represents the most frequent exceedance relevant to the adopted TSV of 14.98ug/l (MBAT PNEC (Metal Bioavailability Predicted No Effect Concentration) calculated value) with exceedances reported in 6no. samples at 3no. locations. Reported nickel exceedances ranged from 15ug/l in BH644 at 5.0mbgl to 52ug/l in BH644 at 8.0mbgl.

Lesser exceedance frequencies were reported for determinand manganese, with 3no. exceedances identified at 2no. locations, BH645 and BH646. Reported manganese concentrations at these locations exceeded the TSV of 276.92ug/l (MBAT PNEC calculated value) ranging from 480ug/l in BH646 to 1200ug/l in BH645.

Determinands molybdenum and antimony reported lesser exceedance frequencies and of a reduced magnitude. A singular exceedance of molybdenum was reported in BH644, with concentration of 92ug/l being reported, which marginally exceeded the TSV of 70ug/l.

In BH644, 2 samples reported concentrations of antimony 7.6ug/l and 27ugl which exceeded the TSV of 5ug/l.

5.1.2. Round 1 - Campsie Sand and Gravel

Following a review of round 1 monitoring data, soil leachate concentrations of Manganese, Nickel and Antimony were reported at concentrations above the adopted TSVs in monitoring well BH635, located in the central CS&G area. Exceedances are summarised in the table below.

Table 5-2 - Heavy metals >TSVs, Soils Leachate Test – Round 1 CS&G

Determinand	Adopted TSV (see note 1) (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (ug/l)
Manganese	276.92 (Note 2)	3	1100	1	BH635 at 2.0mbgl	1100
Nickel	14.98 (Note 2)	3	110	1	BH635 at 2.0mbgl	110
Antimony	5	3	15	2	BH635 at 4.0mbgl BH635 at 5.0mbgl	15 5.9

Note 1 - Adopted TSVs are EQS unless otherwise stated.

Note 2- MBAT PNEC calculated value

AA – Annual Average

MAC – Maximum allowable concentration

Antimony represented the most frequent exceedance relevant to the adopted TSVs with 2no. exceedances being identified in BH635. The reported concentrations were 5.9ug/l to 15ug/l at BH635 compared to the TSV of 5ug/l.

Reported concentrations of manganese and nickel exceeded the adopted TSV in 1no. sample only. The reported manganese concentration (1100ug/l) exceeded the TSV of 276.92ug/l by two orders of magnitude.

The reported concentration of Nickel in BH635 was 110ug/l, which exceeded the TSV of 14.98ug/l.

5.1.3. Round 2 - City Industrial Waste

Soil leachate samples obtained during the second round of monitoring were from the CIW area and were informed principally by the characterisation of the tarry waste deposits encountered during Phase 2 delineation works. Following a review of round 2 monitoring data, a number of heavy metals were reported above the adopted TSVs of varying magnitude and frequency in boreholes located in the central CIW area and close to the northern boundary of the CIW area. These are summarised in the table below.

Table 5-3 - Heavy metals >TSVs, Soils Leachate – Round 2 CIW

Determinand	Adopted TSV (see note 1) (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (ug/l)
Copper	34.94 (Note 2)	35	66	1	BH667 at 11mbgl	66
Manganese	276.92 (Note 2)	35	860	7	BH660A at 10mbgl BH673 at 5.0mbgl BH601R at 1.0mbgl BH667 at 13mbgl BH678 at 7.0mbgl BH677 at 6.0mbgl BH675 at 4.0mbgl	330 350 420 380 330 530 860
Molybdenum	70	35	81	2	BH659 at 10mbgl BH665 at 9.0mbgl	81 78
Nickel	14.98 (Note 2)	35	160	7	BH665 at 9.0mbgl BH665 at 4.0mbgl BH673 at 4.0mbgl BH601R at 1.0mbgl BH602R at 4.0mbgl BH667 at 11.0mbgl BH675 at 4.0mbgl	16 19 21 46 160 51 62
Antimony	5	35	75	16	BH660 at 9.0mbgl BH660A at 9.0mbgl BH660A at 10.mbgl BH659 at 10.mbgl BH665 at 9.0mbgl BH665 at 4.0mbgl BH666 at 11mbgl BH666 at 13mbgl	7.4 21 10 15.0 19.0 9 23 75

Determinand	Adopted TSV (see note 1) (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (ug/l)
					BH669 at 10mbgl BH673 at 4.0mbgl BH601R at 1.0mbgl BH601R at 4mbgl BH667 at 11mbgl BH678 at 7.0mbgl BH677 at 9.0mbgl BH675 at 4.0mbgl	21.0 6.5 7.3 13 17 7.8 6.0 15
Zinc	37.15(Note 2)	35	120	2	BH660A at 9.0mbgl BH673 at 4.0mbgl	120 64
Chromium VI	3.4 (AA)	35	11	4	BH659 at 11mbgl BH669 at 13.5mbgl BH667 at 11mbgl BH675 at 4.0mbgl	11 6 4.2 3.7

Note 1 - Adopted TSVs are EQS unless otherwise stated.

Note 2- MBAT PNEC calculated value

AA – Annual Average

MAC – Maximum allowable concentration

Following a review of the heavy metal concentrations reported following monitoring round 2, antimony represented the most frequent exceedance of adopted TSVs, with a total of 16no. exceedance being reported. Reported antimony concentrations ranged between 6ug/l at BH677 to 75ug/l at BH666 compared to the TSV of 5ug/l. All exceedances were reported within the central CIW area, with the exception of BH601R located close to the northern boundary. It is of note that antimony was not observed above the adopted TSV in groundwater and leachate samples tested following rounds 1 and 2 sampling events.

Lesser exceedance frequencies were reported for determinands manganese and nickel and chromium VI.

Reported concentrations of manganese exceeded the adopted TSV of 276.92ug/l in samples obtained from 7no. locations. Manganese concentrations ranged from 330ug/l (BH660A and BH678) to 860ug/l (BH675). All exceedances were reported within the central CIW area, with the exception of BH601R located close to the northern boundary.

Reported nickel concentrations were in exceedance of the TSV (14.98ug/l) in 7no. samples (from 6no. locations) and ranged from 16ug/l (BH665) to 160ug/l (BH602R). The maximum reported concentration for nickel (160 ug/l) was reported for at BH602R located close to the northern boundary of the CIW area. All exceedances were reported within the central CIW area, with the exception of BH601R and BH602R located close to the northern boundary.

Reported concentrations of Chromium VI exceeded the adopted TSV at 4no. locations with reported concentrations ranging from 3.7ug/l to 11ug/l compared to the TSV of 3.4ug/l. A maximum concentration of 11ug/l was recorded at BH659, located, in the central area of the CIW area. All exceedances were identified within the central CIW area.

The remainder of metals exceedances were generally less frequently exceeding the TSV and these included Copper, Zinc and Molybdenum.

Reported concentrations of copper marginally exceeded the adopted TSV of 34.94 (MBAT PNEC calculated value) at one location, BH667 located in the central area of the CIW area. The reported copper concentration was 66ug/l.

Reported Molybdenum concentrations exceeded the TSV at two locations, BH659 and BH665, both located within the central CIW area. Reported concentrations were 81ug/l and 78ug/l which marginally exceed the TSV of 70ug/l.

Reported concentrations of zinc exceeded the adopted TSV at two locations, BH660A and BH673, both located in the central area of the CIW area. The reported concentrations were reported as 120ug/l and 64ug/l respectively which exceeded the TSV of 37.15 9 (MBAT PNES calculated value).

5.1.4. Phenols

Reported phenol concentrations for samples obtained from the CIW and CS&G areas were generally not detected in excess of the laboratory detection limit and where detected did not exceed the adopted TSVs following both monitoring rounds.

5.2. TPHCWG & BTEX

5.2.1. Round 1 - City Industrial Waste (CIW)

No exceedances of the adopted TSVs were reported for the aliphatic compounds, BTEX compounds or MTBE in samples obtained from the CIW site with compound concentrations typically reported less than LoD (laboratory limit of detection). A total of 3 no. fractional exceedances were reported for the aromatic ranges, these are summarised at the table below.

Table 5-4 - TPHCWG Fractions, BTEX Compounds and MTBE >TSVs, Soils Leachate Test – Round 1 CIW

Determinand	Adopted TSV (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (ug/l)
Aromatic C10-C12	90	10	1200	2	BH645 at 0.7mbgl BH645 at 3.0mbgl	880 1200
Aromatic C16-C21	90	10	180	1	BH645 at 0.7mbgl	180

Aromatic fractions were reported exceeding TSVs at 1no. monitoring well, BH645 (at depths 0.7m and 3.0mbgl) located close to the in the northern boundary of CIW.

5.2.2. Round 2 - Campsie Sand & Gravel (CS&G)

No exceedances of the adopted TSVs were reported for the aliphatic or aromatic compounds, BTEX compounds or MTBE in samples obtained from the CS&G site during the first round of monitoring with the majority of compound concentrations reported at concentrations less than LoD (laboratory limit of detection).

5.2.3. Round 2 - City Industrial Waste (CIW)

All soil leachate samples obtained during the second round of monitoring were from the CIW area. Following a review of round 2 monitoring data, a number of aliphatic and aromatic fractions, benzene and 1no. MTBE concentrations were reported above the adopted TSVs in boreholes located in the central CIW area and close to the northern boundary of the CIW area. These are summarised in the table below.

Table 5-5 - TPHCWG Fractions, BTEX Compounds and MTBE >TSVs, Soils Leachate Test– Round 2 CIW

Determinand	Adopted TSV (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (ug/l)
Aliphatic C10-C12	300	35	480	2	BH665 at 9.0mbgl BH673 at 4.0mbgl	480 320
Aromatic C5-C7	10	35	2200	5	BH660A at 9mbgl BH660A at 10mbgl BH659 at 10mbgl BH659 at 11mbg BH665 at 9.0mbgl BH668 at 14mbgl	590 2200 160 310 3100 740
Aromatic C5-C7		35	14000	1	BH668 at 14mbgl	14000
Aromatic C8-C10	90	35	23000	9	BH660A at 9mbgl BH660A at 10mbgl BH659 at 10mbgl BH665 at 9.0mbgl BH673 at 4.0mbgl BH673 at 5.0mbgl BH603R at 3mbgl BH668 at 14mbgl BH675 at 4.0mbgl	850 5000 330 23000 18000 990 860 8900 2100
Aromatic C10-C12	90	35	42000	13	BH660A at 9mbgl BH660A at 10mbgl BH659 at 10mbgl BH659 at 11mbg BH665 at 9.0mbgl BH673 at 4.0mbgl BH673 at 5.0mbgl BH601R at 4mbgl BH603R at 3mbgl BH668 at 14mbgl	8900 23000 10000 2100 24000 42000 5800 380 6200 860

					BH676 at 6.0mbgl BH675 at 4.0mbgl BH660A at 12 mbgl	270 490 290
Aromatic C12-C16		35	19000	17	BH660A at 9mbgl BH660A at 10mbgl BH659 at 10mbgl BH659 at 11mbg BH665 at 9.0mbgl BH665 at 12mbgl BH669 at 10mbgl BH669 at 13.5mbgl BH673 at 4.0mbgl BH673 at 5mbgl BH603R at 3mbgl BH668 at 12mbgl BH668 at 14mbgl BH676 at 6.0mbgl BH676 at 8.0mbgl BH675 at 4.0mbgl BH660A at 12mbgl	3700 14000 5600 1800 17000 1600 99 160 19000 4300 6300 110 120 4500 4800 160 3000
Aromatic C16-C21	90	35	1500	9	BH659 at 10mbgl BH665 at 9.0mbgl BH665 at 12mbgl BH673 at 4.0mbgl BH673 at 5.0mbgl BH603R at 3mbgl BH676 at 6.0mbgl BH676 at 8.0mbgl BH660A at 12mbgl	260 720 180 1500 200 430 430 500 190
Aromatic C21-C35	90	35	220	1	BH673 at 4mbgl	220
MTBE	15	35	17	1	BH660A at 12mbgl	17
Benzene	10	35	22000	8	BH660A at 9mbgl BH660A at 10mbgl BH659 at 10mbgl BH665 at 9.0mbgl BH673 at 4.0mbgl BH673 at 5.0mbgl BH668 at 14mbgl BH660A at 12mbgl	7200 22000 13 6200 280 100 58 18
Toluene	74	35	3700	3	BH660A at 9mbgl BH660A at 10mbgl BH665 at 9.0mbgl	1200 2400 3700
Ethylbenzene	300	35	3100	1	BH665 at 9.0mbgl	3100

Aliphatic fraction C10-C12 reported concentrations for soil leachate samples in 2no. samples, BH665 (480ug/l) and BH673 (320ug/l) exceeded the adopted TSV of 300ug/l. The Total TPH at these locations were 72000 ug/l (BH665) and 82000ug/l (BH673). Both wells are located within the central CIW area.

Aromatic fractions were reported exceeding TSVs at 10no. monitoring wells with 2no. wells (BH601R and BH603R) located closed to the northern boundary of CIW and 8no. wells (BH659, BH660A, BH665, BH668, BH669, BH673, BH675 and BH676) located in the central CIW area. Total TPH in these samples ranged from 590ug/l (BH669) to 82000ug/l (BH673), both wells located within the central CIW area.

Reported benzene concentrations in exceedance of the adopted TSV was reported at 8no. locations, located within the central CIW area. Benzene concentrations ranged from 13ug/l (BH659) to 22000ug/l (BH660A).

Toluene concentrations at BH660A (1200 ug/l at 9mbgl and 2400ug/l at 10mbgl) and BH665 (3700ug/l) were also elevated relevant to the TSV.

The reported concentration of Ethylbenzene at BH665 was reported as 3100ug/l which is in exceedance of the adopted TSV.

5.3. PAHS

5.3.1. Round 1

TSVs have been derived for a number of higher risk PAH compounds including, naphthalene, anthracene, fluoranthene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene and benzo(g,h,i)perylene. PAH compound concentrations were reported as less than the laboratory detection limit (LOD) for all samples analysed round 1 in both the CIW and CS&G areas.

5.3.2. Round 2

All soil leachate samples obtained during the second round of monitoring were from the CIW area. Generally, PAH compound concentrations were not reported at concentrations above LoD with the exception of naphthalene, Anthracene and Fluoranthene as summarised in the table below.

Table 5-6 - PAHs >TSVs, Soils Leachate Test CIW– Round 2 CIW

Determinand	Adopted TSV (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (ug/l)
Naphthalene	2	33	22000	17	BH660A at 9.0m	2700
					BH660A at 10.0m	7700
					BH659 at 10.0m	3800
					BH659 at 11m	2000
					BH665 at 9m	8800
					BH665 at 12m	4.7
					BH666 at 11m	38
					BH666 at 13m	38
					BH669 at 10m	2.1
					BH669 at 13.5m	89
					BH673 at 4m	22000
					BH673 at 5m	4000
					BH603R at 3m	4300
					BH603R at 6m	24
					BH602R at 4m	37
					BH668 at 12m	2.4
					BH668 at 14m	8500
					BH667 at 11m	2.2
					BH676 at 8m	11
					BH660A at 12m	19
Anthracene	0.1	33	42	20	BH660A at 9.0m	4.5
					BH660A at 10.0m	9
					BH659 at 10.0m	31
					BH659 at 11m	4.1
					BH665 at 9m	21
					BH665 at 12m	8
					Bh668 at 8.0	0.33
					BH666 at 11m	1.6
					BH669 at 10m	1.1
					BH669 at 13.5m	3.4
					BH673 at 4m	42
					BH673 at 5m	8.8
					BH603R at 3m	18
					BH603R at 6m	4
					BH668 at 14m	24
					BH676 at 6.0m	1.6
					BH676 at 8.0m	5.8
					BH678 at 7.0m	0.5
					BH677 at 9.0m	0.52
					BH660A at 12m	7.9
Fluoranthene	0.0063	33	77	21	BH660A at 9.0m	2.9
					BH660A at 10.0m	6.6
					BH659 at 10.0m	42

					BH659 at 11m BH665 at 9m BH665 at 12m Bh668 at 8.0 BH666 at 11m BH669 at 10m BH669 at 13.5m BH673 at 4m BH673 at 5m BH603R at 3m BH603R at 6m BH668 at 14m BH676 at 6.0m BH676 at 8.0m BH678 at 7.0m BH677 at 6.0m BH677 at 9.0m BH660A at 12m	6.5 26 7.1 0.7 0.85 3.5 3.3 77 4.5 10 2.4 17 4.2 9.6 0.9 0.12 0.95 12

Reported naphthalene concentrations exceeded the adopted TSV (2ug/l) in 17no. samples. The maximum Naphthalene concentration (220,00ug/l) was reported at BH673 located in the central CIW area. A number of wells, located within the central CIW area (including BH660A, BH659, BH673 and BH668) all reported naphthalene concentrations at least 3 orders of magnitude greater than the adopted TSV. BH603R, located close to the northern boundary of the CIW area also recorded an elevated results of 4300ug/l.

Reported concentrations of anthracene exceeded the adopted TSV (0.1ug/l) in 20no. samples. The maximum Anthracene concentration of 42ug/l was recorded at BH673 at 4m. Similarly, to naphthalene, number of wells, located within the central CIW area reported anthracene concentrations at least 1 and 2 orders of magnitude greater than the adopted TSV. BH603R, located close to the northern boundary of the CIW area also recorded an elevated results of 18ug/l.

Reported concentrations of Fluoranthene exceeded the adopted TSV of 0.0063ug/l in 21no. samples. The maximum Anthracene concentration of 77 ug/l was recorded at BH673 at 4m. Elevated concentrations of Fluoranthene were reported in a number of wells, located within the central CIW with reported concentrations between 2 and 4 orders of magnitude greater than the adopted TSV. A concentration of 10ug/l was reported at BH603R, located close to the northern boundary of the CIW area.

5.4. INORGANICS

5.4.1. Round 1

A number of inorganics were selected for analysis. Generally, reported determinand concentrations were not reported in excess of applicable TSVs where available with the exception of ammonia (free), sulphate and cyanide (total). Results are summarised in the table below.

5.4.2. City Industrial Waste (CIW)

Table 5-7 - Inorganics >TSVs, Soils Leachate Test – Round 1 CIW

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (ug/l)
Ammonia (Free)	0.3	10	6.6	8	BH610 at 2.0 BH645 at 0.7m BH645 at 1.2m BH646 at 5.0m BH646 at 7.0m BH644 at 2.0m BH644 at 5.0m BH644 at 8.0m	1.9 0.34 1.2 0.83 6.6 0.66 1.7 2.8
Sulphate	250	10	570	1	BH645 at 0.7m	490

Generally, inorganics were reported at low levels and where exceedances of adopted TSVs were reported these were infrequent and of low magnitude.

Ammonia was reported at concentrations exceeding the adopted TSV, 0.3 mg/l in 8 no. samples tested. The highest concentration of 6.6mg/l was reported in BH646 located in the northern central area of CIW. Exceeding, but lesser concentrations were also reported for wells BH610, BH644 and BH645 with reported concentrations <3.0mg/l.

A singular exceedance was reported for sulphate in BH645, located in the central CIW area. A reported concentration of 490mg/l was reported which exceeds the adopted TSV of 250mg/l/

5.4.3. Campsie Sand & Gravel (CS&G)

Table 5-8 -Inorganics >TSVs, Soils Leachate Test – Round 1 CS&G

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (ug/l)
Ammonia (Free)	0.3	3	0.48	1	Bh635 at 4.0m	0.48
Sulphate	250	3	570	1	BH635 at 2.0m	570
Cyanide (total)	0.001	3	0.070	1	BH635 at 2.0	0.070

A singular exceedance for determinands ammonia, sulphate and cyanide were reported in BH635, located in the northern CS&G site. The reported concentration of ammonia was 0.48mg/l which marginally exceeds the TSV of 0.3mg/l. The reported concentration of sulphate was 570mg/l. The reported concentrations for cyanide were 0.070mg/l. Cyanide was not reported above LoD for the remaining 2no. wells sampled during this round.

5.4.4. Round 2

A number of inorganics were selected for analysis. Generally reported determinand concentrations were not reported in excess of applicable TSVs where available with the exception of ammonia (free), nitrate and sulphate. Results are summarised in table Table 5-9, below.

Table 5-9 -Inorganics >TSVs, Soils Leachate Test – Round 2 CIW

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV	Sample ID (BH/TP and depth)	Reported concentration (ug/l)
Ammonia (Free)	0.3	35	11	25	BH660 at 9m BH660A at 9m BH660A at 10m BH659 at 10m BH665 at 9m BH668 at 8.0m BH665 at 4.0m BH666 at 11m BH666 at 13m BH669 at 10m BH669 at 13.5m BH673 at 4m BH601R at 1.0m BH601R at 4m BH603R at 3m BH603R at 6m BH602R at 4m BH668 at 12m BH668 at 14m BH667 at 11m BH676 at 6.0m BH678 at 7.0m BH678 at 12m BH675 at 9.0m BH679 at 8.0m	0.81 13 1.4 0.42 1.60 2.0 5 1.4 1.7 1 3 0.48 7.7 1.5 0.64 3.6 11 1.3 0.56 5.8 1.8 0.74 0.86 4.9 0.44
Nitrate	50	35	160	1	BH660A at 9.0m	160
Sulphate	250	35	1500	5	BH668 at 8.0m BH601R at 1.0m BH667 at 130m BH678 at 7.0m BH677 at 6.0m	420 420 380 1500 420

Generally, inorganics were reported at low levels and where exceedances of adopted TSVs were reported these were mostly infrequent and of low magnitude, with the exception of Ammonia.

Ammonia was reported at concentrations exceeding the adopted TSV (0.3 mg/l) in 25 no. samples tested. The highest concentration of 13mg/l was reported in BH660 located in the central CIW area. Exceedances, but to a lesser concentration were also reported for wells located in the central CIW area with reported concentrations ranging from 0.42mg/l (BH659) and 5.8mg/l (BH667).

Elevated concentrations in exceedance of the adopted TSV were also reported in the northern area of CIW, close to the northern boundary in wells BH601R, BH602R and BH603R. Reported concentrations here, ranged 0.64ug/l (BH603R) to 11 (BH602R), which exceeded the TSV.

Generally, the reported concentrations of nitrate were below the LOD and where above this, did not exceed the TSV, with the exception of 1no. location. A singular exceedance was reported for nitrate in BH660A (160 mg/l compared to the TSV of 50 mg/l).

Reported concentrations of sulphated exceeded the TSV of 250mg/l in 5no. samples located in the central CIW area (BH667m BH668, BH677 and BH678) and close to the northern boundary (BH601R). the reported concentrations ranged from 380mg/l (BH667) to 1500mg/l (BH678).

5.4.5. Summary of Soil Leachate Assessment

Recent soil leachate sampling has identified a number of exceedances for the adopted TSVs, particularly with respect to hydrocarbons and PAH compounds. These exceedances are generally consistent with observed contaminant concentrations reported in groundwater and leachate. Most elevated concentrations for these determinands are consistent with the area of tarry waste deposition in the central area of CIW and to a lesser extent similar type depositions in the southwestern area of CS&G.

6. WATERS ASSESSMENT 2020/2021

A total of 94 no. groundwater samples were retrieved during the initial sampling round with a further 50 no. retrieved during the second sampling. The selection of monitoring wells for sampling during the secondary round was principally informed by contaminant concentrations reported during the initial monitoring round. Groundwater samples were retrieved via low flow sampling techniques where there was sufficient recharge to facilitate collection of a representative sample. Where sampling via low flow technique was not possible, grab samples were retrieved via a plastic bailer.

Samples were submitted to a UKAS accredited laboratory for analysis for suites as set out at section 3.1.5. Selected analysis was informed by the previous site characterisation works (refer to Tetra Tech 'Risk Assessment Review & Site Investigation Scope Design' Project No. MOBUOY-TTE-XX-XX-RP-I-0001, September 2021) in the area.

The screening summary sheets are presented in Appendix 9 and 10 for monitoring rounds 1 and 2 respectively which details the selected water quality standards used to assess each given contaminant and summarises the associated laboratory data, highlighting any results that exceed the relevant screening criteria. Supporting laboratory test certificates are included at Appendix 11.

For the purposes of reporting the site has been considered as CIW (City Industrial Waste) and CS&G (Campsie Sand and Gravel) (refer to Figure 2).

The results from the groundwater samples have been assessed in accordance with criteria provided in the Water Framework Directive[10] or by direct comparison with the Transitional and Freshwater Environmental Quality Standards (EQS), UK Drinking Water Standards (DWS), WHO (World Health Organisation standards for Drinking Water) or other appropriate guidance values. In respect of Petroleum Hydrocarbons, the WHO Values (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO)) have been considered.

6.1. HEAVY METALS

6.1.1. Round 1 - City Industrial Waste (CIW)

Following a review of round 1 monitoring data, a number of heavy metals were reported above the adopted TSVs of varying magnitude and frequency in the CIW area. These are summarised in the table below.

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[10] *The Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015*

Table 6-1 - Heavy metals >TSVs, Groundwater and Leachate – Round 1 CIW

Determinand	Adopted TSV (see note 1) (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Arsenic	50	25	110	1
Boron	1000 (UK DWS)	25	2800	7
Cadmium	0.09 (AA), 0.6 (MAC)	25	0.33	4
Copper	34.94 (Note 2)	25	49	1
Iron (diss)	1000	25	68000	12
Mercury	0.07	25	0.17	2
Manganese	276.92 (Note 2)	25	13000	22
Nickel	14.98 (Note 2)	25	310	13
Zinc	37.15(Note 2)	25	190	10

Note 1 - Adopted TSVs are EQS unless otherwise stated.

Note 2- MBAT PNEC calculated value

AA – Annual Average

MAC – Maximum allowable concentration

Following a review of monitoring round 1 data, manganese, and iron represent the most frequent and elevated concentrations relevant to the adopted TSVs. Lesser concentrations and exceedance frequencies were reported for determinands nickel and zinc. The remainder of metals exceedances were generally localised and of reduced magnitude.

The maximum reported concentration for iron (68,000 ug/l) was reported for leachate well BH645 located close to the northern boundary of CIW. Leachate concentrations ranged from 16,000 ug/l (BH301) to 68,000 ug/l and iron was reported at concentrations from <5.0ug/l to 57,000 ug/l (BH303) for groundwater wells. Five no. exceedances of the TSV were reported for groundwater wells.

The maximum reported concentration for manganese (13,000 ug/l) was reported for groundwater well BH649B located in in the northeast of CIW in the area of former landfill. Leachate concentrations ranged from 360 ug/l (BH214) to 2,600 ug/l (BH645). Thirteen no. exceedances of the TSV were reported for manganese in groundwater wells.

The maximum reported concentration for nickel (310 ug/l) was reported at three leachate wells BH213, BH214 and BH215 located in the north central area of CIW. Seven no. exceedances of the TSV were reported for nickel in groundwater wells, a maximum concentration reported of 170ug/l at BH301 located along the eastern boundary of central CIW.

The maximum reported concentration for zinc (190 ug/l) was reported for leachate well BH214 located in the north central area of CIW. Seven no. exceedances of the TSV were reported for nickel in groundwater wells, with a maximum concentration reported of 170ug/l at BH301 located along the eastern boundary of central CIW.

6.1.2. Round 1 - Campsie Sand and Gravel (CS&G)

Following a review of round 1 monitoring data, a number of heavy metals were reported above the adopted TSVs of varying magnitude and frequency. These are summarised in the table below.

Table 6-2 - Heavy metals >TSVs, Groundwater and Leachate – Round 1 CS&G

Determinand	Adopted TSV (see note 1) (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Boron	1000 (UK DWS)	54	4100	2
Cadmium	0.09 (AA), 0.6 (MAC)	54	0.83	11
Iron (diss)	1000	50	120000	34
Mercury	0.07	54	0.17	1
Manganese	276.92 (Note 2)	50	63000	48
Nickel	14.98 (Note 2)	54	55	13
Zinc	37.15(Note 2)	54	120	13

Note 1 - Adopted TSVs are EQS unless otherwise stated.

Note 2- MBAT PNEC calculated value

AA – Annual Average

MAC – Maximum allowable concentration

Following a review of the heavy metal concentrations reported at the CS&G area following monitoring round 1, manganese, and iron represent the most frequent and elevated concentrations relevant to the adopted TSVs. Lesser concentrations and exceedance frequencies were reported for determinands cadmium, nickel and zinc and localised exceedance occurrences reported for determinands boron and mercury. The remainder of metals exceedances were generally localised and of reduced magnitude.

Iron and manganese concentrations are exceeding the TSV in groundwater and leachate wells, the maximum reported iron concentration was reported for groundwater well BH107 and the maximum manganese reported in BH06 also a groundwater well. BH107 and BH06 are located in the central area of CS&G.

Cadmium concentrations are reported at low concentrations (<1ug/l) for all samples within groundwater and leachate wells. Similarly zinc and nickel concentrations detected within groundwater and leachate wells were not reported at consistently elevated concentrations.

6.1.3. Round 2 - City Industrial Waste (CIW)

Following a review of round 2 monitoring data, a number of heavy metals were reported above the adopted TSVs of varying magnitude and frequency in the CIW area. These are summarised in the table below.

Table 6-3 - Heavy metals >TSVs, Groundwater and Leachate – Round 2 CIW

Determinand	Adopted TSV (see note 1) (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Boron	1000 (UK DWS)	23	3900	5
Cadmium	0.09 (AA), 0.6 (MAC)	23	0.3	3
Iron (diss)	1000	23	53000	7
Manganese	**276.92 (Note 2)**	**23**	**13000**	**22**
Nickel	14.98 (Note 2)	23	170	11
Zinc	37.15(Note 2)	23	390	8

Note 1 - Adopted TSVs are EQS unless otherwise stated.

Note 2- MBAT PNEC calculated value

AA – Annual Average

MAC – Maximum allowable concentration

Manganese and iron continue to represent the more elevated concentrations relevant to the adopted TSVs. Lesser concentrations but relatively frequent occurrences were reported for determinands nickel and zinc. The remainder of metals exceedances were generally localised and of reduced magnitude.

The maximum reported concentration for iron (53,000 ug/l) was reported for leachate well BH659S located centrally within CIW. Elevated concentrations relevant to the adopted TSV were reported in leachate and groundwater wells.

The maximum reported concentration for manganese (13,000 ug/l) was reported for groundwater well BH649 located in in the northeast of CIW in the area of former landfill. Elevated concentrations continue to be observed in groundwater and leachate wells.

The maximum reported concentration for nickel (170 ug/l) was reported at leachate well BH214 located in the north central area of CIW. Elevated concentrations continue to be observed in groundwater and leachate wells. The maximum reported concentration for zinc (390 ug/l) was reported for groundwater well BH673 located in the central area of CIW.

6.1.4. Round 2 - Campsie Sand and Gravel (CS&G)

Following a review of round 2 monitoring data, a number of heavy metals were reported above the adopted TSVs of varying magnitude. These are summarised in the table below.

Table 6-4 - Heavy metals >TSVs, Groundwater and Leachate – Round 2 CS&G

Determinand	Adopted TSV (see note 1) (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Boron	1000 (UK DWS)	12	1200	3
Cadmium	0.09 (AA), 0.6 (MAC)	12	0.15	1
Iron (diss)	1000	12	62000	10
Manganese	276.92 (Note 2)	12	17000	12
Nickel	14.98 (Note 2)	12	47	6
Zinc	37.15(Note 2)	12	1800	7

Note 1 - Adopted TSVs are EQS unless otherwise stated.

Note 2- MBAT PNEC calculated value

AA – Annual Average

MAC – Maximum allowable concentration

Test results remain generally consistent with those observed in round 1 with manganese, and iron representing the most frequent and elevated concentrations relevant to the adopted TSVs. Lesser concentrations and exceedance frequencies were reported for determinands cadmium, boron and nickel. A maximum localised elevated concentration was reported for zinc at the groundwater /leachate well at BH656.

6.2. PHENOLS

6.2.1. Round 1 - City Industrial Waste (CIW)

Reported phenol concentrations were generally not detected in excess of the laboratory detection limit and where detected did not exceed the adopted TSVs.

6.2.2. Round 1 - Campsie Sand and Gravel (CS&G)

Reported phenol concentrations were generally not detected in excess of the laboratory detection limit and where detected did not exceed the adopted TSVs.

6.2.3. Round 2 - City Industrial Waste (CIW)

Reported phenol concentrations were generally not detected in excess of the laboratory detection limit and where detected did not exceed the adopted TSVs.

6.2.4. Round 2 - Campsie Sand and Gravel (CS&G)

Reported phenol concentrations were generally not detected in excess of the laboratory detection limit and where detected did not exceed the adopted TSVs.

6.3. TPHCWG INCLUDING MTBE & BTEX

6.3.1. Round 1 - City Industrial Waste (CIW)

In the absence of groundwater or surface water EQS for TPHCWG compounds reported compound concentrations were compared against WHO Drinking Water standards in the first instance. TPH fractional occurrences will be considered further where applicable with respect to risk to environmental receptors as part of the DQRA.

No exceedances of the adopted TSVs were reported for the aliphatic compounds tested with compound concentrations typically reported at concentrations less than LoD (laboratory limit of detection). A total of 6 no. fractional exceedances were reported for the aromatic ranges, these are summarised at the table below.

Table 6-5 - TPHCWG Fractions >TSVs, Groundwater and Leachate– Round 1 CIW

Determinand	Adopted TSV (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Aromatic C5-C7	10	29	120	1
Aromatic C10-C12	90	29	830	3
Aromatic C12-C16	90	29	120	2
MTBE	15	27	27	1
Benzene	10	27	5400	3
Toluene	74	27	140	3

Aromatic fractions were reported exceeding TSVs at three monitoring wells, BH214 (leachate well, Total TPH 360 ug/l), BH405 (groundwater well, Total TPH 1300 ug/l) and BH610D (groundwater well Total TPH 450 ug/l). BH610D is located in the north-eastern area of CIW up hydraulic gradient of the main area of deposition. The well response zone is within bedrock. The highest Total TPH was reported for BH405 located in the central area of CIW close to the western boundary.

Reported benzene concentrations are considered to be significantly elevated at BH303 (5400 ug/l) and BH405 (1400 ug/l), both of which are groundwater wells located adjacent to central western boundary of CIW. The toluene concentration at BH405 (140 ug/l) is also elevated relevant to the TSV. Lesser and localised BTEX concentrations were reported at BH213, BH215, BH610D and BH645.

6.3.2. Round 1 - Campsie Sand and Gravel (CS&G)

No exceedances of the adopted TSVs were reported for the aliphatic compounds tested with compound concentrations typically reported at concentrations less than LoD (laboratory limit of detection). A total of 5 no. fractional exceedances were reported for the aromatic ranges, these are summarised at the table below.

Table 6-6 - TPHCWG Fractions >TSVs, Groundwater and Leachate– Round 1 CS&G

Determinand	Adopted TSV (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Aromatic C5-C7	10	60	330	1
Aromatic C7-C8	700	60	790	1
Aromatic C10-C12	90	60	3700	5
Aromatic C12-C16	90	60	730	3
Total TPH	10	60	4800	3
Benzene	10	60	6400	7
Toluene	74	60	460	2

Elevated TPH and BTEX concentrations were generally localised to BH402 (groundwater well) , BH402S (leachate well) and BH404 (groundwater well) with lesser localised exceedances reported at BH625 (leachate) and BH626 (groundwater well). BH402 and BH404 are located in the central area of CS&G. BH625 and BH626 are located in the southern area of CS&G.

6.3.3. Round 2 - City Industrial Waste (CIW)

No exceedances of the adopted TSVs were reported for the aliphatic compounds tested with compound concentrations typically reported at concentrations less than LoD (laboratory limit of detection). A number of exceedances were reported for the aromatic ranges. These are summarised at the table below.

Table 6-7 - TPHCWG Fractions >TSVs, Groundwater and Leachate– Round 2 CIW

Determinand	Adopted TSV (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Aromatic C5-C7	10	30	750	3
Aromatic C8-C10	300	30	6400	5
Aromatic C10-C12	90	30	5500	11
Aromatic C12-C16	90	30	4500	9
Aromatic C16-C21	90	30	220	3
Aromatic C21-C35	90	30	94	1
Benzene	10	30	9700	6
Toluene	74	30	1000	3
Ethylbenzene	300	30	1400	1

The more elevated aliphatic concentrations are present in wells BH673, BH669, BH660A, BH659D&S which are all located proximal to each another in the area to the immediate north of the CIW yard or central CIW. All are groundwater wells with the exception of BH659S (total TPH 360 ug/l, deeper groundwater installation, BH659D total TPH 1800 ug/l). This is an area characterised by tarry waste depositions at depth which is likely to be the source of the occurrences observed. Lower and less significant concentrations were reported for leachate well BH214, total TPH 1200 ug/l.

BTEX compounds (predominantly benzene, toluene and ethylbenzene) adopt a similar pattern to the aromatic fractions with the most significant concentrations reported in those groundwater wells monitored within the area of encountered tarry wastes. The maximum benzene concentration of 9700 ug/l was reported at BH303 a groundwater well located to the immediate west of the area of tarry waste deposition in central CIW. Benzene concentrations were most elevated at BH669 (6700 ug/l), BH660A (1100 ug/l), BH659D (950 ug/l), BH665 (800 ug/l) and BH670 (780 ug/l) all located within the central CIW area of tarry wastes occurrence.

The maximum toluene concentration was also reported for monitoring well BH303 although exceedances were less frequent and of reduced magnitude compared to benzene concentrations. A similar pattern is evident for ethylbenzene with the maximum concentration reported at BH303 and less frequent and reduced magnitude concentrations reported.

6.3.4. Round 2 - Campsie Sand and Gravel (CS&G)

No exceedances of the adopted TSVs were reported for the aliphatic compounds tested with compound concentrations typically reported at concentrations less than LoD (laboratory limit of detection). A total of 8 no. wells reported fractional exceedances in the aromatic ranges in addition to elevated BTEX compounds (benzene, toluene and ethylbenzene), these are summarised at the table below.

Table 6-8 -TPHCWG Fractions >TSVs, Groundwater and Leachate – Round 2 CS&G

Determinand	Adopted TSV (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Aromatic C5-C7	10	24	160	4
Aromatic C10-C12	90	24	560	6
Aromatic C12-C16	90	24	340	2
Aromatic C16-C21	90	24	100	1
Benzene	10	23	13000	6
Toluene	74	23	790	2
Ethylbenzene	300	23	1700	3

Elevated benzene concentrations were reported at BH404 (3000 ug/l, groundwater well), BH410 (3,400 ug/l, groundwater well), BH402D (9,000 ug/l, groundwater well) and BH629 (13,000 ug/l, groundwater well) with lesser but not insignificant concentrations reported at BH626 (360 ug/l groundwater well). BH629 is located in the southwest of CS&G, where there is evidence of tarry waste deposition noted within made ground to a depth of 2.6 mbgl. BH626 is also located in this area c.80m to the south of BH626. No evidence of significant contamination was reported at this location with limited made ground to 0.6m underlain by sand. Monitoring wells BH404, BH402 and BH410 are all located centrally within CS&G with BH410 western most, close to the western boundary and BH404 to the east of central CS&G. Elevated toluene concentrations were reported in three of the referred to monitoring wells, BH404 (790 ug/l), BH402D (1100 ug/l), BH629 (620 ug/l) with a marginal exceedance reported at BH661 (79 ug/l). Elevated ethylbenzene concentrations were detected at similar locations, BH404 (750ug/l), BH626 (1700ug/l) and BH629 (1600 ug/l).

6.4. PCBS (POLYCHLORINATED BIPHENYLS)

6.4.1. Round 1 - City Industrial Waste (CIW)

Groundwater samples were analysed for the WHO12 PCB congeners from 77 to 189. Statutory TSVs are not available for these congeners. The UK Environment Agency[11] does not consider the WHO12 group of PCBs to be carcinogens. Four no. samples reported contaminant concentrations less than laboratory detection limits for the 12 congeners tested.

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[11] *Environment Agency, 'Soil Guideline Values for dioxins, furans and dioxin-like PCBs in soil', Science Report SC050021/Dioxins SGV, 2009; http://www.environment-agency.gov.uk/static/documents/Research/SCHO0909BQYQ-e-e.pdf*

6.4.2. Round 1 - Campsie Sand & Gravel (CS&G)

One sample reported contaminant concentrations less than laboratory detection limits for the 12 congeners tested.

6.4.3. Round 2 - City Industrial Waste (CIW)

PCB congeners were not reported above laboratory for all samples tested. Additional PCB testing was generally targeted to those newly installed delineation wells not subject to sampling during monitoring round 1.

6.4.4. Round 2 - Campsie Sand & Gravel (CS&G)

PCB congener testing was not scheduled for round 2 testing due to their reported absence following round 1 sampling.

6.5. PAHS

6.5.1. Round 1 - City Industrial Waste (CIW)

TSVs have been derived for a number of higher risk PAH compounds including, naphthalene, anthracene, fluoranthene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene and benzo(g,h,i)perylene. Generally, PAH compound concentrations were not reported at concentrations above LoD with the exception of naphthalene as summarised in the table below as summarised in the table below.

Table 6-9 - PAHs >TSVs, Groundwater and Leachate CIW– Round 1 CIW

Determinand	Adopted TSV (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Naphthalene	2	29	470	3

The maximum Naphthalene concentration was reported at BH405 and the next highest 7.3 ug/l at BH406 both of which are groundwater wells located in the central western area of CIW. A lower-level concentration was reported at BH301 (3.2 ug/l) also a groundwater well located in the central eastern area of CIW.

6.5.2. Round 1 - Campsie Sand & Gravel (CS&G)

Generally, PAH compound concentrations were not reported at concentrations above LoD with the exception of naphthalene, anthracene and fluoranthene as summarised in the table below as summarised in the table below.

Table 6-10 - PAHs >TSVs, Groundwater and Leachate CS&G– Round 1 CS&G

Determinand	Adopted TSV (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Naphthalene	2	59	470	3
Anthracene	0.1	59	2.4	4
Fluoranthene	0.0063	59	2.5	4

The maximum Naphthalene concentration was reported at BH629 in groundwater in the southeast of CS&G, with lesser concentrations reported at BH626 (30 ug/l, groundwater), at BH07 (41ug/l, groundwater) and BH625 (110 ug/l, leachate) also in the southeast. BH626, BH629 and BH07 are located in close proximity in an area of suspected historical tarry waste deposition (Entec, 1993). The recent phases of exploratory works (Tech 2021/22) did identify localised evidence of deposition characteristic of this type of waste at BH628 (1.2-2.2 mbgl). Elevated naphthalene concentrations were also reported at, BH201 (32 ug/l, groundwater) in the southern area and at BH206 (49ug/l, groundwater), centrally within CS&G.

6.5.3. Round 2 - City Industrial Waste (CIW)

PAH compound concentrations were reported at concentrations exceeding TSVs for compounds naphthalene, anthracene and fluoranthene as summarised in the table below as summarised in the table below.

Table 6-11 - PAHs >TSVs, Groundwater and Leachate CIW– Round 2 CIW

Determinand	Adopted TSV (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Naphthalene	2	30	1500	12
Anthracene	0.1	30	2.2	4
Fluoranthene	0.0063	30	2.3	4

The maximum Naphthalene concentration was reported at BH673 with reported concentrations exceeding 1000 ug/l also reported at BH660A (1100 ug/l), BH669 (1200 ug/l) with additional elevated concentrations reported at BH303, BH665, BH659D and BH675. Those monitoring wells where most elevated naphthalene concentrations were reported are consistent with the area of tarry waste occurrence in the central CIW. Naphthalene is the primary PAH compound of concern with generally lower level and less frequent occurrences for remaining compounds Anthracene and Fluoranthene reported. Again, these compounds occurrences are consistent with monitoring wells located within or peripheral to the area of tarry waste occurrence.

6.5.4. Round 2 - Campsie Sand & Gravel (CS&G)

Generally, PAH compound concentrations were not reported at concentrations above TSVs with the exception of naphthalene as summarised in the table below.

Table 6-12 - PAHs >TSVs, Groundwater and Leachate CIW– Round 2 CS&G

Determinand	Adopted TSV (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV
Naphthalene	2	19	130	7

The maximum Naphthalene concentration was reported at BH626 and the next highest 89 ug/l at BH410. Elevated concentrations, 33ug/l and 61 ug/l were reported for monitoring wells BH625 (leachate well) and BH663B (groundwater well) respectively. All locations are located in the southwest of CS&G.

6.6. VOCS

6.6.1. Round 1 - City Industrial Waste (CIW)

Groundwater samples were analysed for a suite of VOC compounds. BTEX compounds benzene and toluene concentrations are consistently reported exceeding relevant TSVs at BH303 and BH405. Hydrocarbon derivatives are also reported for compounds 1,2-Dichloroethane, (BH303, 22 ug/l) and BH405 (80 ug/l) compared to the TSV of 10 ug/l. A marginal exceedance of the TSV (UK DWS) was reported for the determinand styrene (39 ug/l, TSV 20 ug/l).

6.6.2. Round 1 - Campsie Sand & Gravel (CS&G)

VOC compounds concentrations were generally reported at concentrations less than LoD with the exception of BH629 groundwater well which reported compounds toluene (410 ug/l, TSV 74 ug/l), Ethylbenzene (430 ug/l, TSV 300 ug/l) and styrene (20 ug/l, TSV (UK DWS) 120 ug/l) in excess of respective TSVs. Low level benzene concentrations were reported at groundwater well BH626 at 63 ug/l (TSV, 10ug/l).

6.6.3. Round 2 - City Industrial Waste (CIW)

Groundwater samples were analysed for a suite of VOC compounds. With the exception of the BTEX compounds described previously no significant concentrations were reported relevant to available TSVs with the exception of styrene concentrations reported at BH665 which as stated previously is located within the area of tarry waste occurrence within the central CIW area.

6.6.4. Round 2 - Campsie Sand & Gravel (CS&G)

Three no. groundwater samples were analysed for VOCs following round 2 sampling. Elevated benzene and toluene were detected at BH663B. VOC compounds were generally not detected above laboratory LoD and where present did not exceed adopted TSVs where available.

6.7. SVOCS

6.7.1. Round 1 - City Industrial Waste (CIW)

With the exception of the naphthalene compounds described previously no significant concentrations were reported relevant to available TSVs. Naphthalene has been reported at 340 ug/l at BH405 and 5.1 ug/l at BH406.

6.7.2. Round 1 - Campsie Sand & Gravel (CS&G)

SVOC compounds have generally been reported as less than LoD or less than respective TSVs where available with the exception of PAH compounds Naphthalene, Anthracene, and Fluoranthene. Exceedances are generally consistent with those described at previously with maximum concentrations observed at BH629 and lesser concentrations and BH626. Lower-level concentrations were reported for the determinand fluoranthene at BH630, groundwater well (0.29 ug/l) and BH654S, leachate well (0.29 ug/l) exceeding the TSV of 0.0063 ug/l.

6.7.3. Round 2 - City Industrial Waste (CIW)

SVOC compounds have generally been reported as less than LoD or less than respective TSVs where available with the exception of PAH compounds Naphthalene, Anthracene, and Fluoranthene which were reported above respective TSVs at monitoring wells consistent with that reported at previously. Naphthalene remains the principal contaminant of concern with the most significant concentrations reported at BH673 (2,300 ug/l), BH669 (2000 ug/l) and BH660A (2000 ug/l) all of which are groundwater wells located in the area of tarry waste occurrences in central CIW.

6.7.4. Round 2 - Campsie Sand & Gravel (CS&G)

SVOC compounds have generally been reported as less than LoD or less than respective TSVs where available with the exception of PAH compounds Naphthalene, Anthracene, and Fluoranthene which were reported above respective TSVs at monitoring well BH663B. SVOC compounds were generally not detected above laboratory LoD and where present did not exceed adopted TSVs where available.

6.8. PESTICIDES

6.8.1. Round 1 - City Industrial Waste (CIW)

Pesticide compounds were not detected above LoD for the samples selected for analysis.

6.8.2. Round 1 - Campsie Sand & Gravel (CS&G)

Pesticide compounds were not detected above LoD for the samples selected for analysis.

6.8.3. Round 2 - City Industrial Waste (CIW)

Pesticide compounds were not analysed for monitoring during round 2.

6.8.4. Round 2 - Campsie Sand & Gravel (CS&G)

Pesticide compounds were not analysed for monitoring during round 2.

6.9. INORGANICS

6.9.1. Round 1 - City Industrial Waste (CIW)

Several inorganics were selected for analysis. Generally reported determinand concentrations were not reported in excess of applicable TSVs where available with the exception of ammonia (free), sulphate and cyanide (total). Results are summarised in the table below.

Table 6-13 - Inorganics >TSVs, Groundwater and Leachate CIW– Round 1 CIW

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV
Ammonia (Free)	0.3	25	21	12
Sulphate	250	28	340	2
Cyanide (Total) Low-Level	0.001	25	0.013	1
Chloride	250	25	1300	6

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV
Sodium	200	25	910	9

Generally, inorganics were reported at low levels and where exceedances of adopted TSVs were reported these were infrequent and of low magnitude. Ammonia was reported at concentrations exceeding the adopted TSV, 0.3 mg/l (EQS for high quality surface water, WFD2015), in 12 no. samples tested. The highest concentration was reported for the leachate well BH214 located in the northern central area of CIW. Exceeding but lesser concentrations were also reported for leachate wells BH213 (2.5 ug/l) and BH215 (2.6 ug/l) in this area.

The remainder of monitoring wells where the TSV was exceeded reported concentrations <3 mg/l with the exception of BH302 (reported at 16 mg/l, groundwater well, located to the west of northern area of CIW) and BH610D (reported at 7.4 mg/l, groundwater well, located to the east of northern area of CIW).

Low level exceedances of sulphate were reported at BH209 (260 mg/l) and BH645 (340 mg/l), both of which are leachate wells. Concentrations were generally reported at low concentration in leachate and groundwater wells sampled in the area.

A singular exceedance was reported for the determinand cyanide at groundwater well BH408 (0.013 mg/l compared to the TSV of 0.001 mg/l). Cyanide was not reported above the laboratory LoD for wells sampled in CIW as part of this monitoring round.

The maximum chloride concentration was reported at leachate well BH214 with reported concentrations generally not significantly exceeding the adopted TSV (DWS, 250 mg/l).

Similarly, generally low-level exceedances were reported for the determinand sodium TSV (DWS, 200 mg/l), with the maximum concentration reported at leachate well BH214.

6.9.2. Round 1 - Campsie Sand & Gravel (CS&G)

Generally reported determinand concentrations were not reported in excess of applicable TSVs where available with the exception of ammonia (free), sulphate, cyanide (total), chloride and sodium. Results are summarised in the table below.

Table 6-14 - Inorganics >TSVs, Groundwater and Leachate CS&G – Round 1 CS&G

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV
Ammonia (Free)	0.3	50	13	14
Sulphate	250	64	270	1

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV
Cyanide (Total) Low-Level	0.001	54	0.016	10
Chloride	250	54	980	6
Sodium	200	54	620	3

Ammonia was reported at concentrations exceeding the adopted TSV, 0.3 mg/l (EQS for high quality surface water, WFD2015), in 14 no. samples tested. The highest concentration was reported for the groundwater well BH201 located in the southern area of CS&G. A lesser but elevated concentration was also reported at leachate well BH218 (11 mg/l). Remaining TSV exceedances were typically reported at concentrations <1 mg/l with the exception of groundwater well BH633 (1.2 mg/l), leachate well BH635S (1.8 mg/l), leachate well BH636S (3.5 mg/l) and groundwater well BH654D (1.1 mg/l). Monitoring wells BH633, BH635 and BH636 are located in central and northern CS&G and BH654 is located in the southern area of CS&G.

The maximum chloride concentration was reported at groundwater well BH107 with reported concentrations generally not significantly exceeding the adopted TSV (DWS, 250 mg/l).

Similarly, generally low-level exceedances were reported for the determinand sodium TSV (DWS, 200 mg/l), with the maximum concentration reported at leachate well BH218.

Low level total cyanide concentrations are reported in groundwater and leachate concentrations at low concentrations across the area.

pH was generally reported with the neutral range pH5-pH9 with the exception of sample tested from groundwater well BH06 where pH was reported at 5.9 suggesting slightly acidic conditions. BH06 is located centrally within CS&G.

6.9.3. Round 2 - City Industrial Waste (CIW)

Generally reported determinand concentrations were not reported in excess of applicable TSVs where available with the exception of ammonia (free). Sulphate, chloride and sodium. Results are summarised in the table below.

Table 6-15 - Inorganics >TSVs, Groundwater and Leachate CIW– Round 2 CIW

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV
Ammonia (Free)	0.3	16	1.7	9
Sulphate	250	30	420	1

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV
Chloride	250	25	1400	2
Sodium	200	25	850	3

Generally, inorganics were reported at low levels and where exceedances of adopted TSVs were reported these were infrequent and of low magnitude. Ammonia was reported at concentrations exceeding the adopted TSV, 0.3 mg/l (EQS for high quality surface water, WFD2015), in 9 no. samples tested. The highest concentration was reported for the groundwater well BH647A located in the northern eastern area of CIW. Exceeding but lesser concentrations were also reported for leachate well BH215 (1.6 ug/l) with the remainder of exceedances reported at concentrations <1mg/l.

A low-level exceedance of sulphate was reported at groundwater well BH679 (420 mg/l).

The maximum chloride concentration was reported at leachate well BH214 with reported concentrations generally not significantly exceeding the adopted TSV (DWS, 250 mg/l) which is consistent with the previous sampling round.

Similarly, the maximum sodium concentration was again reported at leachate well BH214 with generally low-level exceedances reported across remaining monitoring wells.

pH was generally reported within the neutral range with the exception of the sample tested from BH647A which reported a pH of 11.3, suggesting slightly alkaline conditions.

6.9.4. Round 2 - Campsie Sand & Gravel (CS&G)

Generally reported determinand concentrations were not reported in excess of applicable TSVs where available with the exception of ammonia (free), sulphate and chloride. Results are summarised in the table below.

Table 6-16 - Inorganics >TSVs, Groundwater and Leachate CS&G – Round 2 CS&G

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV
Ammonia (Free)	0.3	14	2.2	6
Sulphate	250	24	290	1
Chloride	250	24	290	1

Generally, inorganics were reported at low levels and where exceedances of adopted TSVs were reported these were infrequent and of low magnitude. Ammonia was reported at concentrations exceeding the adopted TSV, 0.3 mg/l (EQS for good quality surface water, WFD2015), in 6 no. samples tested. The highest concentration was reported for the groundwater well BH632 located in the southern area of CS&G. Remaining TSV exceedances were typically reported at concentrations <1 mg/l except for groundwater well BH201 (1.5 mg/l). One marginal exceedance of the adopted TSV was reported for the determinand chloride in groundwater well BH201.

A singular marginal sulphate exceedance was reported at monitoring well BH206 (290 mg/l).

pH was generally reported with the neutral range pH5-pH9.

6.10. SUMMARY OF GROUNDWATER ASSESSMENT (TETRA TECH 2022)

Recent sampling of groundwater and leachate has identified similar contaminants of concern to those identified historically (Sirius 2017, NIEA EMP quarterly monitoring data) although the targeted nature of the recent exploratory and sampling works has better informed source zone characterisation.

With respect to CIW Potential Contaminants of Concern (PCoCs) in the northern site area are characterised by heavy metals iron, manganese and to a lesser extent occurrences of nickel and zinc within leachate and groundwater wells. Low level organics (TPH) was identified in a leachate well (BH214) in the northern most area of CIW and in a deeper groundwater well (BH610D).

An area of tarry waste deposition was encountered in the central western area at depth (c.8-11 mbgl) of CIW and there is evidence of impacts to groundwater in this area characterised by tarry waste signatures which include elevated BTEX (benzene principally) and PAHs (naphthalene principally) compounds. The extent of the free phase tarry waste deposition is reasonably well delineated based on visual and olfactory observations noted during site investigations. Initial groundwater impacts would suggest these materials are acting as a source for observed PCoCs observed in monitoring wells within and peripheral to the source area and potentially at lands to the west of the Mobuoy Road.

Groundwater and leachate assessment for monitoring wells in the yard and south of CIW yard have generally not detected significant PCoC with the exception of localised elevated manganese concentrations (BH122 (groundwater well), BH209 (leachate well), BH208 (leachate well) and BH121 (groundwater well).

Inorganics testing of groundwater and leachate samples did not identify significant PCoCs with the exception of ammonia which was generally reported at concentrations <3mg/l following monitoring round 1 and <1mg/l following monitoring round 2. Higher concentrations were reported for leachate wells in the northern CIW area with the maximum reported (16 mg/l, round 1) at BH302 (groundwater well) which is located close to the western central area of CIW. An elevated concentration of ammonia (7.4 mg/l) was reported at monitoring well BH610D (groundwater) which was installed into rock in the northeast of CIW. This would suggest a potential offsite input to ammonia in groundwater given the well location and construction detail.

With respect to CS&G Potential Contaminants of Concern (PCoCs) across the site area, these are characterised by heavy metals iron and manganese and to a lesser extent occurrences of cadmium, nickel and zinc in addition to localised exceedances reported for determinands boron and mercury within leachate and groundwater wells.

Organics testing identified elevated TPH, BTEX and PAH compounds across the central CS&G area within groundwater and occasionally leachate wells. PCoCs identified included TPH aromatic fractions, benzene and naphthalene. Similar contaminant characteristics were also observed for groundwater monitoring wells in the southwest in an area of or proximal to an area of suspected tarry waste deposition (Entec Site 4, 1993). Only boreholes BH628 and BH629 identified materials consistent with tarry wastes in shallow made ground (c.1-2.6 mbgl). Subsequent delineation boreholes (BH662, BH663 and BH664) did not indicate visual or olfactory evidence of tarry waste depositions suggesting a localised occurrence in this area.

Generally, inorganics were reported at low levels and where exceedances of adopted TSVs were reported these were infrequent and of low magnitude. Ammonia was reported at concentrations exceeding the adopted TSV, 0.3 mg/l (high quality surface water) with the highest concentration was reported for the groundwater well BH201 located in the southern area of CS&G. TSV exceedances were typically reported at concentrations <1 mg/l with the exception of groundwater well BH633 (1.2 mg/l), leachate well BH635S (1.8 mg/l), leachate well BH636D (0.94 mg/l), leachate well BH636S (3.5 mg/l) and groundwater well BH654D (1.1 mg/l). Monitoring wells BH633, BH635 and BH636 are located in central and northern CS&G and BH654 is located in the southern area of CS&G.

pH was generally reported with the neutral range pH5-pH9 with the exception of sample tested from groundwater well BH06 where pH was reported at 5.9 (round 2) suggesting slightly acidic conditions. BH06 is located centrally within CS&G.

The monitoring data has been used to inform the development of the CSMs.

6.10.1. Contaminant Distribution Mapping

A series of contaminant distribution maps have been developed for key contaminants of concern including ammonia, naphthalene, benzene, manganese and iron to assist in risk conceptualisation. These are presented at Figure 7 and discussed briefly below.

<u>Ammonia – Round 1</u>

Round 1 sampling of groundwater represents the most complete data set with regard to reported ammonia testing. Distribution mapping indicates more significant concentrations prevalent in the to the north of CIW which correlates with an area of significant generally domestic type waste depositions. Furthermore, localised elevated ammonia occurrences are identified in the southwest CS&G area and to a lesser extent within central CS&G. Mapping would does not support a significant site wide risk for this determinand with reported concentrations often reported at concentrations less than the adopted TSV, 0.3 mg/l (EQS).

<u>Ammonia – Round 2</u>

Round 2 sampling of groundwater distribution mapping indicates a broadly similar pattern to that observed following the initial monitoring round with more significant concentrations prevalent in the to the north of CIW and in the southwest CS&G area and to a lesser extent within central CS&G. Reported concentrations are generally reduced relevant to reported concentrations following the initial monitoring round.

Naphthalene – Round 1

Mapping indicates two primary occurrences, one located centrally extending from central CIW toward central CS&G and a further locate to the southwest of southern CS&G.

Naphthalene – Round 2

Round 2 sampling distribution mapping indicates a similar pattern with a more defined plume within central CIW extending west into CS&G. The intervals adopted for Round 2 mapping have been revised to reflect the significantly higher concentrations reported in the central area of CIW following additional site investigations and subsequent monitoring works completed.

Benzene – Round 1

Mapping identifies one primary occurrence or potential plume in groundwater exhibiting similar spatial characteristics to those observed of naphthalene with more significant concentrations located centrally within the CIW and CS&G sites. Lesser occurrences are evident in the southern area of CS&G.

Benzene – Round 2

Mapping of benzene concentrations in groundwater presents a similar but more refined plume area which are a result of additional delineation works carried out in the area of CIW. Benzene impacts are again noted across a distinct central area frow CIW extending to CS&G and toward the river. A furthermore localised plume is evident in the southwest of CS&G.

Manganese Round 1

Mapping of manganese concentrations in groundwater sees concentrations exceeding the derived TSV across much of the site area extending from north and central CIW across much of the CS&G site to the west. Localised elevations are evident in central CS&G and to a lesser extent in southern CS&G.

Manganese Round 2

Mapping of manganese concentrations reported following monitoring round 2 sees a similar site wide occurrence with areas of greater concentrations again present across central CIW across much of the CS&G site to the west with localised elevations evident in central CS&G and in southern CS&G.

Iron Round 1

Mapping of iron concentrations in groundwater presents a similar distribution to that observed for manganese with more elevated concentrations evident in the north and central CIW area extending across much of the CS&G site to the west. More elevated concentrations are also evident in the southern area of CS&G.

Iron Round 2

Mapping of iron concentrations in groundwater following monitoring round 2 sees a similar distribution to that observed for manganese round 2 in CS&G with more elevated concentrations evident in central CS&G site and to the south and southwest.

TPH Round 1

Mapping of Total TPH concentrations sees a number of localised occurrences with central CS&G, to the south the former yard area in CS&G and in the southwestern area of CS&G.

TPH Round 2

Mapping of Total TPH concentrations following monitoring round two indicates a distinct central area extending from CIW in the east to CS&G in the west. A localised plume is also evident in the southwest of CS&G.

Zinc Round 1

Mapping of zinc concentrations in groundwater indicates a number of localised distributions in the north and central CIW and in the south west of CS&G.

Zinc Round 2

Distribution mapping for round 2 suggest a large plume in the south and central area of the site extending from central CIW, south west and along the eastern area of CS&G. A number or marginal exceedances of the derived PNEC TSV were observed along the western area of central CS&G with a more elevated concentration reported at BH657 to the north (160 ug/l).

6.10.2. Iron and Manganese occurrence in groundwater and leachate

Iron and manganese have been consistently reported at concentrations often significantly exceeding the adopted TSVs within leachate and groundwater samples in CS&G and in CIW. Sampling test results for surface waters and groundwaters would suggest onsite waste depositions ((reference contaminant distribution mapping) are likely to be significantly contributing observed contaminant loads however there is considered to be a contribution from natural sources associated with the site's hydrogeological setting. This assertion is consistent with the Sirius 2017 sampling data where it is suggested that the observed concentrations for these determinands are a component of the hydrochemical effects of historical on-site processes such as sand and gravel extraction with an onsite contribution form waste deposition.

Similarly, ammonia concentrations detected within the surface waters are considered to be symptomatic of local agricultural activity which surround the site.

6.11. QA/QC SUMMARY

Ten duplicate field samples were collected to assess laboratory performance. Reported test results for these sampled are included at Appendix 12 for comparison purposes.

Compound concentrations were generally reported at similar concentrations where present at concentrations above LoD and are considered to be within an acceptable range of laboratory detection. Duplicates and corresponding groundwater samples generally reported similar non detection or concentrations less than respective laboratory LoDs.

More significant variations were reported for the duplicates from monitoring wells BH614, BH122 and BH622 for heavy metals copper, iron and manganese, although these variations for these compounds are not sustained across all duplicates.

Organics tests for duplicates including BTEX, TPHCWG, PCBs, PAHs, VOCs and SVOCs were also reported within an acceptable range. Duplicates and corresponding well samples generally reported similar non detects or concentrations less than respective LoDs.

Inorganics testing of duplicates were generally reported at similar concentrations where present at concentrations above LoD and were generally reported with an acceptable range. Where variations of duplicates were reported, these were localised to singular compound and/or duplicate testing.

The testing laboratory employed by the ICT appointed site investigation contractor for analytical services was Eurofins Chemtest Ltd. The Laboratory is accredited to the BS EN ISO/IEC 17025 International Standard (General Requirements for the Competence of Testing and Calibration Laboratories) (Accreditation Number 2183) for those tests that are identified and listed on the UKAS accreditation schedule (see www.ukas.com or S:\QA Docs\UKAS Accreditation Schedule).

6.12. SURFACE WATERS ASSESSMENT

A total of 15 no. surface water samples were retrieved during the Phase 1 sampling round with a further 15 no. collected during the Phase 2 works. Surface waters were collected from the River Faughan and surface water bodies present across the site including ponds and streams. Sampling locations were consistent with those adopted by the MPRT's EMP (refer to Figure 5).

Samples were submitted to a UKAS accredited laboratory for analysis for suites similar to that applied for groundwater and leachate sample testing.

The screening summary sheet presented in Appendices 9 & 10 details the selected water quality standards used to assess each given contaminant and summarises the associated laboratory data, highlighting any results that exceed the relevant screening criteria. Supporting laboratory test certificates are included at Appendix 11.

6.13. HEAVY METALS

6.13.1. Round 1

Following a review of round 1 monitoring data, all reported concentrations of heavy metals were reported below the adopted TSVs with the exception of Manganese. These exceedances are summarised in the table below.

Table 6-17 - Heavy metals >TSVs, Surface Waters – Round 1

Determinand	Adopted TSV (see note 1) (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV	Location	Reported concentration (ug/l)

Manganese	276.92 (Note 1)	15	780	2	SW3 SW4	780 540

Note 1- MBAT PNEC calculated value

Following a review of the heavy metal concentrations reported following monitoring round 1, manganese was the only determinand to exceed the TSV elevated concentrations relevant to the adopted TSVs. All exceedances were reported in samples obtained from the watercourse south of CS&G. Samples obtained from the River Faughan reported manganese concentrations below the TSV.

6.13.2. Round 2

Following a review of round 2 monitoring data, a number of heavy metals were reported above the adopted TSVs of varying magnitude and frequency. Surface water samples collected during round 2 were retrieved during over water drilling works as a requirement of the CEMP (Construction Environmental Management Plan). CEMP US was obtained in the River Faughan, upstream of the site in the location of SW13, obtained during the first round. CEMP DS was obtained in the River Faughan, downstream of the site in the location of SW8, obtained during the first round. These are summarised in the table below.

Table 6-18 - Heavy metals >TSVs, Surface Waters – Round 2

Determinand	Adopted TSV (see note 1) (ug/l)	Sample Population	Max Reported (ug/l)	No. Samples >TSV	Location	Reported concentration (ug/l)
Cadmium	0.09 (AA), 0.6 (MAC)	15	1.5	2	CEMP Pond 5 CEMP US (04/04/2022)	1.5 0.23
Copper	34.94 (Note 2)	15	56	2	CEMP US (04/04/2022)	56
Molybdenum (diss.filt)	70	15	2200	2	CEMP Pond 5 CEMP US (04/04/2022)	1200 2200
Antimony	0.07	15	5.8	1	CEMP US (04/04/2022)	5.8
Chromium VI	3.4(AA)	15	5.9	5	CEMP DS (28/03/22) CEMP DS (04/04/22) CEMP Pond 3A CEMP US (28/03/22)	5.8 4.2 4.8 5.9 4.1

					CEMP US (04/04/2022)	

Note 1 - Adopted TSVs are EQS unless otherwise stated.

Note 2- MBAT PNEC calculated value (

AA – Annual Average

MAC – Maximum allowable concentration

Following a review of the heavy metal concentrations reported following monitoring round 2, reported concentrations of Chromium VI exceeded adopted TSV (3.4ug/l) on 5no. occasions and upstream and downstream concentrations were comparable. The maximum concentration of 5.9ug/l was reported in an upstream sample, CEMP US, obtained on 28th March. Reported concentrations of Chromium VI were generally low level and within the same order of magnitude as the TSV.

Determinands Cadmium, Copper, Molybdenum and Antimony all reported concentrations in exceedance of their respective TSV in the upstream sample CEMP US obtained on 4th April 2022. Reported concentrations of copper were generally low level and within the same order of magnitude as the TSV. Reported concentrations of Cadmium, Molybdenum and Antimony were 1 and 2 orders of magnitudes greater than the TSV.

Reported concentration of Cadmium, Molybdenum was in exceedance of the TSV in the sample obtained from CEMP Pond 5, located within the CIW site.

6.13.3. Phenols

Reported Total Phenol concentrations were below the LoD following both monitoring rounds.

6.13.4. TPHCWG including MTBE & BTEX.

No exceedances of the adopted TSVs were reported for the aliphatic, aromatic, or BTEX compounds tested with compound concentrations typically reported at concentrations less than LoD following both monitoring rounds.

6.13.5. PAHs

Generally, all PAH compound concentrations for the obtained surface water samples were reported below the LoD following both sampling events and where detected were reported below the relevant TSV.

6.13.6. VOCS

One surface water sample, CEMP Pond 3A was analysed for VOCs during the second round of monitoring and concentrations were reported below the laboratory LoD.

6.13.7. SVOCS

One surface water sample, CEMP Pond 3A was analysed for SVOCs during the second round of monitoring and concentrations were reported below the laboratory LoD.

6.13.8. Inorganics Round 1

Generally reported determinand concentrations were not reported in excess of applicable TSVs where available with the exception of cyanide (total). Results are summarised in the table below.

Table 6-19 - Inorganics >TSVs, Surface Waters– Round 1 CIW

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV	Location	Reported concentration (ug/l)
Cyanide (Total) Low-Level	0.001	15	0.014	7	Lagoon	0.013
					SW1	0.014
					SW3	0.0090
					SW4	0.0070
					SW5	0.0070
					SW7	0.0060
					SW9	0.012

Reported concentrations of Cyanide (total) were generally low-level marginal exceedances. Reported concentrations ranged from 0.06ug/l (SW7) to 0.014 (SW1). All samples obtained, with the exception of SW7 were collected in the watercourse south of the CIW and CS&G site or from the lagoon within the CIW site. SW1 is located up gradient of the site within the tributary to the south of CIW and would suggest observed concentrations are associated with background concentrations present or are potentially attributable to an offsite source.

6.13.9. Inorganics Round 2

During the second round of monitoring, generally reported determinand concentrations were not reported in excess of applicable TSVs where available with the exception of ammonia. Results are summarised in the table below.

Table 6-20 - Inorganics >TSVs, Surface Waters CIW– Round 2 CIW

Determinand	Adopted TSV (mg/l)	Sample Population	Max Reported (mg/l)	No. Samples >TSV	Location	Reported concentration (ug/l)
Ammonia	0.3	15	0.72	3	CEMP Pond 3A (21/03/22)	0.31
					CEMP Pond 3A (23/02/22)	0.72
					CEMP US (21/03/2022)	0.62

Reported concentrations of Ammonia were reported in excess of the adopted TSV on 3no. occasions, 2no. within Pond 3a located in the northern CIW area and once in the upstream CEMP US sample. Concentrations were low level ranging from 0.31ug/l (Pond 3A, 21/03/22) to 0.72ug/l (Pond 3A, 23/02/22).

6.13.10. Summary of Surface Water Assessment

Following a review of surface waters assessment, a significant or potentially significant risk to the River Faughan has not been identified. Where heavy metal exceedances were detected, these are marginal in nature with upstream monitoring indicating concentrations consistent with existing local background concentrations. Organics were generally not detected above laboratory limit of detection. Similarly, inorganics testing of surface waters does indicate a significant contaminant increase relevant to observed background or offsite concentrations.

7. REVIEW NIEA QUARTERLY MONITORING WATERS ASSESSMENT (2016-2021)

Tetra Tech undertook a review of the historical monitoring data provided by the NIEA's MPRT to augment the recent site characterisation and monitoring works. Groundwater monitoring was undertaken quarterly at the site between 2017 and 2022 with samples analysed for a range of contaminants including heavy metals, phenols, speciated TPH, BTEX, inorganics and pH.

The screening summary sheet presented in Appendix 13 details the selected water quality standards used to assess each given contaminant and summarises the associated laboratory data, highlighting any results that exceed the relevant screening criteria. Analysis supporting the quarterly monitoring programme was undertaken by NIEAs Water Chemistry Group (WCH) Labs and is fully accredited from the point of sampling. Analysis conducted internally by NIEA WCG Labs did not generate laboratory test certificates.

The results from the groundwater and leachate samples have been assessed in accordance with criteria provided in the Water Framework Directive[12] or by direct comparison with the Transitional and Freshwater Environmental Quality Standards (EQS), UK Drinking Water Standards (DWS), WHO (World Health Organisation standards for Drinking Water) or other appropriate guidance values.

7.1. HEAVY METALS

Historically, reported concentrations for Iron, Manganese, Nickel and Lead have been reported in exceedance of adopted TSVs across the site.

Reported concentrations for Iron and Manganese were most elevated with concentrations generally reported 1no. order of magnitude greater than the TSV. A maximum reported concentration of Iron (142,000ug/l) was recorded at BH107, located in the central CS&G site, on the 05/07/2019 compared to the TSV of 1000ug/l. Over the course of the monitoring period, reported concentrations have reduced considerably from November 2021 onwards with most recent concentrations reported below the TSV .

Manganese concentrations were also frequently reported above the adopted TSV (276.92ug/l) at monitoring wells sampled across the site throughout the period. A maximum manganese concentration of 168,000ug/l was reported at BH06, located close to the western boundary of the central CS&G site, on the 17/04/2018. Over the course of the monitoring period, reported manganese concentrations were noted to be on a downward trend at BH106.

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[12] *The Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015*

To a lesser extent, reported nickel concentrations exceeded the derived TSV (M-BAT PNEC) of 14.98 ug/l at monitoring wells across the site. Reported nickel concentrations were generally low level and within the same order of magnitude as the TSV with the exception of BH302, located along the western boundary of the CIW area, where concentrations were consistently reported at concentrations >300ug/l. The maximum reported nickel concentration of 395.97ug/l was reported at BH302 from a sample obtained on 13/10/2020.

The reported copper concentrations exceeded the TSV of 34.94ug/l at a number of locations within the CS&G site. A maximum concentration of 109ug/l reported in BH107 located in the central CS&G site.

To a lesser extent, exceedances of chromium (BH06), zinc (BH06, BH114, BH207, BH401, BH404, BH408), chromium III (SW6; BH302 & BH218) and Lead (BH06) were identified. The exceedances were generally low level with reported concentrations in the same order of magnitude as the adopted TSV.

Historically, heavy metal concentrations were generally below TSVs in the surface water samples obtained with occasional exceedances of manganese and iron reported with the exception of samples collected from SW5 and the Trench (located in the southeast corner of CS&G). Surface water samples obtained from SW5, and the Trench reported manganese concentrations which were consistently reported in exceedance of the TSV.

At SW5, reported concentrations of manganese ranged from 108ug/l to 1407ug/l, with the majority of concentrations reported in excess of adopted TSV of 276.92ug/l. Over the 5-year monitoring period, manganese concentrations were noted to exhibit a slight downward trend.

Reported manganese concentrations in samples obtained from the Trench ranged from 83.152ug/l to 7040ug/l with concentrations of the majority of sampling occasions exceeding the TSV (derived PNEC following MBAT assessment).

7.2. PHENOLS

Historically, phenol concentrations in exceedance of the adopted TSV (7.7 ug/l) were reported in boreholes across the site with reported exceedances ranging from 13ug/l in BH04 to 25000ug/l in BH213.

Based on the level of frequency that 22.50ug/l was reported as the phenol concentration, it is assumed this was the laboratory LOD and not considered to be an exceedance when reviewing historical data.

7.3. TPH CWG INCLUDING BTEX

Historical monitoring at the site has shown that reported concentrations for aliphatic fractions were generally below the adopted TSV (WHO DWS[13]). Exceedances of the adopted TSV for aromatic fractions were noted, mostly for fractions C5-7, C10-C12, C12-C16, C16-C21 and C21-C35. Where exceedances occurred, reported concentrations were generally 1no. order of magnitude greater. At BH06 (close to western boundary of CS&G, refer to figure 3 for site investigation location plan) and BH302 (close to western boundary of CIW), the reported concentrations of C12-C16 and C16-C21 at BH06 and BH302 were 2no. orders of magnitude greater than the applied TSV.

Reported concentrations of aromatic fraction C5-C7 were also in exceedance of the adopted TSV. At a number of boreholes in the centre of the CS&G site, extending into the west of the CIW site, the reported concentration of aromatic fraction C5-C7 was up to 2no. orders of magnitude greater than the adopted TSV. A maximum reported concentration of 4776.867ug/l was recorded at BH404 located in the central are of the CS&G site.

Significant exceedances of the adopted TSV for Benzene (10ug/l) were reported at boreholes located within the central CS&G site, extending toward the CIW site to the east. A maximum benzene concentration of 3650.21ug/l was reported at BH404, located along the eastern boundary of the central CS&G site. All reported benzene concentrations at BH404 exceeded the TSV and over the monitoring period the generally trend showed reducing concentrations. Outside, of the central CS&G and CIW area, a reported benzene concentration of 40ug/l was reported at BH213, located in the northeast corner of the CIW site.

Reported concentrations of Toluene in exceedance of TSV (70ug/l) were also reported in boreholes located within the central CS&G site, extending into the CIW site, but to a lesser magnitude to that reported for Benzene concentrations. A maximum Toluene concentration of 1138.37 ug/l was reported at BH404 (eastern boundary of the central CS&G site).

Outside, of the central CS&G and CIW area, a reported toluene concentration of 130ug/l was reported at BH213, located in the northeast corner of the CIW site.

To a lesser frequency, reported concentrations of ethylbenzene was reported in excess of the TSV (300ug/l) at BH206, BH404 and BH405 which are located on either site of the Mobuoy Road. A maximum ethylbenzene concentration of 1041.76ug/l was reported at BH404 (eastern boundary of the central CS&G site).

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[13] *World Health Organization (WHO), 2008. Petroleum products in drinking-water. Background document for development of WHO guidelines for drinking water quality. WHO/SDE/WSH/05.08/123. World Health Organization, Geneva. Accessed at: http://www.who.int/water_sanitation_health/dwq/chemicals/petroleumproducts_1add_ju ne2008.pdf*

7.4. PAHS

Elevated concentrations in exceedance of the adopted TSV for Benzo(b)fluoranthene (0.017 ug/l), Benzo(b)fluoranthene (0.017 ug/l),, naphthalene (2 ug/l) and Benzo(a)pyrene (0.00017 ug/l) were identified across the site. The exceedances were generally low level and within the same order of magnitude as the TSV. Based on the level of frequency that 0.001ug/l was reported as the Benzo(a) pyrene concentration, it is assumed this was the laboratory LOD and not considered to be an exceedance when reviewing historical data.

The maximum reported concentration for Benzo(b)fluoranthene (0.574ug/l) and Benzo(k)fluoranthene (0.317ug/l) were recorded in BH106 located close to the western boundary of CS&G.

A maximum reported concentration for Benzo(a)pyrene of 1.734ug/l was recorded in BH207, located towards the northern end of central CS&G site.

Reported naphthalene concentrations across the site were also in exceedance of the adoptive TSV (2ug/l) with most exceedances occurring in the central CS&G site and extending into the CIW site. Naphthalene concentrations in exceedance of the TSV were also report in the northern CS&G site (BH04, BH05, BH218), Southern CS&G site (BH07 and BH201) and southern CIW site (BH121 and BH208). Reported concentrations were frequently 3no. order of magnitude greater than the TSV with a maximum reported naphthalene concentration of 4,832.956ug/l reported at BH404, located along the eastern boundary of the central CS&G site.

7.5. INORGANICS

Generally, during historical monitoring, inorganic compounds were reported at concentrations below TSVs (where available) with the exception of Chloride, Ammoniacal Nitrogen, Sulphate, Nitrate, Sodium and pH.

Exceedances of Chloride were generally reported below TSVs but reported concentrations in exceedance of the TSV of 250 mg/l were reported frequently at BH04, BH06, BH107, BH206, BH213, BH218, BH302. A maximum concentration of 5,569mg/l was reported at BH302.

Historically, ammoniacal nitrogen was reported as NH_3 (un-ionised). Ammoniacal nitrogen concentrations were reported in excess of the TSV (0.3mg/l) across much of the site, with exceedances ranging from 0.31 mg/l to 2,880 mg/l. The maximum concentration was reported at BH213, located in the northern section of CIW and reported ammoniacal nitrogen (NH_3 un-ionised) were consistently high at this location (>2670 mg/l).

The reported concentration of sulphate exceeded the TSV at 4 no. locations (BH209 (southern CIW), BH216, BH217 (located to the north of current investigation area) and BH303 (located along the western boundary of central CIW)). The maximum concentration of 512.32 mg/l (compared to the TSV of 250 mg/l) was reported at BH217.

Sodium was generally reported below the TSV, but frequent exceedances were reported at select wells including BH04, BH06, BH107, BH206, BH218, BH302. A maximum concentration of 1055ug/l was reported at BH302.

The pH of all samples fell with the range of 6-9, with the exception of BH06. The pH at this location was recorded as <6 on 5 no. occasions.

7.6. COMPARISON OF HISTORIC AND RECENT WATER SAMPLING DATA

7.6.1. Heavy Metals - Groundwater

Historically, reported concentrations for Iron and Manganese were generally reported 1no. order of magnitude greater than the TSV across the site and similar results were reported during the most recent round of monitoring with exceedances being identified at a number of monitoring wells. A review of the historical monitoring data identified the maximum Iron concentration of 142,000ug/l was reported at BH107 and similarly during the most recent round of sampling, the maximum Iron concentrations of 120,000ug/l was reported at BH107. BH107 is located in north central CS&G area.

Historically, the maximum manganese concentration of 168,000ug/l was identified in BH06. During the most recent rounds of sampling, the maximum manganese concentration of 63,000ug/l was also recorded at BH06.

Nickel was identified at a number of boreholes in exceedance of the TSVs during the historic monitoring period. The greatest concentrations were recorded at BH302, where reported Nickel concentrations were consistently reported >300ug/l with a maximum concentration of 395.97ug/l recorded. During the recent round of monitoring, Nickel exceedances were also reported site wide, with a maximum concentration of 310ug/l recorded at BH214. BH302 and BH214, are located in close proximity of each other, within the northern section of the CIW site. During the most recent round of monitoring, the concentration of Nickel at BH302 was reported at 170ug/l.

Copper concentrations in exceedance of the TSV were identified frequently at BH106 and BH107 from the end of 2018 to the start of 2019 and at BH119 during 2019 and 2021. During the most recent round of monitoring, copper exceedances were not reported at either of these locations.

Reported concentrations of Zinc during the historic monitoring tended to be below TSV, however exceedances were identified at a number of boreholes within the central CS&G and close to the western boundary of the central CIW site. A maximum Zinc concentration of 95.9ug/l was recorded at BH207; however, this was a singular exceedance in 2018 with no further exceedances identified at this location. Historically, frequent exceedances were also identified at BH06 during 2018 and 2019. During the most recent round of monitoring, exceedances were identified at number of locations across the site with a maximum concentration of 1800ug/l being reported at BH656 located in the northern CS&G site. At BH06 (where historically exceedances have been identified), the reported zinc concentration was below the TSV during the most recent round of monitoring.

7.6.2. Heavy Metals - Surface Water

Historically, heavy metal concentrations in the surface water samples were generally reported below the TSV. Occasional exceedances of compounds were identified, most notably Iron and Manganese, but exceedances tended to be infrequent with the exception of SW5 and samples obtained from the Trench in southern CS&G. During the recent round of surface water sampling, the reported concentration of manganese at SW5 was 130ug/l which is below the TSV of 276.92ug/l.

The most recent rounds of monitoring identified marginal exceedances of the TSV for manganese at SW1, SW3, SW4 and SW5. During historic monitoring, manganese exceedances were identified at SW3 and SW4 however these were infrequent. At SW3, exceedances were noted during 2017 and 2019, with and no further exceedances identified during monitoring rounds undertaken between 2020 to 2022.

At SW4, historically manganese exceedances were identified in early and Mid-2021, with no other exceedances identified during the monitoring period (2017 to 2022).

7.6.3. Phenols

Historically Phenols were generally reported below the limit of laboratory detection, and this was comparable to the results of the recent groundwater and surface water monitoring.

7.6.4. TPHCWG including BTEX - Groundwater

The NIEA monitoring data has shown that historically, hydrocarbon exceedances were typically identified in aromatic fractions C5-C7, and fractions included within C10-21 ranges. Only occasional exceedances of aliphatic fractions were identified which is comparable with the recent groundwater results. Historically, generally marginal exceedances were reported for wells across the site wide with more elevated and more frequent concentrations identified in the central CS&G and CIW site. The highest TPH concentrations were reported at BH06 (along the western boundary of the CS&G site) and BH302 (close to the western boundary of the northern CIW site).

Historically BH06, located along the western boundary of the CS&G site recorded elevated concentrations in the aromatic fractions C10-C21, however during the recent monitoring, all reported TPH fractions were reported below the laboratory LoD. However recent sampling of BH410, which is located adjacent to BH06, reported elevated concentrations for various TPHs fractions. Multiple monitoring wells sampled during the recent sampling events have identified hydrocarbon fractions in exceedance of TSVs within the central CS&G and CIW areas.

Historically, elevated TPHs were reported at BH07 and BH201 located in the southern area of CS&G. During Tetra Tech's monitoring, no exceedances were identified at these boreholes. However, exceedances were identified in boreholes proximal to these locations at BH625, BH626 and BH629.

Historically, elevated TPHs were reported at BH122 and BH208 located along the southern boundary of the CIW site. Recent monitoring undertaken at these locations reported all TPH fractions at concentrations less than laboratory LoD. A review of historic data has shown the exceedances at these locations to be singular low-level events, with subsequent rounds typically reported at concentrations < laboratory LOD.

NIEA historic data has reported exceedances of the TSV for aromatic fractions at BH218 located in the north of the CS&G site and recent monitoring undertaken also identified exceedances in this area.

Historically, low level exceedances of TPH fractions were identified in BH302 located in the northern section of CIW. During Tetra Techs monitoring rounds, no exceedances were identified at this location, however low-level exceedances were identified in BH214, located immediately east of BH302.

Historically, reported concentrations of Benzene in exceedance of the TSV were located within the central CS&G and Central CIW site. A maximum benzene concentration of 3,650.21ug/l was reported at BH404, with all reported concentration >1,461ug/l at this location. During the recent ICT sampling, groundwater samples within the central CS&G and Central CIW site continued to report Benzene concentrations in exceedance of the TSV in the existing wells and newly installed sampling wells.

Historically, low level benzene concentrations were reported BH213 which is located in the northern section of the CIW site. During recent ICT sampling monitoring benzene concentrations at BH 213 were reported as less than the LoD, although low level exceedances were identified in leachate at BH215 which is located southwest of BH213.

Historically, Toluene concentrations were reported in excess of the TSV at boreholes primarily located in the central CS&G area, extending into the CIW site, with the exception of BH213 located in the north of the CIW site. The maximum Toluene concentration of 1138.37ug/l was recorded at BH404, located along the western boundary of the central CIW area. During the recent ICT sampling, Toluene was again reported as an exceedance of the TSV at wells within the central CS&G and CIW area, in the existing wells and newly installed wells. A maximum concentration of 1,100ug/l recorded at BH402 during the second round of monitoring (and 460ug/l during the first round). BH402 is located with the central CS&G site, west of BH404.

Toluene concentrations in exceedance of the TSV were identified in BH213 located in the north of the CIW site and additional in BH610 during the recent ICT sampling. Elevated concentrations were also identified in the newly investigated area in the southern portion of the CS&G site.

Historically, Ethylbenzene concentrations were reported in excess of the TSV 2no. boreholes BH404 and BH405, located along the western boundary of the central CIW area. A maximum reported concentration of 1,041.76ug/l was recorded at BH404. Results from the sampling rounds have reported exceedances at BH404 with a maximum concentration reported of 760ug/l during the second round of sampling. Reported concentrations of Ethylbenzene at BH405 were below the relevant TSV. In addition, reported concentration at 2no. wells within the central CIW area and 2no. wells within the southern CS&G area were reported in exceedance of the TSV. A maximum concentration of 1,700ug/l was recorded at BH626 located in the southern CS&G site.

7.6.5. TPHCWG including BTEX – Surface Water

Monitoring data collected by the NIEA did not identify any aromatic or aliphatic hydrocarbons fractions or BTEX compounds in exceedances of the adopted TSVs. This is comparable to the recent Tetra Tech sampling results for surface waters.

7.6.6. PAHS - Groundwater

NIEA has reported concentrations of Naphthalene in exceedance of the TSV across the site, with the majority located in the central CS&G and CIW area. A significantly elevated maximum concentration of 4,832.96ug/l was recorded at BH404, located along the western boundary of the CIW central area during 2022. Samples obtained from BH206, due west of BH404 reported concentrations in exceedance of the TSVs, although they were significantly less (maximum of 49ug/l during Round 1).

Naphthalene exceedances during the recent rounds of sampling undertaken by Tetra Tech were less frequent with a number of monitoring wells now reporting concentrations below laboratory LoD however, exceedances of naphthalene were reported in many of the surrounding monitoring wells. A number of monitoring wells in the central CS&G and CIW area reported naphthalene exceedances in similar locations to those observed historically.

Historically BH121 and BH208 located in the southern portion of CIW, recorded elevated concentrations of Naphthalene in exceedance of TSVs. Recent monitoring reported naphthalene concentrations at <LoD at these locations. On review, the exceedance in BH121 it was reported in August 2021, but the 2 subsequent monitoring rounds reported Naphthalene concentration below the TSV. Similarly, the exceedance reported in BH208 was for October 2019 and all subsequent monitoring rounds were reported below TSVs.

Historically, elevated naphthalene concentrations were reported at BH07 and BH201 located in the southern area of CS&G. During Tetra Techs monitoring, no exceedances were identified at these boreholes. However, exceedances were identified in the surrounding wells samples at BH625, BH626 and BH629.

Historically, an elevated naphthalene concentration of 40ug/l was reported at BH213 (10/07/17), located in the northern portion of the CIW site. This location was only monitored on 1no. occasion and no subsequent data is available. The sample was only analysed for Naphthalene and no further PAH monitoring data is available. Monitoring at this location undertaken by Tetra Tech reported a concentration <LoD. Samples obtained from boreholes in the surrounding area (BH214 and BH215) also reported concentrations <LoD.

Historically, reported concentrations of Naphthalene were recorded at BH218 which were in exceedance of the TSV at BH218, located in the northern section of CS&G. Over the course of 14no. monitoring events, reported concentrations on 4no. occasions exceeded the TSVs with most recent recorded in August 2021. During the recent monitoring at this location, the naphthalene concentration was reported as less than laboratory LoD. Naphthalene concentrations in surrounding wells (BH656 and BH657) were also reported < LoD in the recent round of sampling. NIEA monitoring has seen a variation in reported concentrations at BH218 including instances where it was not reported above laboratory LoD (assumed to be 0.004 ug/l). The variation in reported results is likely to be attributable to variations in site conditions e.g. natural attenuation and groundwater levels.

7.6.7. PAHS – Surface Water

A review of the historic quarterly monitoring data has not identified any naphthalene concentrations in exceedance of the adopted TSVs with concentrations generally reported below the LOD. This is similar to recent surface water monitoring undertaken by Tetra Tech, with all analysed water samples reporting concentration below the TSV and the majority below the LOD.

7.6.8. Inorganics – Groundwater

Historically, concentrations of chloride were generally below TSVs, but reported concentrations in exceedance of the TSV of 250 mg/l were reported frequently at BH04, BH06, BH107 (located closed to the western boundary of CS&G), BH206 (central CS&G area), BH213 and BH302 (northern CIW), BH218 (Northern CS&G) with a maximum concentration of 5,569 mg/l reported at BH302.

Recent sampling identified chloride concentrations at similar locations with a maximum reported concentration of 1,400 mg/l recorded at BH214, located beside BH302. Newly identified elevated concentrations were reported in the southern CS&G area at BH626 and BH201.

Historically, ammoniacal nitrogen concentrations were reported in excess of the TSV (0.3 mg/l) across much of the site, with exceedances ranging from 0.31 mg/l to 2,880 mg/l. The maximum concentration was reported at BH213, located in the northern section of CIW and reported ammoniacal nitrogen (NH_3 un-ionised) were consistently high at this location (>2670 mg/l).

During recent monitoring, Ammonia (free) was also identified at a number of boreholes across the site in exceedance of the TSV with maximum concentration of 21 mg/l reported in leachate well BH214, which is located in the northern central area of CIW (southwest of BH213, where the reported ammonia (free) concentration was reported at 2.5 mg/l).

Historically, reported concentrations of sulphate were in exceedance of the TSV at 4no. location across the site with a maximum concentration of 512.32 mg/l (compared to the TSV of 250 mg/l) was recorded at BH217 (located to the north of current investigation area). Recent monitoring has generally reported low concentrations across with the site, but with occasional exceedances. A maximum concentration of sulphate was reported at BH679 (420 mg/l), located in the central CIW area.

Historically, the pH of all samples generally fell within the range of 6-9, with the exception of BH06 where the pH was recorded as <pH6 on 5no. occasions. Recent monitoring reported the pH at BH06 at pH5.9 confirming slightly acidic conditions also.

Historically, frequent exceedances of sodium were reported at BH04, BH06, BH107 (along the western boundary of CIW), BH206 (central CS&G), BH218 (northern CS&G) and BH302 (northern CIW). A maximum concentration of 1055 mg/l was reported at BH302.

Current sampling identified sodium concentrations in exceedance of TSV at BH302, BH213, BH214 BH215, BH645, BH646, BH647 and BH610 all located in the Northern CIW area. The maximum concentration of 910mg/l was reported in BH214, close to the location of BH302.

Exceedances were also reported along the western boundary of CS&G, in the northern CS&G area and central CS&G, similar to historical data.

7.6.9. Inorganics – Surface Water

All reported inorganic compounds for analysed surface water samples were below applicable TSVs.

7.7. COMPARISON OF MPRT EMP DATA WITH CURRENT

On completion, it is considered that the findings following the current groundwater and surface water monitoring events are generally consistent with historic data. Reported concentrations of heavy metal compounds, most notable iron and manganese were in exceedance across much of the site historically and this was also identified during recent monitoring events. Historically, concentrations of organic compounds were reported in excess of the TSVs predominantly in the central areas of CS&G and CIW, but also occasionally in the north and south of the CS&G site and in the north the CIW site. Recent monitoring identified similar areas of exceedances with the most elevated and potentially significant observed in central areas of CS&G and CIW with lesser but still potentially significant exceedance observed in the southwest of CS&G.

Reported concentrations of inorganic compounds ammoniacal nitrogen, chloride and sodium were historically reported in exceedance across the site and recent monitoring has also shown similar trends.

The data set will be considered further in conjunction with recent monitoring data to assess contaminant trends with respect to assessing contaminant degradation and aquifer attenuation characteristics to inform future contaminant fate and transport modelling.

8. SITE ZONING

Following completion of the additional site investigation and monitoring in May 2022, the initial zones proposed by WYG (PRA, 2016) and adopted and developed by Sirius (2017) have been revisited to make sure these remain consistent with the current risk profile.

Sirius DQRA report, 2017 stated the following,

"Five main source areas (Zones 1-3; Zone 4; Zone 6; Zone 7 and Zone BH206) have been identified on the basis of waste types, depositional locations and analytical results obtained from on-site boreholes. Several contaminants of concern (iron, manganese and ammoniacal nitrogen) have also been identified as being more widely present within site groundwater. Individual source areas have been assessed based on the identified contaminants of concern within each and their sizes and locations relative to the River Faughan."

Tetra Tech supports the rationale adopted but have refined site zoning where applicable on the basis of the extensive additional site data captured following the recent phase of ground investigation works in 2021 and 2022. These zones are described below in the context of previously assigned Sirius source zone areas. Tetra Tech have included zones as 'source' zones as indicated by soils, groundwater and waste characteristics.

Current zone mapping is included on Figure 9. Geological Cross Sections have been developed for each of these zones and are presented within the subsequent chapter. These geological cross sections along with the Conceptual Site Models (CSMs) consider the main potential pollutant linkages.

Table 8-1 - Tetra Tech Source Zones Revised

Sirius Zone	Description	Tetra Tech Source Zone Reference	Description	PCoCs (Tetra Tech 2022)
Source Zone 1	Area of unauthorised landfilling north of closed landfill on the City Industrial Waste area. Comprising mixed organic, domestic and construction and demolition type wastes.	Source Zone 1	Tetra Tech adopted same.	Generally consisting of metals, ammonia, low level TPH, PAHs.
Source Zone 2	Area of the historic closed (formerly permitted) landfill, which contains mixed domestic and construction and demolition-type wastes. Thin bands of clay strata are present near the surface and forming horizontal bands within the waste	Source Zone 2	Tetra Tech adopted same. Tetra Tech will consider zone 1 and 2 as one area for purposes of risk assessment.	Generally consisting of metals, ammonia, low level TPH, PAHs.

Sirius Zone	Description	Tetra Tech Source Zone Reference	Description	PCoCs (Tetra Tech 2022)
Source Zone 3	Area to the southwest of the closed landfill. Entec Report, 1993 suggested presence of tarry waste in this area.	Source Zone 3	Sirius treating zones 1, 2 and 3 as one area…due to significant tarry waste detected (Tetra Tech 2021/22) Zone 3 Tetra Tech will require as singular zone due to higher risk profile	Generally consisting of metals, ammonia, BTEX, PAHs, BTEX.
Source Zone 4	Raised area of waste material deposited towards the south-eastern area of the City Industrial Waste site. Previous investigations indicated domestic and construction and demolition-type wastes in this area. Historical isolated incidence of suspected tarry wastes. Wastes deposited indicative of C&D and domestic, processed (trommel fines).	Source Zone 4	Tetra Tech adopted similar but reduced area to accommodate the A6 alignment works.	Generally consisting of metals. Abuts area of A6 works, likely to see significant enabling works and associated waste removal.
Source Zone 5	Area of former Campsie Sand and Gravel where historic documentary evidence suggested that tarry wastes may have been deposited.	Source Zone 5	Tetra Tech adopted similar but larger area. Entec 1993 suggested presence of tarry waste in this area. Tetra Tech 2021/22 confirmed. Likely to be hazardous waste c. 2-3m underlain by sands/gravels	Signatures of tarry waste in waters, include BTEX, PAHs, highly localized.
Source Zone 6	Area in the southern part of Campsie Sand and Gravel where previous investigations had identified low level hydrocarbons in groundwaters.	Source Zone 6	Tetra Tech adopted similar but larger area. Area in the southern part of Campsie Sand and Gravel where previous investigations had identified low level hydrocarbons in groundwaters. Tetra Tech confirmed similarly low-level contaminant occurrences.	Diffuse low level TPH, PAHs, metals.
Source Zone 7	Localised area of construction and demolition type wastes in the north of Campsie Sand and Gravel site	This area is now captured in Tetra Tech Source Zone 9. Lands to the north of CS&G	Tetra Tech zonal mapping diverges from Sirius here. This is the area of former processing area Campsie Sand and Gravel. Some waste depositions to the south and southwest. Generally lower risk. Possible GW impacts associated with tarry wastes in CIW to northwest	Heavy metals, low level localized TPH.

Sirius Zone	Description	Tetra Tech Source Zone Reference	Description	PCoCs (Tetra Tech 2022)
Source Zone BH206	Final Sirius source zone. Single monitoring well, central CS&G, BTEX contamination	Captured in Tetra Tech Source Zone 8 (see below)		
No Sirius Zone		Source Zone 8, central CS&G area	Elevated TPH in groundwater. Potentially significant issue. Waste generally C&D with occasional domestic waste to c.2-5m underlain by sands/gravels.	BTEX, TPH, PAHs tarry waste indicators. Heavy metals, generally low-level ammonia.
No Sirius Zone		Source Zone 9	Lands to north of Campsie Sand and Gravel. Lagoon. Waste generally C&D with occasional domestic waste to c.2-5m underlain by sands/gravels	Heavy metals, generally low-level ammonia. Low level localised TPH
Site Wide	External to assigned source areas. Iron/manganese, ammoniacal nitrogen, main CoCs	Site Wide	Tetra Tech zones encapsulate entire site area	Tetra Tech zones encapsulate entire site area

8.1. UPDATED CONCEPTUAL SITE MODELS

For a risk of pollution or environmental harm to occur as a result of ground contamination, all of the following elements must be present:

- a source, i.e., a substance that is capable of causing pollution or harm.
- a receptor (or target), i.e., something which could be adversely affected by the contaminant; and
- a pathway, i.e., a route by which the contaminant can reach the receptor.

If one of these elements is missing, there can be no significant risk. If all are present then the level of the risk is a function of the magnitude and mobility of the contaminant, the sensitivity of the receptor and the nature of the migration pathway.

A refined conceptual site model has been developed for the site and is presented in this section. It identifies the main sources, pathways and receptors, and thus identify potential pollutant linkages (PPLs) applicable to the assigned source areas. This assessment is based predominantly on the recent site investigation (2021 and 2022) and Tetra Tech's review of historical data provided to them. The updated CSM is therefore considered to be representative of current site conditions.

Three Conceptual Site Model lines of section (Sections 1 -3) have been prepared for the site and these are presented within Figure 8, (refer to drawing numbers TTE-00-XX-DR-U-001, 002 and 003). The CSM drawings take into consideration current and historical site investigation data pertaining to the geological, hydrogeological and hydrology settings at the site. All of the CSM section are generally orientated west to east across the site, transecting the River Faughan. A descriptive summary of each CSM section is detailed below:

8.1.1. CSM Section 1

CSM Section 1 transects the southern portion of CIW which lies adjacent a small stream (tributary of the River Faughan) and comprises a bund of mixed wastes shown to lie above peat deposits over gravelly sand. The peat extends beneath the lagoon, which is further underlain by silt deposits which are anticipated to extend westerly at depth. Beneath the house/office building to the west of the lagoon a thin layer of reworked ground overlays gravelly sand. Granular deposits of mixed proportions of sand and gravel are the dominant superficial deposits across the entire section. C&D waste has been encountered west of Mobuoy Road and extends as far as the east bank of the River Faughan. Alluvial deposits surround and underly the River Faughan in these areas, with alternate layers of silty sandy clay and sandy silt overlying gravelly sand.

8.1.2. CSM Section 2

CSM Section 2 transects a significant deposition of domestic waste located in CIW which overlies a capping layer atop of a closed licensed inert landfill in the east of site. Domestic waste extends further west towards, increasing in thickness until you reach the Mobuoy Road. The Mobuoy Road is expected to be underlain by sand and gravel. Tarry waste lies at the base of the domestic waste and in turn sits directly on top of sand and gravel. The sand and gravel are considered a primary pathway for contamination to migrate towards the River Faughan. Mixed and C&D

Wastes have been encountered west of Mobuoy Road, some of which overlie sand and gravel and others overlie alluvial silts, and sandy clays. The sandy silt and sandy silty clay observed in proximity to the River Faughan are expected to afford the river a degree of protection against the direct release of contamination. Given that the River Faughan sits at the base of the river valley and is likely to act as a natural discharge point for groundwater, it is possible that groundwater is forced to move down-gradient along the line of the River Faughan to look for more permeable sections of the river at which it can discharge to surface water.

8.1.3. CSM Section 3

CSM Section 3 transects agricultural land to the east of the site boundary which is shown to comprises reworked ground. Going westwards a significant deposition of domestic waste is present with tarry waste at the base. An area of mixed waste is present up until the Mobuoy Road. West of Mobuoy Road there is largely C&D waste are shown with a pocket of domestic waste nearest to the roadside. As per CSM Section 2 the sandy silt and sandy silty clay observed in proximity to the River Faughan are expected to afford the river a degree of protection against the direct release of contamination.

Monitoring of groundwater levels undertaken by WYG environment in 2015 (as summarised at Section 2.3.9 of the Tetra Tech Scoping Study report, dated September,2021) particularly within the hyporheic zone indicate that groundwater was in hydraulic connectivity with the River Faughan and that under normal flow conditions groundwater flows from the site and discharges into the river.

Tetra Tech have reviewed the NIEA study, 'Review of Hyporheic Zone Information and Update of Further Investigative Works, Mobuoy Road Waste Site, April 2021' which presented an examination of hyporheic zone in the context of CSM for the site. This study suggests that the river's hyporheic zone extends into the sand and gravel aquifer. The report states, '*It is possible that this is because the River Faughan hyporheic zone is not limited to the riverbed, but in fact extends into the adjacent sand and gravel aquifer effectively making existing groundwater boreholes hyporheic monitoring points'.*

Based on the available information for the hyporheic zone it is considered that a potential migration pathway exists between groundwater and the river system. This migration pathway will therefore be considered as a viable pathway with respect to the relevant source zones and its significance will be subject to further review during contaminant fate and transport modelling presented within the DQRA.

8.2. SOURCE ZONING

The following sections summarise the rational behind the zoning of the site into separately characterised areas. Source zone mapping is presented on Figure 9a.

8.3. ZONES 1-2

8.3.1. Sources

The thickness of domestic waste and/or mixed waste (domestic and C&D) present in Zone 1 is shown to be generally between 4.8m (BH610) and 12.5m (BH644). A greater thickness of waste is shown in Zone 2 (historic closed landfill) generally between 11.2m (BH655) and 16.5m (BH649B). Within Zone 1, waste was absent near to the quarry face and beneath the smaller waterbody (pond 4) in the north-eastern corner. Domestic waste was confirmed beneath the larger waterbody (pond 5) via an overwater borehole (BH603) which was terminated at 3.8 mbgl in domestic waste due to health and safety concerns resulting from the significant ground gas ingress within the well casing. The final waste extent was undetermined at this location. Replacement boreholes BH601R, BH602R and BH603R were progressed along the southern shore of pond 5 in an effort to assess anticipated waste extents. The waste in this zone was characteristic of domestic type wastes and is present at depths from 3.3 mbgl to 5.3 mbgl. The waste is typically underlain by a sandy and gravel with bedrock encountered at c.5-7 mbgl (confirmed at BH601 at 4.8 mbgl, suspected at BH601R, BH602R and BH603R at c. 7mbgl) within overland boreholes. Suspected bedrock was detected at shallow depths (< 0.5 mbgl) in overwater boreholes progressed in the north-eastern pond in this area (BH607, BH608 & BH609). The presence of bedrock in this part of the site means that groundwater contained within the sand and gravel aquifer is bound by this no-flow boundary.

Leachate and groundwater contaminant concentrations in Zone 1 exceed their respective TSVs:

- Heavy metals - TSV exceedances (predominantly iron and manganese and to a lesser extent nickel, zinc, boron and chromium III). Marginal localised exceedances of cadmium (BH646), but generally cadmium was recorded to be present at concentrations less than its LoD for all groundwater and leachate samples.
- Localised TPH aromatic fraction exceedances for C10-C21 (leachate wells BH214 & BH125) and (groundwater BH610).
- Localised marginally exceedances of MTBE (leachate well BH645), benzene (leachate well BH215) and toluene (groundwater BH610D and leachate well BH213) were recorded during monitoring round 1 (2022).
- Ammonia was reported at concentrations exceeding the adopted TSV (0.3 mg/l) for all but two of the groundwater and leachate samples. Elevated concentrations were reported at more significant concentration at leachate well BH214 (21 mg/l), groundwater well BH302 (16 mg/l) and at groundwater well BH610D (7.4 mg/l).

Reported contaminant concentrations in groundwater and leachate within Zone 2 reported a similar trend. It should be noted that the number of wells sampled during round 1 was reduced from the initial monitoring rounds, consequently the data from each round is not immediately comparable on a borehole-by-borehole basis.

- Heavy metals TSV exceedances (iron, manganese in groundwater).
- Ammonia exceedances in groundwater at BH647A and BH649.

Reported contaminant concentrations in soils within Zones 1 and 2 are generally not considered to present a significant risk to health based on a POS (park) end use, with the exception of the following:

- Localised elevated PAHs (Benzo(b)fluoranthene of 29mg/kg and Benzo(a)pyrene of 44mg/kg) was reported at BH603R (Zone 1) at 3.0mbgl in excess of the POSpark GAC.

8.3.2. Pathway - Receptors Linkage

The principal pathway for dissolved phase contaminant migration is considered to be via shallow groundwater flow within the sand and gravel aquifer. Several reported contaminant concentrations are considered to present a potential risk to shallow groundwater and offsite surface waters via shallow groundwater migration. Surface water sampling to date has not identified impacts to downgradient surface waters and the associated risk is currently considered low, however this risk will be considered further as part of the modelling, detailed later in this report.

A conceptual site model has been developed and is presented below which identifies the potential sources, pathways and receptors assumed for these zones, and thus identifies plausible pollutant linkages.

Table 8-2 - Update Conceptual Site Model Zones 1-2

Contaminant	Pathway	Receptor	Further Action
Heavy metals, ammonia, low level BTEX, TPHs in leachate and groundwater	➢ Shallow aquifer ➢ Shallow aquifer, offsite migration	Groundwater Surface water	Further Detailed Risk Assessment to investigate significance of potential pollutant linkages and derive appropriate clean up criteria where applicable.
PAHs in soils (<1mbgl)	➢ Direct contact pathways (dermal, ingestion, inhalation)	Potential future site users & Construction workers	Further consideration with regard to future remediation designs and source zone characterisation for DQRA

Following a review of the monitoring data collated the principal contaminants of concern PCoC identified in leachate and groundwater are heavy metals iron, manganese, lower level TPHs inclusive of BTEX compounds and ammonia.

8.4. ZONE 3

8.4.1. Sources

Zone 3 is located to the west of Zone 2, extending from Zone 2 westwards toward the Mobuoy Road and it exhibits similar characteristics in terms of waste composition to that described at Zones 1 and 2. The Sirius DQRA (2017) considered Zones 1-3 as a singular source area on the basis of the data available, "*There is no discernible difference in terms of contaminant concentrations, waste types or hydrogeological behaviour that would result in a practical distinction between these areas in terms of risk assessment modelling*" (Section 4.3, Sirius DQRA 2017). Following the recent phase of ground investigation works (2021 and 2022) a significant area of tarry waste and associated soil and groundwater contamination was noted in the area and as a result the risk profile has changed resulting in this zone being considered as separate source area.

Zone 3 comprises a raised area associated with the former licenced landfill. The ground level reduces toward the CIW yard. The waste in Zone 3 is similar in characteristic to those described at Zone 2. Wastes in Zone 3 are predominantly domestic or municipal in nature and extend to depths of c.12-13 mbgl. Waste material present below the yard area typically extend to depths of c.3-9 mbgl (BH679). Wastes located to the immediate south of the former landfill area within the CIW yard as described by borehole logs BH673, BH676, BH677, BH678 and BH679 are more characteristic of general construction and demolition waste. Superficial deposits underlying the area are predominantly of a silty fine to coarse sand.

Initial exploratory works and subsequent sampling at BH611 suggest a potential area of tarry impacted waste. A strong odour consistent with coal tar was noted during the drilling and sampling. The location of BH611 was informed by the Tetra Tech Scoping Study (September 2021) and was located in an area of suspected tarry waste deposition following a review of the Entec Report, 1993. Further delineation works resulted in the discovery of a significant area of tarry waste. The tarry waste was deposited at varying depths but is generally present at depths of 8-11 mbgl in the area of the former landfill. The tarry waste is present at shallower depths of c. 2-4 mbgl beneath the CIW yard area, to the immediate south. The tarry material was occasionally encountered in its free phase form. The material is generally described as a viscous black liquid and it was encountered at a number of locations within the zone including BH659 (7.7-10.5 mbgl), BH660A (9-10.8 mbgl), BH665 (8.4-11.2 mbgl) and BH673 (2.7-4.7 mbgl). Heavy staining of the underlying sand superficial deposits was evident at a number of locations in the area often extending to 2-4 meters into the underlying superficial deposits (e.g., BH665).

Reported contaminant concentrations in groundwater and leachate within Zone 3 reported a similar trend to that observed in Zones 1 and 2 for heavy metals. Monitoring rounds 1 and 2 reported frequent occurrences of iron and manganese above their relevant TSVs.

Organics testing identified elevated BTEX (predominantly benzene), aromatic TPHs and elevated PAHs (predominantly naphthalene) at BH405, BH406, BH301 and BH303 following monitoring rounds 1 & 2 (2022). Extensive additional site characterisation included the progression of a further 17 no. boreholes, BH659, BH660, BH665-BH679 boreholes which were sampled as part of the second site monitoring round. Analysis was generally targeted to organics including BTEX, TPH, PAH, VOCs and SVOCs on the basis of PCoCs identified following the initial sampling round.

Benzene concentrations were elevated at number of the monitoring wells with the maximum reported at BH303 (9,700 ug/l) which is located to the immediate west of the primary source area and BH669 (6,700 ug/l) which is located within the source area. A number of sampled monitoring wells peripheral to the area reported benzene concentrations less than LoD at locations to the north, northwest, east, southeast, south and southwest suggesting the benzene impact in groundwater is reasonably well delineated base on initial sampling. As stated, wells to the immediate west would suggest evidence of lateral migration toward the Mobuoy Road and CS&G further to the west.

Naphthalene concentrations reported a similar pattern to that of benzene although maximum concentrations were reported at different locations. Naphthalene was reported at concentrations >1,000ug/l at BH673 (1,500 ug/l), BH669 (1,200 ug/l) and BH660A (1,100 ug/l) all of which are located within the primary source area.

VOC and SVOC analysis generally identified similar PCoCs indicative of coal tar signatures including PAHs and various aromatic derivatives.

Low level exceedances of ammonia were reported following round 1 and 2 sampling with all concentrations reported at concentrations <1 mg/l.

Reported contaminant concentrations in soils within Zone 3 were not generally reported in excess for the GAC for a POS (park) end use, with the exception of the following:

- Localised aromatic fractions C10-C35 at BH660 at 9 mbgl, BH665 at 10 and 11 mbgl, BH673 at 3 and 4 mbgl
- Localised benzene concentrations at BH660 at 9 and 10 mbgl, BH671 at 2 mbgl.
- Multiple PAH compound exceedances were reported of PAH compounds including naphthalene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(123cd)pyrene and Dibenz(a,h)anthracene. Highest concentrations were reported at BH673 at 3 and 4 mbgl, BH665 at 10 mbgl and BH660A at 9 and 10 mbgl.

The reported concentrations in soils are not considered to present a significant risk to health on the basis of current use but will be a future consideration with regard to remediation design. Initial leachate testing of soils in the source area identified significant aromatic fractions for boreholes progressed within the source area including BH660A at depths of 9 and 10 mbgl, BH659 at depths of 10 and 11 mbgl, BH665 at 9 and 11 mbgl, BH673 at 4 and 5 mbgl, BH668 at 14 mbgl, BH676 at 6 and 8 mbgl, BH675 at 4m. Soils leachate concentrations of benzene identified similar trends with a maximum concentration report at BH660A at 10 mbgl (22,000 ug/l). Soils leachate concentrations reported for PAH compounds also identified elevated and frequent occurrences for multiple PAH compounds, most notably naphthalene with a maximum of 22,000 ug/l reported at BH673 at 4m, its presence characteristic of locations where tarry wastes was encountered. The soil source characteristics will be developed further to inform future risk modelling via DQRA.

8.4.2. Pathway - Receptors Linkage

The principal pathway for dissolved phase contaminant migration is considered to be via shallow groundwater flow with the sand and gravel aquifer system. A number of reported contaminant concentrations are considered to present a potential risk to shallow groundwater and offsite surface waters via shallow groundwater migration. Surface water sampling to date has not identified impacts to downgradient surface waters and the associated risk is currently considered low, however it is recommended risk modelling consider future risk to ensure ongoing protection.

A conceptual site model is developed is presented below which identifies the potential sources, pathways and receptors assumed for this zone.

Table 8-3 - Updated Conceptual Site Model Zone 3

Contaminant	Pathway	Receptor	Further Action
Heavy metals, ammonia, BTEX, PAHs, TPHs in leachate and groundwater	➢ Shallow aquifer ➢ Shallow aquifer, offsite migration	Groundwater Surface water	Further Detailed Risk Assessment to investigate significance of potential pollutant linkages and derive appropriate clean up criteria where applicable.
TPHs, PAHs, BTEX, ammonia in soils	➢ Leaching to shallow aquifer ➢ Shallow aquifer, offsite migration	Groundwater Surface water	Further Detailed Risk Assessment to investigate significance of potential pollutant linkages and derive appropriate clean up criteria where applicable.

Following a review of the monitoring data collated, the principal contaminants of concern PCoC identified in leachate and groundwater are considered to be heavy metals (iron and manganese), organics (PAHs, BTEX, TPH) compounds and ammonia. Natural sand and gravel present at depth within this source area is heavily impacted by tarry wastes and associated contaminants including BTEX, PAHs and TPHs which are leaching to groundwater.

8.5. ZONE 4

8.5.1. Sources

Zone 4 is located to the immediate south of the CIW yard and abuts the proposed A6 roads scheme to the immediate south and southeast and is generally characterised by made ground comprised of mixed waste (domestic and C&D). The waste has a thickness of between 1.6m (TP614) and 5.4m (TP655). A large soil berm or bund forms much of the south-eastern and southern boundary of this zone and the bund is adjacent to the south-eastern and southern boundary of the CIW site. Phase 3 site investigation works (in 2022) included the excavation of 8 no. trial pits (TP652-TP659) within and adjacent to this bund to assess its composition. The investigation also sought to confirm the thickness and nature of deposits below the waste. Trial pit data indicates the above ground soil bund/berm comprises a mix of C&D and domestic wastes within a general sandy gravelly silt with wastes beneath extending to depths of 3-5 mbgl comprising of similar type domestic wastes.

Superficial deposits in the area are generally characterised by sand. A horizon described as pseudo fibrous peat at 5.1 mbgl was reported for TP657 which was underlain by a silty gravelly sand at 6 mbgl and again at 6.4 mbgl (base not proven) at TP656. A significant number of rubber tyres were encountered at c. 4mbgl at TP656.

Elevated heavy metal concentrations identified in groundwater following recent sampling at Zone 4 were limited to manganese and cadmium. Localised elevated manganese concentrations were reported in leachate samples (BH208 and BH209, maximum concentration, 1,000 ug/l (MBAT PNEC, 276.92 ug/l)) and groundwater wells (BH121 and BH122, at concentrations of 360 ug/l & 580ug/l). Surface water samples taken from the nearby tributary (SW1 (upgradient) and SW9 (downgradient)) reported manganese concentrations (SW1 at 170ug/l and SW9 at 260ug/l) below the derived MBAT PNEC.

Low level cadmium concentrations were reported at one borehole, BH121 at 0.19ug/l exceeding the EQS of 0.09 ug/l but not the MAC (maximum allowable concentration) of 0.6 ug/l.

Low level cyanide concentrations of 0.012ug/l were reported within the stream to the immediate south/southeast (SW9 - downgradient of zone 4), and lagoon (0.013ug/l) and 0.014ug/l (SW1 - upgradient of zone 4 and offsite). This suggests that elevated background concentrations are present in the surface water and potentially indicates that there is an offsite source.

Organics testing of groundwater and leachate samples did not report any compounds in excess of applicable TSVs. Similarly, inorganics were generally reported at concentrations less than TSVs with the exception of marginally elevated concentrations (260 mg/l) reported for sulphate in leachate sample at BH209.

Reported soil contaminant concentrations in Zone 4 were found to be below the adopted GAC based on a POS (park) end use with the exception of.

- Lead reported at TP653 at 2 mbgl (1,500 mg/kg exceeding the GAC of 1,300 mg/kg).
- PAH compound Dibenz(a,h)anthracene reported at 1.8 and 1.4 mg/kg at trial pit TP611 at 0.5 and 1 mbgl respectively.

Low level hydrocarbon contamination has been reported in soils from trial pits TP653 at 2 & 3 mbgl (total TPH 6,100 & 2,100 mg/kg), TP654 at 1 mbgl (total TPH 5,100 mg/kg), TP654 at 6 mbgl (2,800 mg/kg), TP652 at 3 mbgl (2,100 mg/kg), TP655 at 4 mbgl (1,700 mg/kg), TP659 at 1mbgl (2,000 mg/kg) and TP656 at 2 mbgl (1,500 mg/kg).

8.5.2. Pathway - Receptors Linkage

The primary migration pathway for the localised manganese contamination within groundwater at Zone 4 is considered to be via groundwater flow within the permeable layers of the superficial deposits with further migration potential towards the nearby surface water receptors. Water environment receptors are considered to be the shallow aquifer (superficial deposits) and surface waters (nearby tributary and connected River Faughan). Where surface water analysis has been completed for the nearby tributary, manganese concentrations were reported below the MBAT PNEC calculated value, therefore the migration via groundwater flow of localised manganese concentrations (BH122) to surface water receptors is not considered to be a current pollutant linkage. Low level hydrocarbon contamination in soils is not resulting in detriment to groundwater or surface water as evidenced by recent groundwater and surface water sampling test results for the tributary to the immediate southeast and the lagoon. On the basis of the current A6 development proposals it is assumed that all waste material will be subject to removal which is likely to result in the removal of a significant source with respect to risk to soils, groundwater and surface water contamination.

A conceptual site model has been developed for Zone 4 and is presented below which identifies the potential sources, pathways and receptors currently present at the site, and thus identify plausible pollutant linkages.

Table 8-4 - Update Conceptual Site Model Zone 4

Contaminant	Pathway	Receptor	Further Action
Localised manganese in groundwater	➢ Shallow aquifer	Groundwater Surface water (tributary to immediate south)	Nearby surface waters do not indicate impact following recent sampling. Effective removal of waste materials/reduced quality made ground anticipated as part of future A6 enabling works to be considered during future remedial design.
Low level cyanide in surface waters (lagoon and nearby tributary)	➢ Shallow aquifer ➢ Shallow aquifer, offsite migration	Groundwater Surface water (tributary to immediate south)	Upgradient surface water sampling suggests potential marginal elevated background concentrations. As above effective removal of waste materials/reduced quality made ground anticipated as part of future A6 enabling works to be considered during future remedial design.

8.6. ZONE 5

8.6.1. Sources

Source Zone 5 is located in the southwest of CS&G in a similar location to that proposed in the Sirius Report (2017). Ground conditions in the area are characterised by sporadic and inconsistent waste depositions which are likely to be characteristic of infilling of sand and gravel extractions in the area. Made ground where present was typically characterised by general C&D type materials with occasional mixed domestic waste (e.g., BH07, described domestic waste 0.8-2.8 mbgl 2016) and reworked soils generally extending to depths of c.2.5-4 mbgl. Superficial deposits are typically described as fine to coarse sand. Suspected contamination was observed at boreholes BH627 and BH628 following the recent phase of investigation. The suspected contamination was characterised by strong hydrocarbon odours and staining consistent with tarry waste. This staining was observed at depths of between c. 1-2.5 mbgl within the made ground deposits.

Reported contaminant concentrations in groundwater within Zone 5 comprises elevated PCoC including the following:

Heavy metals Iron and manganese were reported at concentrations exceeding relevant TSVs in groundwater and leachate samples with lesser magnitude exceedances reported for zinc also in leachate and groundwater samples.

Low level TPH aromatic fractions were reported at groundwater well BH626 following sampling round 1 (Total TPH at 920ug/l) in addition to Benzene at BH626 at 63ug/l.

PAHs compounds including naphthalene, anthracene and fluoranthene were reported at BH07 and BH626 with the most elevated concentrations reported at groundwater well BH629 (naphthalene at 1,600 ug/l) following the initial sampling round (Round 1, 2022).

Further delineation works were undertaken in the within Zone 5 to characterise the suspected tarry waste deposition which included three additional boreholes (BH662 to BH664) and 4 no. additional trial pits TP648-TP651. Similar PCoCs were reported following sampling Round 2 with most elevated naphthalene reported at BH626 (130 ug/l) and most significant benzene concentrations reported at BH629 (13,000 ug/l). Low level aromatics were reported at BH626, BH629 and BH663B.

Reported contaminant concentrations in soils were in excess of the adopted PoSPark GAC at a number of locations for mid to heavier end aromatic fractions (e.g., BH628 at 2m). Risk to health is considered low at these depths and testing from shallower depths (1 mbgl) did not identify concentrations above respective GACs.

Multiple PAH compound exceedances were reported for determinands Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(a)pyrene and Dibenz(a,h)anthracene at boreholes BH628 and BH629 at various depths. Exceedances were reported at shallower depths <1mbgl, although risk to health is not considered significant based on current land use and restricted access. Most significant Total PAH concentrations were reported in soils sampled at BH628 at 2m (total PAH 79,000 mg/kg and 1m (1,200 mg/kg) and BH629 at 0.8m (1,500 mg/kg). These occurrences will be considered further in the definition source characteristics with respect to observed contaminants in groundwater.

8.6.2. Pathway - Receptors Linkage

The PCoCs identified are BTEX, PAHs and mid to heavier end aromatic fractions which are considered signatures of localised evidence of tarry waste deposition in the area. As stated, elevated heavy metal concentrations are typical for much of the wider site characterised by elevated iron and manganese.

The primary migration pathway for the PCoCs within groundwater is considered to be via groundwater flow within the permeable layers of the superficial deposits with further migration potential towards the nearby surface water receptors. Water environment receptors are considered to be the shallow aquifer (superficial deposits) and surface waters (nearby tributary and connected River Faughan). Observed contaminant concentrations in soils would also suggest that soils are leaching to shallow groundwater and resulting in a detriment to groundwater quality in the area.

A conceptual site model is developed is presented below which identifies the potential sources, pathways and receptors currently present at the site, and thus identify plausible pollutant linkages.

Table 8-5 - Update Conceptual Site Model Zone 5

Contaminant	Pathway	Receptor	Further Action
BTEX, PAHs, TPH, heavy metals in groundwater (dissolved phase)	➢ Shallow aquifer	Groundwater Surface water (River Faughan)	Further Detailed Risk Assessment to investigate significance of potential pollutant linkages and derive appropriate clean up criteria where applicable.
BTEX, PAHs, TPH in soils	➢ Direct contact pathways (dermal, ingestion, inhalation)	Potential future site users & Construction workers	Risk to future site users will be informed by future interaction. Human health risk to be considered further as part of future remediation design.
	➢ Leaching to shallow aquifer ➢ Shallow aquifer	Groundwater Surface water (River Faughan)	Further Detailed Risk Assessment to investigate significance of potential pollutant linkages and derive appropriate clean up criteria where applicable.

8.7. ZONE 6

8.7.1. Sources

Source zone 6 is represented by an area of land to the southeast of CS&G encompassing much of the south eastern portion of the CS&G site. Wates/made ground in this zone are generally described as mixed comprising C&D and domestic waste. The depth of waste infilling is generally between 0.8m (TP642, C&D waste) and 5.0m (BH623, mixed waste), with the greatest thickness shown to be in the eastern portion of the zone. As is characteristic of Zone 5, wastes are not present consistently across the area; with their deposition likely to influenced by former sand and gravel extractions. Waste/Made ground was reported to be absent in the southwest portion (BH101, BH119, TP638) of Zone 6 based on available exploratory logs. Superficial deposits generally comprised of sand and gravelly sand although there were reasonably significant occurrences of peat encountered in this zone.

Contaminant concentrations in leachate and groundwater exceed the adopted TSVs within Zone 6, based on recent monitoring in 2022, as detailed below:

- As is characteristic of the site generally, iron and manganese continue to represent the most frequent and elevated TSV exceedances, present in leachate and groundwater wells. Maximum iron concentrations were reported at leachate well BH625 (62,000 ug/l, monitoring round 2) and maximum manganese at groundwater well BH653 (25,000 ug/l, monitoring round 1). Marginal and more localised exceedances of TSVs were also reported for metals cadmium, nickel and zinc generally within groundwater (cadmium >TSV in leachate well BH202 monitoring round 1, 0.21 ug/l TSV 0.09 ug/l).
- Lower level localised TPH heavier end aliphatic fractions were reported for C16-C21 (BH625, leachate well and BH653, groundwater well) following monitoring round 1 only. A singular low-level exceedance of the aromatic fraction C10-C12 was reported for leachate well BH625 following round 1 only.
- BTEX compounds were generally reported at concentrations less than laboratory LoD with the exception of lower-level benzene reported at BH201 (12 ug/l, groundwater well), BH632 (43 ug/l, groundwater well) and BH625 (19 ug/l, leachate well).
- PAHs reported in groundwater and leachate wells generally reported compound at concentrations less than laboratory LoD or less than respective TSVs, with localised exceptions including naphthalene at BH201 (32 ug/l, groundwater well) and BH625 (110 ug/l reducing to 33 ug/l at monitoring round 2). Lower-level exceedances were reported for determinands anthracene and fluoranthene at BH625.
- With regard to inorganics testing predominantly ammonia was reported at concentrations exceeding the adopted TSV (0.3 mg/l) for all but three of the groundwater and leachate samples (BH201 & BH32 groundwater well and BH625 leachate well). Low level cyanide exceedances (BH624S & BH625 leachate, well BH119, BH653 & BH101 groundwater wells) were also reported following monitoring round 1 only. A singular low-level exceedance was reported for chloride at groundwater well BH201 (320 mg/l, TSV 250 mg/l) following sampling round 1 and at 290 mg/l following sampling round 2.

Reported contaminant concentrations in soils within Zones 6 are generally not considered to present a significant risk to health based on a POS (park) end use, with the exception of the following:

- Marginally elevated PAH Dibenz(a,h)anthracene detected between 1.3mg/kg and 1.9mg/kg at BH623 at 1m and 4m depths respectively in excess of the POSpark GAC.

8.7.2. Pathway - Receptors Linkage

Contamination present in this area is generally characterised by lower-level diffuse contamination which is consistent with historical sampling (Sirius 2017). Heavy metals consistent with those encountered across much of the site were detected including iron and manganese. Low level ammonia was detected across much of the area. A potentially more significant occurrence of naphthalene was reported at BH625 following the initial sampling round and at a lesser concentration at BH201 to the immediate northeast. Recent soils sampling at BH625 does not suggest the presence of a significant soil source in the area although low level PAH compounds were reported with a maximum Total PAH value reported 130 mg/kg for the sample retrieved at 0.5 mbgl.

The primary migration pathway for the PCoCs within groundwater is considered to be via groundwater flow within the permeable layers of the superficial deposits with further migration potential towards the nearby surface water receptors. Water environment receptors are considered to be the shallow aquifer (superficial deposits) and surface waters (nearby tributary and connected River Faughan). Observed contaminant concentrations in soils would also suggest that there is likely to be some contribution from soils leaching to shallow groundwater and resulting in a detriment to groundwater quality in the area.

A conceptual site model is developed is presented below which identifies the potential sources, pathways and receptors currently, and thus identify plausible pollutant linkages.

Table 8-6 - Update Conceptual Site Model Zone 6

Contaminant	Pathway	Receptor	Further Action
PAHs, heavy metals, ammonia in groundwater (dissolved phase)	➢ Shallow aquifer	Groundwater Surface water (tributary & River Faughan)	Further Detailed Risk Assessment to investigate significance of potential pollutant linkages and derive appropriate clean up criteria where applicable.
PAHs, TPH in soils	➢ Direct contact pathways (dermal, ingestion, inhalation)	Potential future site users & Construction workers	Risk to future site users will be informed by future interaction. Human health risk to be considered further as part of future remediation design.
	➢ Leaching to groundwater ➢ Shallow aquifer	Groundwater Surface water (tributary & River Faughan)	Further Detailed Risk Assessment to investigate significance of potential pollutant linkages and derive appropriate clean up criteria where applicable.

8.8. ZONE 7

8.8.1. Sources

Source zone 7 is represented by an area of land in the south-central area of CS&G which was used as the main yard of the former sand and gravel extraction at the CS&G site. Waste/made ground depositions in this are generally limited to lands to the immediate east and southeast and south of the yard and are characterized by generally C&D wastes present to depths of c.3.5 mbgl. Superficial deposits comprise sandy silts, gravel and sand.

Contaminant concentrations in leachate and groundwater were reported in excess of adopted TSVs within Zone 6 following recent sampling as detailed below:

- As is characteristic of the site generally, iron and manganese continue to represent the most frequent and elevated TSV exceedances, present in leachate and groundwater wells. Maximum iron concentrations were reported at groundwater well BH205 (21,000 ug/l, monitoring round 2) and maximum manganese at groundwater well BH620 (8,000 ug/l, monitoring round 1). Marginal and more localised exceedances of TSVs were also reported for metals cadmium, nickel and zinc generally within groundwater.

- Organics testing typically did not detect determinands above laboratory limits of detection with a number of localised exceptions. A singular aromatic fraction was reported at well BH619D, groundwater well (aromatic C21-C35, 2,500 ug/l) following the initial sampling round and at groundwater well BH661 for benzene (79 ug/l) following the second monitoring round. Monitoring well BH661 was progressed as part of the phase 2 investigation and was not sampled during the initial monitoring round.
- With regard to inorganics determinand concentrations were generally not detected above relevant TSVs with the exception of a localised cyanide concentration reported at groundwater well BH205 (0.016 mg/l, TSV 0.001 mg/l) following the initial monitoring round.

Reported contaminant concentrations in soils within Zones 7 were not reported in excess of the adopted GAC.

8.8.2. Pathway - Receptors Linkage

Contamination present in this area is consistent with those identified across the site with respect to heavy metals and organics testing which has generally not identified a significant or potentially significant impacts to groundwater.

The primary migration pathway for the PCoCs within groundwater is considered to be via groundwater flow within the permeable layers of the superficial deposits with further migration potential towards the nearby surface water receptors. Water environment receptors are considered to be the shallow aquifer (superficial deposits) and surface waters (nearby tributary and connected River Faughan). Observed contaminant concentrations in soils would also suggest that there is unlikely to be a significant soil source present.

A conceptual site model is developed is presented below which identifies the potential sources, pathways and receptors currently, and thus identify plausible pollutant linkages.

Table 8-7 - Update Conceptual Site Model Zone 7

Contaminant	Pathway	Receptor	Further Action
Heavy metals in groundwater (dissolved phase)	➢ Shallow aquifer	Groundwater Surface water	Further Detailed Risk Assessment to investigate significance of potential pollutant linkages and derive appropriate clean up criteria where applicable.

8.9. ZONE 8

8.9.1. Sources

Zone 8 is located in the central area of CS&G and is located generally down hydraulic gradient (based on initial groundwater flow modelling (refer to Figure 6)) of the area of tarry waste deposition noted at CIW to the east of the Mobuoy Road. The exceeding determinands observed in groundwater in this area following recent and historical (MPRT EMP monitoring data) are consistent with tarry waste signatures to include for example BTEX and PAH compounds. It is considered likely that the observed tarry waste signatures observed in groundwater in central CS&G are attributable to migration form the CIW to the immediate east.

Wastes/made ground in the area are characterised by mixed organic, occasional domestic and C&D wastes typically extending from depths 3 to 6 mbgl. Superficial deposits are generally characterised by silty sands and gravel with occasional clay inclusions at depths e.g., BH409 at the western boundary recorded a sandy gravel as present from 8.5 to 8.7 mbgl (base not proven).

Heavy metal occurrences are consistent with those observed generally at site scale with iron and manganese continuing to represent the most significant and frequent exceedances within leachate and groundwater wells. Lower magnitude and frequency exceedances were reported for determinands boron, nickel, cadmium and zinc following both recent monitoring events.

Organics testing identified elevated BTEX (predominantly benzene), aromatic TPHs and elevated PAHs (predominantly naphthalene) at groundwater wells BH404, BH402, BH402S (leachate well) and BH206 following the initial sampling round and at BH404, BH410, BH402 and at BH403 following the second sampling round. The maximum benzene concentration reported following round 1 was at BH402 at 6,400 ug/l and also at BH402 following round 2 (9,000 ug/l).

Naphthalene concentrations were generally reported at similar monitoring wells to that of benzene although maximum concentrations were reported at different locations. Maximum naphthalene concentrations were reported at groundwater wells BH206 (50 ug/l) following round 1 and at BH410 (89 ug/l)

VOC and SVOC analysis generally identified similar PCoCs indicative of coal tar signatures including PAHs and various aromatic derivatives.

Low level exceedances of ammonia were reported following round 1 and 2 sampling with all concentrations generally reported at concentrations <1 mg/l with the exception of BH633 (groundwater well) following the round 1 sampling (reported at 1.2 mg/l). Chloride concentrations were reported at three groundwater and one leachate well following round 1 sampling with a maximum concentration reported at groundwater well BH107 (980 mg/l, TSV 250 mg/l). Localised low-level sodium and sulphate exceedances of adopted TSVs were reported following both recent monitoring events.

Reported contaminant concentrations in soils within Zone 8 were not reported in excess of the GAC for a POS (park) end use. Asbestos containing materials (ACMs) were identified in one sample, BH634 at 3 mbgl which was described as a chrysotile in the form of fibre clumps. Following quantification asbestos content was reported at 0.015%. A sample tested at 1 mbgl at this location did not identify the presence of ACMs as did a sample analysed at depth (5 mbgl).

A review of soils analytical data for monitoring wells progressed following the recent phase of works has not identified a significant soil source with respect to the primary observed organic contaminants. The maximum reported Total TPH in soils tested was reported at BH651 at 5.5 mbgl (4,500 mg/kg) and at BH634 at 1mbgl at 1,800 mg/kg with samples tested generally not reporting TPH fractions above relevant laboratory LoDs.

BTEX and PAH compound concentrations similarly are reported at low concentrations or concentrations less respective laboratory LoDs.

8.9.2. Pathway - Receptors Linkage

The principal pathway for dissolved phase contaminant migration is considered to be via shallow groundwater flow with the sand and gravel aquifer system. A number of reported contaminant concentrations are considered to present a potential risk to shallow groundwater and offsite surface waters via shallow groundwater migration. Surface water sampling to date has not identified significant impacts to downgradient surface waters and the associated risk is currently considered low, however it is recommended risk modelling consider future risk to ensure ongoing protection.

Following a review of soils analytical data collated following the recent phase a significant or potentially significant soil source for observed organic contaminants has not been identified with respect to the primary observed organic contaminants in groundwater. On the basis of recent groundwater flow modelling, observed contaminant characteristics and the absence of a significant or potentially significant soil source it is reasonable to assume that the observed organic contaminants observed at (TPHs, BTEX and PAHs) are likely to be attributable to the tarry waste depositions observed at the CIW site. Whilst the absence of significant soil source is considered a reasonable assumption based on the available site data it should be noted however that the recent soils assessment for the area is limited to 26 no. soils samples collected from trial pits and boreholes progressed in the area following the recent phase of works. This zone like much the Mobuoy site has been subject to uncontrolled waste depositions of varying types. A review of relevant exploratory logs for all phases of investigation to date including the BH01, BH200 and BH400 series logs also do not support the presence of a potentially significant soil source for the organic contaminant types observed in this zone further supporting the hypothesis of migration from source zone 3 to the east.

A conceptual site model is developed is presented below which identifies the potential sources, pathways and receptors assumed for this zone.

Table 8-8 - Update Conceptual Site Model Zone 8

Contaminant	Pathway	Receptor	Further Action
Heavy metals, BTEX, PAHs, TPHs and low-level ammonia and groundwater	➢ Shallow aquifer	Groundwater Surface water (River Faughan)	Further Detailed Risk Assessment to investigate significance of potential pollutant linkages and derive appropriate clean up criteria where applicable.

8.10. ZONE 9

8.10.1. Sources

Source Zone 9 is represented by an area of land to the north of CS&G which is dominated by a large body of surface water referred to as a lagoon. A discharge point for this lagoon is located adjacent to the river Faughan c. 295m to the north of main water body. Five no. cable percussion wells were progressed within this water body to assess waste deposition beneath. Evidence of deposition was reported at two of the locations BH642 (1-1.5 mbgl blocks, concrete in a silty clay matrix) and at BH643 from 0.5 – 2.5 mbgl described as plastic sheeting and timber in a clayey gravelly silt.

Wastes/made ground external to the lagoon area are characterised by predominantly C&D wastes with occasional occurrences of more domestic type or municipal type waste. Depth of infilling varied from c. 2-4 mbgl in the northern area along the eastern boundary of lagoon with deeper deposition depth evident to the south and central area at c. 5 mbgl (BHs 219, 220 & 635). Drift deposits in this area of the site are characterised by silt, sands and gravel.

Contaminant concentrations in groundwater observed following the recent sampling rounds is consistent with general site conditions.

Heavy metal exceedances were generally limited to iron and manganese which represent the most frequent and elevated TSV exceedances, reported in leachate and groundwater wells. Maximum concentrations for both determinands were reported in leachate wells, with maximum iron reported at leachate well at BH635S 37,000 ug/l following the initial sampling round. The maximum manganese concentration was reported at groundwater/leachate well BH656, 7,100 ug/l following the second sampling round. A localised elevated zinc concentration was reported at groundwater/leachate well BH656 following the second sampling round (1,800 ug/l) and at groundwater well BH657 (160 ug/l).

Organics testing typically did not detect determinands above laboratory limits of detection or where present did not exceed adopted TSVs following both recent sampling events with the exception of low level mid to heavier end aromatic fractions (C10-C12 and C12-C16) reported at 220 ug/l and 110 ug/l respectively which was reported at leachate well BH218 following the initial sampling round.

With regard to inorganics determinand concentrations reported ammonia concentrations represented the most frequent TSV (0.3 mg/l) exceedances with generally low-level exceedances, generally reported within leachate wells. The maximum reported concentration was reported at leachate well BH218 (11 mg/l) following the initial sampling round. Low level cyanide concentrations were reported in a number of groundwater and leachate wells following the initial sampling round. A localised exceedance of the adopted TSV for chloride and sodium were reported at leachate well BH218 following the initial sampling round.

Reported contaminant concentrations in soils within Zones 9 were generally not reported in excess of the adopted PoSPark GAC with the exception of the heavy metal lead reported at TP635 at 4 mbgl, 4600 mg/kg.

8.10.2. Pathway - Receptors Linkage

Contamination present in this area is consistent with that identified generally across the site with respect to heavy metals and organics testing with heavy metals and low-level ammonia representing the primary contaminants of concern (PCoCs).

The primary migration pathway for the PCoCs within groundwater is considered to be via groundwater flow within the permeable layers of the superficial deposits with further migration potential towards the nearby surface water receptors. Water environment receptors are considered to be the shallow aquifer (superficial deposits) and surface waters (nearby tributary and connected River Faughan).

As stated, elevated lead concentrations were reported at TP635 at 4mbgl. Groundwater sampling from monitoring groundwater/leachate well BH656 progressed adjacent to TP635 did not identify elevated lead concentrations in groundwater. Lower-level heavier end TPH concentrations were reported in soils analysed at TP635 at 3 and 4 mbgl. Low level TPH concentrations were reported at one location at low levels BH218 following the initial monitoring round with general deposition likely to be contributing to observed generally low-level contaminant concentrations observed.

A conceptual site model is developed is presented below which identifies the potential sources, pathways and receptors currently, and thus identify plausible pollutant linkages.

Table 8-9 - Update Conceptual Site Model Zone 9

Contaminant	Pathway	Receptor	Further Action
Heavy metals, low level TPH, low level ammonia in groundwater (dissolved phase)	➢ Shallow aquifer	Groundwater Surface water (Lagoon/River Faughan)	Further Detailed Risk Assessment to investigate significance of potential pollutant linkages and derive appropriate clean up criteria where applicable.

9. ADDITIONAL SITE INVESTIGATION AND MONITORING WORKS - CONCLUSIONS

Following the completion of the most recent phase of site investigation and monitoring works in May 2022 and update to the site's CSM's the source zones have been qualitatively risk rated. Where risk rating is assumed to be moderate, moderate to high or high these potential pollutant linkages (PPLs) will be considered further as part of the DQRA. This approach is consistent with and updates the previous CSMs developed via the Sirius DQRA (2017).

Table 9-1 - Qualitative Assessment of PPLs Requiring Further Assessment via DQRA

Source Zone	Pathway	PCoCs[1]	Risk Rating	Rationale
Source Zone 1 & 2	Shallow Aquifer Transport	Heavy metals low level TPH, ammonia, & chloride	**Moderate to High**	Area of significant infilling. Impacts noted to leachate and groundwater. Potential for migration toward surface water.
Source Zone 3	Shallow Aquifer Transport	Heavy metals low BTEX, PAHs, TPH, ammonia	**High**	Area of tarry waste, significant visual/olfactory evidence of contamination. Impacts to soils and groundwater evident following testing.
Source Zone 4	Shallow Aquifer Transport	Heavy metals	Low	Nearby surface waters do not indicate significant impact following recent sampling. Effective removal of waste materials/reduced quality made ground anticipated as part of future A6 enabling works to be considered during future remedial design.
	Surface water (Tributary)	Cyanide	**Low to Moderate**	
Source Zone 5	Shallow Aquifer Transport	heavy metals, BTEX, PAHs, TPH,	**Moderate to High**	Localised evidence of tarry waste deposition and indicative signatures in soils and groundwater. Adjacent to the River Faughan
Source Zone 6	Shallow Aquifer Transport	Heavy metals, BTEX, PAHs, TPH, ammonia	**Moderate**	Lower-level localized impacts in soils and groundwater.
Source Zone 7	Shallow Aquifer Transport	Heavy metals	Low	CS&G processing this area. General PCoCs iron and manganese present site wide
Source Zone 8	Shallow Aquifer Transport	Heavy metals, BTEX, PAHs, TPHs and low-level ammonia	**High**	Highly elevated BTEX and PAH compounds in groundwater. Adjacent to the River Faughan
Source Zone 9	Shallow Aquifer Transport	Heavy metals, low level TPH, low level ammonia	**Moderate**	Adjacent to the River Faughan

The CSMs are considered reasonable and extensive additional site characterisation, sampling and monitoring works have significantly reduced uncertainty around assumptions with regard to the site's hydrogeological setting. The CSMs will be subject to review following completion of the DQRA.

Additional site investigations have assisted in the definition of relevant source areas however the nature of the uncontrolled depositions which have occurred over a prolonged period mean the CSMs presented should not be considered conclusive but may be subject to update during site development.

9.1. A6 INTEGRATION AND CONCEPTUAL SITE MODELS

The current A6 Roads Scheme proposals need to be considered as part of future remediation of the site and the Mobuoy Remediation ICT have continued with a process of engagement with the A6 ICT to make sure that an integrated and collaborative approach is being taken to the benefit of both projects. An overlay of the proposed A6 Scheme is presented on Figure 4. This highlights several areas of overlap between the site and the Department for Infrastructure (DfI) Roads A6 scheme vesting boundary, and in the proposed highway.

The proposed dualling road is expected to enter the site around the eastern periphery. More specifically the dualling road overlaps with the southern and eastern boundary of the CIW site and passes over the Mobuoy Road at a location to the north of CS&G site boundary. Works are also proposed which will see the partial realignment and widening of the existing Mobuoy Road which bisects the CIW and CS&G sites.

Current scheme proposals are unlikely to significantly affect the current CSMs with the potential exception of Zone 4 as it is likely to see significant removal of deposited wastes; and thus, effectively reducing or mitigating what are generally lower risks observed to ground and surface water (tributary to the immediate south). It is envisaged that future remediation design will remain cognisant to A6 scheme proposals.

It is considered unlikely that the current proposals will significantly alter the existing groundwater regime and potential contaminant migration pathways. It is assumed that the scheme drainage works will be engineered to minimise potential interaction with the existing groundwater regime.

Future remediation design will require further consideration of the A6 proposals, and it is expected that the ongoing engagement between the ICTs will seek to ensure an integrated and symbiotic approach.

9.2. CIW FORMER YARD

Recent and historical site investigations have not identified significant or potentially significant contaminants of concern underlying the former CIW yard area. As a result, lands underneath the yard are not considered further within this risk assessment. However, it is noted that anecdotal information and available aerial imagery does suggests significant surface waste depositions to the immediate northeast and northwest of the main yard area and characterisation is recommended of these materials to inform future management and remediation design.

10. WATER DETAILED QUANTITATIVE RISK ASSESSMENT

10.1. INTRODUCTION

The working CSM, based upon groundwater monitoring from Rounds 1 and 2 in 2022 has identified potentially unacceptable contaminant linkages to the River Faughan through migration within groundwater and surface water courses of dissolved-phase contaminants arising from the waste materials deposited on the site. Detailed Quantitative Risk Assessment of these pollutant linkages is therefore required.

10.2. MODELLING RATIONALE

Tetra Tech has adopted the same modelling approach taken by Sirius in their 2017 DQRA but with the benefit of a significantly increased data set which has enabled a much-improved understanding of ground conditions, associated contaminant migration pathways, and contaminant types. This information has enabled the refinement and update of the site conceptualisation which has informed the current modelling approach. Recent source concentrations deriving from groundwater and surface water monitoring have been adopted in modelling iterations, following sampling of the much-increased density of monitoring positions from investigations since the 2017 DQRA.

As stated in the Sirius 2017 DQRA:

"The site is large and complex and source areas contain a range of chemical substances including some (e.g., iron and manganese) which are both present at background concentrations and, given their hydrochemical behaviour difficult to model effectively using conventional risk modelling techniques that are based on simplified partitioning assumptions. In addition, several potential transport pathways via both groundwater and surface water are present.

Due to its history, geology and environmental setting, the site cannot be considered as a single source area but rather needs to be assessed as a group of individual source areas within a wider site together with the complex interaction of different potential transport pathways."

Sirius adopted the following modelling approach for the site:

1. Detailed quantitative risk assessment of specific source areas in accordance with the Environment Agency's Remedial Targets Methodology (RTM) for assessing risk to controlled waters. The assessment was undertaken using the ConSim Model v2.5 to complete complex level 3a groundwater modelling. Groundwater source concentrations for contaminants exceeding Tier 1 Screening Criteria taken forward into ConSim modelling. Contaminant source concentrations were set to an arbitrary figure of 10mg/L to derive attenuation factors for each contaminant in each source zone. These attenuation factors were then used to derive site specific assessment criteria (SSAC) for groundwater by multiplying the groundwater TSVs. Soil and leachate (Level 1 and Level 2) targets were then derived for the site by back calculation, according to the Environment Agency remedial target methodology in Excel.
2. Additionally, water balance modelling was then undertaken to determine separate SSAC, based upon contaminant fluxes in groundwater and surface water, compared with volumetric flow rates within the river

Faughan. Using detailed flow data for the river Faughan, it is possible to calculate the maximum load of each potential contaminant of concern that could enter the River before the concentration threshold for that contaminant would be breached within the surface water. Based on the known flux rate of each contaminant, it is also possible to calculate the concentration (site specific assessment criteria) of each contaminant within each source that would not result in such a breach. In essence, the water balance modelling constitutes a Level 4 assessment under the remedial target methodology.

To assess potential risks posed by on-site contaminants to surface water and groundwater, the risk assessment tool ConSim (v2.5) has been used. The previously completed Sirius DQRA was conducted in ConSim, with additional water balances to account for dilution within the river Faughan.

The ConSim package was developed by Golder Associates in conjunction with the EA and is a probabilistic tool, which is able to consider multiple contaminants in a single model run and has the advantage that the input parameters are described by a range of values within a defined probability distribution function, rather than by just single values. The ConSim model can then be run for multiple iterations (usually 1001) and for each model iteration, the software selects an input value for each parameter from within the defined range(s).

This model is considered the most appropriate owing to its ability to consider inherent variation and uncertainty within the input criteria, as well as the probabilistic way in which it presents the predicted results (based on confidence limits rather than single predicted concentrations). This is especially appropriate for highly complex sites such as Mobuoy, where ground conditions across the site can be highly variable, and a wide range of site-specific values have been obtained from successive rounds of site investigation.

The quantitative risk assessment assumes the identified and potential sources of contamination, receptors, and pathways identified in the hydrogeological conceptual model discussed in Section 9 of this report.

10.3. IMPLEMENTING THE REMEDIAL TARGETS METHODOLOGY MODEL

Tetra Tech have implemented the same RTM assessment as Sirius in their 2017 DQRA. RTM Level 3a assessments have been carried out for the identified contaminants of concern to establish source zone specific remediation criteria for soils, leachate and groundwater which will be protective of identified water receptors.

The model was implemented using the ConSim model v.2.5, which was developed to follow the RTM process and is a probabilistic model that allows data inputs to be defined in terms of statistical probability density functions (PDFs). Probabilistic modelling allows the calculation to incorporate the effects of natural variability and uncertainty within the dataset, producing a statistical range of potential outcomes. These outcomes are given at a range of statistical confidence levels and the range of variability within the predicted level of impact can be assessed. An appropriate level of conservatism can then be applied to the interpretation of the results considering the level of confidence in the input parameters used.

Results of ConSim modelling have initially been assessed at a time period of 10,000 years which is considered representative of worst-case, long-term equilibrium conditions. Within the RTM approach (Environment Agency, 2006) it is acceptable to consider the level of risk within a wider environmental context where travel times exceed

1,000 years.

If a probability density function is used to describe the source zone contaminant concentration, then ConSim does not directly calculate a site-specific assessment criterion (SSAC). For this reason, two models have been run for each source zone. The first model has been run using site groundwater concentration data input as a PDF to assess the predicted long-term impacts at the receptor from the current condition of the source. The second model has been run using a single arbitrary concentration of 10mg/l for all contaminants to establish the ratio between the source groundwater concentration and the predicted impact (attenuation factor) for each contaminant. The attenuation factor, which is independent of the input source concentration, can then be used to calculate separately the SSAC for each source zone at the chosen confidence level.

Attenuation factors derived from the level 3 groundwater assessment in ConSim have been used as the basis for calculation of level 2 (soil leachate) and level 1 (soil) targets using an Excel spreadsheet.

The ConSim modelling is considered to be inherently extremely conservative, as it is not possible to model a declining groundwater source within ConSim Level 3a assessment. Each source area therefore acts as a continuous groundwater source, with predicted concentrations either continuing to rise to the input source concentration until the 10,000-year cut off (dependant on retardation) or equilibrating below the source concentration following the impacts of degradation, dispersion and dilution.

10.4. PARAMETERISATION

10.4.1. Source Areas and Contaminants of Concern

Source Areas were determined following a review of recent groundwater monitoring data (Round 1 and 2) and based upon the site zoning provided in Table 11-1. Long term monitoring data provided as part of the NIEA's quarterly monitoring programme was reviewed at Chapter 7 of this report and has been used to support the source zone characterisation. Where contaminant concentrations were found to exceed Tier 1 Screening Values, contaminant were brought forwards into ConSim modelling as source on a zone-by-zone basis. Source area concentrations were input into ConSim as an appropriate distribution based on minimum, average and maximum concentrations of exceeding contaminants.

The modelled source areas largely conform to the site zoning numbering given in table 49, with some rationalisation of zones occurring (e.g., the combination of Source Areas 3 and 8), or the discarding of some Zones – e.g., Zone 4 was not brought forwards into modelling as Source Area 4 due to overall groundwater concentrations not meeting the tier 1 screening threshold for modelling. The extent of source areas is based upon combining the extent occupied by the exceeding boreholes within each zone.

Source Areas and their modelled contaminants of concern are presented within Table 10-1.

Table 10-1 – Modelled Source Areas

Source Area	Contaminants of Concern	Input concentrations (mg/L)
Source Area 1,2,3	Arsenic	TRIANGULAR(0.00036,0.011,0.11)
	Boron	TRIANGULAR(0.018,0.615,2.6)
	Copper	TRIANGULAR(0.00056,0.0053,0.031)
	Mercury	UNIFORM(0.000025,0.00017)
	Nickel	TRIANGULAR(0.00088,0.0296,0.17)
	Zinc	TRIANGULAR(0.004,0.029,0.13)
	Aromatic EC10 - EC12	TRIANGULAR(0.0005,0.28,0.42)
	Toluene	UNIFORM(0.001,0.09)
	Naphthalene	TRIANGULAR(0.00049,0.025,0.23)
	Ammonia	TRIANGULAR(0.15,2.56,16)
	Chloride	TRIANGULAR(19,165,750)
	Cyanide	UNIFORM(0.0025,0.013)
Source Area 3,8 (Note: Tarry waste impacted area within Source 3 and Source 8)	Boron	TRIANGULAR(0.31,0.76,1.3)
	Mercury	UNIFORM(0.000025,0.00008)
	Nickel	TRIANGULAR(0.0038,0.022,0.06)
	Zinc	TRIANGULAR(0.0031,0.85,11)
	Aromatics EC5 -7	TRIANGULAR(0.11,0.263,0.75)
	Aromatics EC8 -10	TRIANGULAR(0.15,1.05,6.4)
	Aromatics EC10 -12	TRIANGULAR(0.08,1.32,5.5)
	Aromatics EC12 -16	TRIANGULAR(0.01,0.92,4.5)
	Aromatics EC16 -21	TRIANGULAR(0.021,0.096,0.22)
	Aromatics EC21 -35	TRIANGULAR(0.072,0.083,0.094)
	Benzene	TRIANGULAR(0.017,3.2,9.7)
	Toluene	TRIANGULAR(0.0049,0.37,1)
	Ethylbenzene	TRIANGULAR(0.015,0.34,1.4)
	Naphthalene (aq)	TRIANGULAR(0.00098,0.38,1.5)
	Anthracene (aq)	TRIANGULAR(0.0004,0.0012,0.0022)
	Fluoranthene (aq)	TRIANGULAR(0.00084,0.001,0.0023)
	Ammonia	TRIANGULAR(0.11,0.25,0.35)
Source Area 5	Cadmium	UNIFORM(0.00011,0.00025)
	Nickel	TRIANGULAR(0.0042,0.0103,0.015)
	Zinc	TRIANGULAR(0.0075,0.06225,0.12)
	Aromatic EC5 - 7	SINGLE(0.036)
	Aromatic EC10 - 12	TRIANGULAR(0.037,0.1365,0.31)
	Aromatic EC12 -16	UNIFORM(0.041,0.34)
	Aromatic EC16 -21	UNIFORM(0.029,0.1)
	Benzene	TRIANGULAR(0.063,4.47,13)
	Toluene	TRIANGULAR(0.0077,0.22,0.62)
	Ethylbenzene	TRIANGULAR(0.1,1.13,1.7)
	Naphthalene	TRIANGULAR(0.0011,0.3,1.6)
	Anthracene	TRIANGULAR(0.00048,0.0013,0.0024)
	Fluoranthene	TRIANGULAR(0.00048,0.0014,0.0025)
	Ammonia	TRIANGULAR(0.000075,0.0005,0.0011)
Source Area 6	Cadmium	UNIFORM(0.00013,0.00093)
	Nickel	TRIANGULAR(0.0021,0.0091,0.026)
	Zinc	TRIANGULAR(0.0039,0.021,0.04)
	Benzene	UNIFORM(0.0083,0.043)
	Naphthalene	TRIANGULAR(0.00025,0.0073,0.032)
	Chloride	TRIANGULAR(28,118,320)
	Ammonia	TRIANGULAR(0.24,3.47,13)
	Cyanide	UNIFORM(0.01,0.016)

Source Area	Contaminants of Concern	Input concentrations (mg/L)
Source Area 7	Cadmium Nickel Zinc Toluene Cyanide	TRIANGULAR(0.00013,0.0003,0.00062) TRIANGULAR(0.00055,0.0077,0.025) TRIANGULAR(0.0026,0.0462,0.16) UNIFORM(0.001,79) UNIFORM(0.0025,0.016)
Source Area 8	Cadmium Nickel Zinc Chloride Ammonia	UNIFORM(0.000055,0.0002) TRIANGULAR(0.0015,0.023,0.055) TRIANGULAR(0.0053,0.035,0.093) TRIANGULAR(47,297,980) TRIANGULAR(0.16,0.41,1.2)
Source Area 9	Nickel Zinc Ammonia Cyanide	TRIANGULAR(0.0009,0.0046,0.023) TRIANGULAR(0.003,0.028,0.16) TRIANGULAR(0.075,0.235,0.49) UNIFORM(0.0055,0.011)

10.4.2. Geology and Hydrogeology

The geological and hydrogeological data used in the model together with the selected probability density functions used in ConSim where relevant are presented in Table 10-2 below. Wherever possible, site-specific values have been adopted. A negative correlation between hydraulic gradient and hydraulic conductivity, and a positive correlation between porosity and hydraulic conductivity were applied within the ConSim models.

Groundwater flow direction within the shallow aquifer has been determined to be towards the west in the direction of the River Faughan, which is consistent with the available monitoring data from site. Local variations in groundwater flow direction are apparent, although the dominant control ism the river. Flow pathways within the models have therefore been set as the shortest distance from the source areas to the River Faughan, with groundwater flow normal to the closest river section.

Table 10-2 - Geological and Hydrogeological Input Parameters

Parameter	Probability Density Function	Units	Values	Justification
Infiltration	Triangular	mm/year	375, 520, 760	Range between 30% and 60% of total precipitation. Estimated from MORECS data and surface cover.
Aquifer Thickness	Uniform	m	3.5, 8	Likely range based on SI data
Aquifer Dry Bulk Density	Uniform	g/cm3	1.64, 2.23	Range of site-specific testing on shallow aquifer strata

Parameter	Probability Density Function	Units	Values	Justification
Fraction of Organic Carbon	Normal	fraction	0.00525, 0.00547	Based on aquifer specific data. Normal distribution likely to be representative of this parameter. (Mean and standard distribution values quoted).
Hydraulic Conductivity	Log Triangular	m/s	2.6E-6, 5.8E05, 1.7E-04	40th, 60th and 75th percentiles of range of site measurements. Excludes extreme low and high values. Corroborates groundwater flows predicted by site water balance models.
Effective Porosity	Triangular	fraction	0.159, 0.24, 0.37	Minimum, Average and Maximum values based on geotechnical testing of shallow aquifer soils
Hydraulic Gradient	Uniform	gradient	0.0019, 0.02	Range of values calculated from groundwater elevation data.
Longitudinal Dispersivity	Single Value	m	various	Set at 10% of transport distance as per RTM recommendations
Lateral Dispersivity	Single Value	m	various	Set at 1% of transport distance as per RTM recommendations
Correlation: Porosity to Hydraulic conductivity	Single Value	N/A	+0.75	To account for where probabilistic modelling selects high porosity value; high conductivity then appropriate.
Correlation: Hydraulic conductivity to Hydraulic Gradient	Single Value	N/A	-0.50	To account for where probabilistic modelling selects high conductivity value; low gradient then appropriate.

The input parameters presented in Table 10-3 have been used to describe the physico-chemical properties of each contaminant of concern modelled. References for each contaminant specific parameter are provided below the table. Half-life values for TPH fractions have been sourced for 'surrogate' compounds (i.e., those that have equivalent molecular weights to the individual fractions) where fraction-specific data were not available. No degradation of metals and other inorganic contaminants was included within the model.

The model has been run such that degradation of contaminants will take place within the dissolved phase only. This is a conservative modelling option in accordance with the RTM guidance given that the source of the environmental half-life data used for parameterisation includes 'worst-case' values derived from a review of measured field degradation rates. Given the shallow aerobic nature of the aquifer down-gradient of specific source areas it is considered reasonable to assume that biodegradation of hydrocarbons and ammonia will occur in the sub-surface.

Compliance criteria (target concentrations) are based on the TSVs detailed in Section 7 and Appendix 13 of this report.

Table 10-3 - Summary of Contaminant Specific Input Parameters

Contaminant of Concern	Henry's Law Constant (H') Dimensionless	Organic Carbon Partition Coefficient (Koc) l/kg	Environmental half-life (years)	TSV (mg/L)
Metals				
Arsenic	N/A	500 (K_d)	N/A	5.00E-02
Boron	N/A	74 (K_d)[1]	N/A	1.00E+00
Cadmium	N/A	3.7,74,1500, Triangular (K_d)	N/A	9.00E-5
Copper	N/A	100 (K_d)	N/A	3.49E-02
Zinc	N/A	38 (K_d)	N/A	3.72E-02
Nickel	N/A	500 (K_d)	N/A	1.50E-02
Mercury	N/A	450 –1500 (K_d)	N/A	7.00E-05
PAH				
Naphthalene	6.62E-03	6.45E+02	0.55 – 2.7	2.00E-03
Fluoranthene	6.29E-05	1.98E+04	3.1 - 7.8 [1]	6.30E-06
Anthracene	7.80E-05	2.09E+04	2.6 - 7.9 [1]	1.00E-04
BTEX				
Benzene	1.16E-01	6.70E+01	0.27 – 1.36	1.00E-02
Toluene	1.15E-01	2.04E+02	0.14 – 1.2	7.40E-02
Ethylbenzene	1.39E-01	4.46E+02	0.55 – 2.2	3.00E-01
TPH				
>C5 to C7 Aromatic	1.16E-01	6.7E+01	0.27 – 1.36	1.00E-02
>C8 to C10 Aromatic	2.53E-01	1.59E+03	0.56 – 4.8	9.00E-02
>C10 to C12 Aromatic	7.22E-02	2.51E+03	0.56 – 4.8	9.00E-02
>C12 to C16 Aromatic	1.26E-02	5.01E+03	1.09 – 2.52	9.00E-02
>C16 to C21 Aromatic	6.95E-04	1.41E+04	1.09 – 2.52	9.00E-02

Contaminant of Concern	Henry's Law Constant (H') Dimensionless	Organic Carbon Partition Coefficient (Koc) l/kg	Environmental half-life (years)	TSV (mg/L)
>C21 to C35 Aromatic	2.48E-05	1.26E+05	1.09 – 2.52	9.00E-02
Others				
Ammoniacal Nitrogen*	7.8E-05	0.5 (K_d)	1 – 6	3.00E-01
Chloride	2.08	0 (K_d)	N/A	2.50E+02
Free Cyanide	N/A	204[2]	N/A	1.00E-03

Physico-chemical data sourced from Environment Agency (P5-080/TR3, 2009, and EA-SC050021/SR7, 2008), the ConSim database, TPHCWG (Vol.3), LQM/CIEH GAC, 2nd Edition (2009), and the RBCA Toolkit database unless otherwise specified. For TSV see report text.

1- Alberta Government: Soil Remediation Guide for Boron; ISBN 978-1-4601-2655-4

2- USEPA; Ambient Water Quality Criteria for Cyanide - 1984. p. 1 US EPA 440/5-84-028

11. WATER BALANCE MODELLING

11.1.1. Introduction

To examine the relative impacts of potential controlled water contaminant linkages associated with the site, an analytical water balance model has been developed based on the CSM. Where possible methods and data sources for the model follow those recommended within SNIFFER Publication 09241 “Derivation of a Methodology for Groundwater Recharge Assessment in Scotland and Northern Ireland”, 2003.

Similar to the RTM (Remedial Targets Methodology) modelling, Tetra Tech has followed the same approach as Sirius in the water balance modelling, with updated contaminant concentrations and source areas based upon recently conducted groundwater monitoring rounds.

This model has been used to estimate relative concentrations within surface water channels and contaminant flux for the underlying shallow aquifer under existing site conditions. Calculations have also been performed to derive site-specific remediation criteria that are protective of the River Faughan.

It is important to note that the water balance model does not consider attenuation processes such as dilution, dispersion and degradation, which are modelled within ConSim. The water balance model is therefore conservative when assessing source areas that are not located immediately adjacent to the receptor. Consideration of the level 3 transport processes can be added to the model based on the outputs of the ConSim modelling where relevant to derive site specific assessment criteria, as discussed below.

11.1.2. Data Sources

The water balance model aims to represent how water moves through the site. The superficial deposits at the site provide a pathway for contaminant transport across and away from the site. This is an update to the previous Water Balance Modelling completed by SIRIUS as part of the 2017 DQRA. A conceptual representation of the water balance model is shown at inset Figure 12.1, modified from the SIRIUS, 2017 with the removal of the pathway between the lagoon and the tributary stream

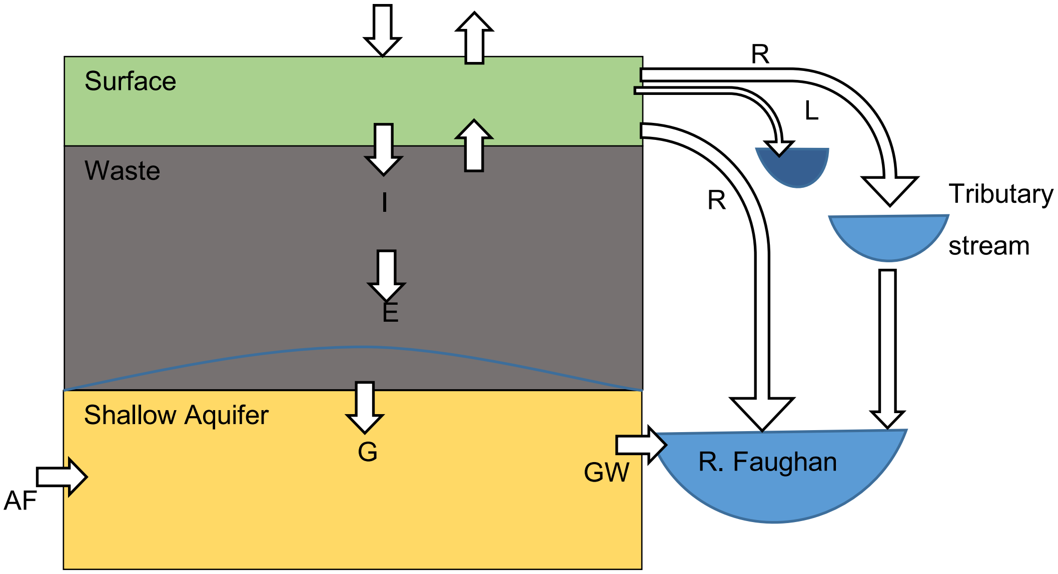


Figure 12.1. – Illustrative schematic of water balance model

The model has been used to estimate the relative concentrations of contaminants of concern within surface water channels and quantify the contaminant flux for the underlying shallow aquifer. The model input parameters have been updated to take account of the most up to date information and existing site conditions. Calculations have been performed to derive site-specific remediation criteria that are protective of the River Faughan.

The water mass balance model (Excel spreadsheets) is presented at Appendix 15. The model comprises hydrological inputs, hydrogeological inputs, and background contaminant loads to determine infiltration and contaminant flux. Average values of various input parameters have been used within the water balance model.

Hydrological inputs

Within the hydrological input tab of the model, input parameters include precipitation, evapotranspiration, surface runoff rates (considering soil type and slope), channel flow rates, and surface cover distribution plus additional catchment factors including proportion of direct shedding and slope.

Meteorological data for the site, including rainfall and actual evapotranspiration for each of the identified surface cover types, were sourced from the Meteorological Office and are based on a site-specific MORECS report, itself based on data for the period between 2006 and 2015 from weather stations in the vicinity of the site.

Meteorological data has not been changed since the SIRIUS 2017 version of the model as this represents the most accurate site-specific dataset available for these parameters. Rainfall data for the Claudy groundwater body (including the River Faughan) as a whole compares well with the MORECS data, with a value of 1199mm/year reported for the Claudy Catchment, versus a site specific value of 1240mm/year from MORECS data.

Surface cover distribution areas have been updated due to the site becoming more overgrown since the previous iteration. These have been calculated for the entire site and for each of the zones. Standard percent surface runoff rates have been assigned to each surface cover distribution area based upon HOST soil classifications from the Institute of Hydrology Report 126. Surface runoff adjustments for topography have been included to account for the effect of slope in accelerating runoff, and a percent of the site with slopes greater than 10° has been assumed, consistent with the previous SIRIUS model.

River Faughan average flow rate was updated with more recent available data from the National River Flow Archive up to August 2017. No flow measurements were taken by Tetra Tech; surface water tributary average flow was taken from the SIRIUS flow measurement averages.

Rates of runoff have been estimated using current Environment Agency guidance (“Rainfall Runoff Management for Developments, Report Ref. SC030219, dated 2013). Runoff rates have also been adjusted specifically for the site based on the surface topography and surface catchment analysis, such that only runoff leaving the area *via* surface water or across a site boundary is excluded from the calculated infiltration rate. Runoff entering surface water bodies remains a source of infiltration and is not subtracted from the water balance calculation.

Hydrogeological inputs

Within the hydrogeological input tab of the model, input parameters include width of the aquifer perpendicular to flow, aquifer thickness, hydraulic conductivity, hydraulic gradient, and representative aquifer concentrations of contaminants. Site averages have been selected for width of aquifer perpendicular to flow, aquifer thickness, hydraulic conductivity and hydraulic gradient.

Bedrock has not been widely encountered across the site. Where bedrock has been encountered, it is limited to areas of the site that have been subject to quarrying, and therefore it is difficult to ascertain the dip of the bedrock with any accuracy. Therefore, the model assumes an aquifer thickness of 9 m across the site, an update of the previous 8 m from SIRIUS. This value is used across all the zones. This is in the lower end of reported values in 'Characterisation of groundwater bodies within Northern Ireland June 2012 Version No.1' for the flow zone of the Claudy groundwater body (which includes the River Faughan catchment). This report indicates a dominant flow zone in the upper 10-30 m.

A hydraulic conductivity of 5 m/day used in the previous SIRIUS model. has been determined based on an average of the boreholes across the site and is considered to still be relevant.

The hydraulic gradient is based on an average of site measurements from round 1 and 2 groundwater contour maps. Again, the value for the hydraulic gradient of 0.01 is thought to remain relevant for the shallow superficial aquifer, based upon recent groundwater level measurements and contouring.

Representative aquifer concentrations of contaminants are average concentrations based on dataset of site observations. Values below the limit of detection have been assumed to be at the limit of detection for the purposes of statistical calculation.

The water balance model does not consider attenuation processes such as dilution, dispersion and degradation, which are modelled within ConSim. The water balance model is therefore highly conservative when assessing source areas that are not located immediately adjacent to the receptor.

Estimated aquifer flow rates have been verified against site measurements of hydraulic gradient and conductivity and have been checked relative to anticipated base flow for each source area to ensure that the water balance and

ConSim level 3a assessments are consistent.

Background Loads

Water quality data has been allocated to specific river sections within the water balance model as was done in the previous SIRIUS model (River Faughan Upstream, surface tributary upstream, and surface tributary discharge). SW6 was upstream River Faughan, SW5 was tributary discharge, and SW1 were classed as the upstream tributary. Data came from ‘Annex D11 – NIEA environmental data and reporting – Mobuoy Surface Water Monitoring Locations’.

12. RESULTS

12.1. RESULTS OF CONSIM MODELLING

ConSim and RTM models are included as electronic files at Appendix 16.

A summary of the results of the DQRA are provided in Table 12-2.

12.2. RESULTS OF WATER BALANCE MODELLING

12.2.1. Ratios of Relative Flow by Pathway

Infiltration for the site has been calculated by subtracting total evapotranspiration, total site runoff, and the potential runoff into the lagoon from the annual site precipitation. Estimated infiltration rates are considered reasonable and in general accordance with the average recharge rates of approximately 324 mm/year for the Claudy groundwater body within the north-western river basin district (Characterisation of groundwater bodies within Northern Ireland June 2012 Version No.1).

Based on the sites geological and hydrogeological setting, infiltration is considered to account for the majority of aquifer flow at the site.

The results of the water balance modelling are presented in terms of contaminant flux for each pathway in units of mg/year. This allows the ratio of potential impacts from each source and each pathway to be compared directly with each other and with background concentrations, where applicable. Contaminant flux is calculated by multiplying the groundwater or surface water flow rate (m^3/day or m^3/year) by the observed contaminant concentration (mg/l) to derive a flux in units of mg/day or mg/year.

The flow data for the River Faughan was used to calculate the maximum load of each potential contaminant of concern that could enter the River before the concentration threshold for that contaminant would be breached within the surface water. Based on the known flux rate of each contaminant, it is also possible to calculate the concentration (site specific assessment criteria) of each contaminant within each source that would not result in such a breach.

As the above approach makes a certain level of assumption about the flow rate within the receptor, it is considered appropriate to include an additional factor of safety within the assessment to account for potential variation and to account for the possibility that there could be other impacts to the receptor that are unrelated to the subject site. Sirius incorporated these uncertainties into the model by applying an additional safety factor of 10 to calculated site specific assessment criteria using the water balance approach; Tetra Tech have also applied this FoS in calculating the SSACs.

A summary of the results obtained from the water balance modelling are summarised in Tables Table 12-1. It is important to note that the results obtained from the water balance modelling are indicate of ***relative*** flows and fluxes (e.g., as ratios) and are not an indication of absolute levels of impact or risk. With this in mind, the key conclusions drawn from the results of the water balance modelling approach are summarised below.

Table 12-1 Results of Water Balance Modelling – Relative Flow by Pathway

Result	Whole site	Source Area 1,2 & 3	Source Area 3 & 8	Source Area 5	Source Area 6	Source Area 7	Source Area 8	Source Area 9
Ratio of Groundwater flow to River Faughan Flow	9.68E-04	1.84E-04	6.13E-05	6.74E-05	1.23E-04	1.29E-04	7.66E-05	3.68E-04
Ratio of groundwater flow to Tributary Flow	1.37E-01	2.60E-02	8.68E-03	9.55E-03	1.74E-02	1.82E-02	1.09E-02	5.21E-02
Ratio of Tributary Flow to River Faughan Flow	7.06E-03	-	-	-	-	-	-	-
Ratio of infiltration to Aquifer base flow	7.04E-01	5.55E-01	3.17E-01	1.73E-01	3.41E-01	3.07E-01	2.61E-01	1.51E-01

With reference to Table 12-1, on a site-wide basis, infiltration accounts for the great majority of aquifer flow. Particularly within zones 1, 2 and 3, subsurface transport pathways are driven almost exclusively by infiltration with predicted infiltration rates exceeding the anticipated groundwater base flow rates. This is consistent with the hydrogeological appraisal of this area since bedrock strata of negligible permeability are located immediately to the east of this zone. Essentially, the overall width of the superficial aquifer is narrow, with source zones at the site taking up a significant proportion of the aquifer's areal extent. The superficial aquifer is likely to receive only limited groundwater flow from the largely impermeable Dalradian rocks to the east. Groundwater baseflow is therefore dominated by impacted infiltration from soil source areas.

These findings reaffirm the findings of the original Sirius water balance modelling. Infiltration rates will therefore be of primary importance in controlling contaminant migration within this area of the site. Within the other, smaller, source areas, infiltration forms a smaller proportion of the total anticipated groundwater flow.

The provide further context, the anticipated groundwater flow into the River Faughan from the whole site is approximately 3 orders of magnitude (or approximately one-thousandth) less than the flow within the river channel itself.

12.2.2. Discussion

The Water balance modelling has calculated relative contaminant fluxes from each of the source areas at the site, based upon literature and site specific hydrological and hydrogeological data, that could theoretically enter the River

Faughan. It is reasonable to assume that the contaminant loads reaching the River Faughan are likely to be less than indicated by modelling. There are two plausible explanations, 1) the effects of dilution in groundwater within the wider aquifer thickness will be greater than represented by the model, 2) there is also likely to be heterogeneity along the river in terms of riverbed geology, with the presence of lower permeability alluvium (sandy silt and sandy clay) in places. The presence of this alluvium may provide increased protection to the river by retarding contaminant flow pathways and encourage contaminants to migrate further down gradient (down river) as hyporheic flow.

The water balance modelling has demonstrated that dilution is significant at the River Faughan. Further characterisation of the hyporheic zone and bank storage could help to refine the conceptual understanding and support the modelling assumptions applied. Modelling iterations are considered to be suitability representative of site conditions and assumptions applied are based on available site data.

12.3. CALCULATED SITE SSACS

SSACs calculated for the site from both the RTM and Water balance approach are presented within Appendix 17.

The table presented in Appendix 18 provides a summary of the RTM and Water balance derived SSACs, and includes the following information:

- Compliance targets, based upon the Tier 1 screening laid out in Section 7 of this report.
- ConSim groundwater remedial target criteria (RTC), calculated as part of the ConSim and RTM modelling.
- Water balance RTC, calculated as part of the water balance modelling and accounting for dilution within the River Faughan.
- Minimum, average and maximum values of the contaminants of concern within source area.
- The predicted travel times of contaminants from the source area to the river, based on ConSim modelling.
- The overall risk rating for the contaminant, depending on which target criteria is exceeded (see Table 12-2 and 13-3, below.

Site specific Risk assessment criteria calculated as part of the RTM modelling, water balance modelling and predicted travel times to the River Faughan are presented for each of the contaminants of concern in individual source areas and for the wider site groundwater. Representative source concentrations for each zone have also been presented to allow a comparison with site specific risk assessment criteria. The results of ConSim RTM models have been assessed at the 90th percentile level, which is conservative and likely to overestimate actual levels of risk.

12.4. RISK ASSESSMENT

An overall risk rating has been derived for each contaminant and each source area. This was achieved by taking consideration of the above factors and the scale of potential impacts (i.e., the maximum and average representative source concentrations and their relative magnitude in relation to site-specific assessment criteria).

The rationale and justification for the selection of the risk rating is outlined in Table 12-2. This approach is intended to provide a reasonable and objective framework for assessing the likely levels of risk to the River Faughan based on the results of the DQRA. This approach is consistent with the approach taken by Sirius when comparing the relevant risks of the ConSim (RTM) and Water balance derived SSAC.

More weight is attached to exceedances of the water balance derived SSAC, as these include the effects of dilution within the River Faughan. By comparison, the ConSim derived SSACs are inherently conservative as they are derived from the modelling of a continuous groundwater source (i.e., the source is continuous and not declining), which in some cases is located extremely close or adjacent to the River Faughan itself. Whilst the ConSim modelling indicates that these contaminants are likely to travel to the river, they give less of an indication as to the real term impacts upon water quality within the river itself, even when dilution has been conservatively reduced by a factor of 10.

Further information supporting the decisions made within the risk assessment is included in the risk evaluation section below.

Table 12-2 - Rationale for selection of Risk Rating based on DQRA

Factor	Below RTM Criteria	Above RTM Criteria	Below Water Balance Criteria	Above Water Balance Criteria	Justification
Average Concentration	Negligible	Moderate	Moderate	High	Average concentrations provide the most appropriate measure of the likely realistic impacts arising from each source area, considering the extent, heterogeneity and complexity of the site. Average concentrations above the RTM-derived SSACs indicate a potential risk although these criteria are likely to be conservative and the likelihood of impacts being realised within the River Faughan are low. Average concentrations above the water balance criteria indicate a potential risk which could conceivably result in a detectable impact during extreme drought conditions – the water balance derived SSAC account for dilution within the river, albeit with a FoS of 10 reducing the dilution afforded by the watercourse.
Maximum Concentration	Negligible	Low	Low	Moderate	Maximum concentrations exceeding the RTM derived SSAC indicate a potential risk but are likely to overestimate levels of risk compared to the averages established. For cases where average concentrations are below RTM derived SSACs, but maximum concentrations exceed these levels, data has been reviewed to ensure that there are no outliers which could indicate locally higher levels of risk.
Travel Time	**<1,000 years**	**1,000 – 10,000 years**	**>10,000 years**		EA RTM guidance indicates that substances with travel times from the source to the receptor of 1000 years or more may not present a significant risk to water receptors and consideration of other factors could be significant. Travel times in excess of 10,000 years indicate no realistic likelihood of impact.
	No change to concentration-based assessment	Maximum risk rating of moderate	Maximum risk rating of Low		
Example 1 – Max conc. of benzene in Source Area 5 is 13 mg/L, average conc. is 4.47 mg/L. RTM SSAC is 0.027 mg/L, Water Balance SSAC is 196 mg/L. The average conc. is above the RTM criteria, but below the water balance criteria. Therefore, the risk rating assigned is Moderate. Example 2 – Max conc. of chloride in Source Area 6 is 320 mg/L, average conc. is 118mg/L. RTM SSAC is 250mg/L, Water balance SSAC is 204,000mg/L. The average conc. is below the RTM criteria, but the max conc. is above the RTM criteria. Both are below the water balance criteria. Therefore, the risk rating assigned is low.					

Table 12-3 - Summary of DQRA Results – Risk to River Faughan

Contaminant of Concern	Source Area 1,2,3	Source Area 3,8	Source Area 5	Source Area 6	Source Area 7	Source Area 8	Source Area 9
Metals							
Arsenic	Low						
Boron	Low	Low					
Cadmium			Moderate	Moderate	Moderate	Moderate	
Copper	Negligible						
Zinc	Low	Moderate	Moderate	Low	Moderate	Low	Low
Nickel	Low	Moderate	Negligible	Low	Low	Moderate	Low
Mercury	Negligible	Low					
PAHs							
Naphthalene	Moderate	Moderate	Moderate	Moderate			
Fluoranthene		Moderate	Moderate				
Anthracene		Moderate	Moderate				
BTEX							
Benzene		Moderate	Moderate	Low			
Toluene	Negligible	Moderate	Low		Negligible		
Ethylbenzene		Moderate	Moderate				
TPH (aromatic)							
C5 to C7 Aromatic		Moderate	Moderate				
C8 to C10 Aromatic		Moderate					
C10 to C12 Aromatic	Moderate	Moderate	Moderate				
C12 to C16 Aromatic		Moderate	Moderate				
C16 to C21 Aromatic		Moderate	Low				
C21 to C35 Aromatic		Low					
Other							
Ammonia	Moderate	Negligible	Negligible	Moderate		Moderate	Low

Contaminant of Concern	Source Area 1,2,3	Source Area 3,8	Source Area 5	Source Area 6	Source Area 7	Source Area 8	Source Area 9
Chloride	Low			Low		Moderate	
Free Cyanide	Moderate			Moderate	Moderate		Moderate

Modelling indicates a moderate risk associated with PAH species, aromatic hydrocarbons and BTEX compounds in Source Areas 3,8 and 5. Benzene and Naphthalene come closest to exceeding the water balance derived SSACs in source areas 3,8 and 5 out of all contaminants. However, when dilution is accounted for in the River Faughan, it is considered unlikely that the EQS would be exceeded in the River, even with dilution reduced by a factor of 10. Moderate impacts have also been assigned to BTEX, PAH and aromatic hydrocarbons in Source Zones 1,2,3,and 6.

Ammonia, cadmium, zinc, nickel and free cyanide have also been assigned moderate risk ratings across several source zones. Due to the limited dilution available within the shallow aquifer, and generally short travel times from the source areas to the river receptor, the ConSim modelling predicts that contaminated groundwater will reach the bank of the river at concentrations in excess of the EQS. However, when dilution within the river is factored in, it is unlikely that they will have a measurable impact upon the River Faughan. Consequentially, they are assigned a moderate risk rating.

Predicted travel times for all contaminants from each groundwater source area to the River Faughan are generally less than 10,000 years, reflecting the short pathway distances across the site, through the shallow aquifer, and towards the river. The variation in between the travel times of various contaminants of concern is reflective of their differing partitioning behaviour in the environment – e.g. whether or not they sorb strongly to aquifer materials, and are delayed in migrating by the resulting retardation. Metals such as cadmium, arsenic and mercury with high partition coefficients are expected to have much longer travel times than more mobile contaminants such as chloride, ammonia, or BTEX compounds, which is reflected in the travel time results.

It should be noted that the ‘start date’ for the predicted travel times is based upon the results of a ConSim Level3a assessment (e.g. a groundwater source based on recent monitoring data); 2022 should be considered year 0 with regard to the presented travel times. The predicted travel times run from the date the groundwater quality data was collected during monitoring (e.g. monitoring Round 1 and Round 2 in 2022). The travel times (and the risk ratings) therefore date from the time of assessment and present the current and future level of risk from the site, rather than the from time of waste deposition.

Figure 10 summarises the moderate risk ratings for each contaminant of concern by Source Area.

12.4.1. Cumulative Impacts - Whole Site Level 4 Assessment

In addition to the ConSim and water balance modelling conducted for each separate source area, a ‘Whole Site’ model based on calculation of the SSAC from the water balance has been derived, to allow for assessment of the cumulative impacts from the entire site on the River. This model assumes that the average measured aquifer concentrations of the contaminant of concerns migrate to the River Faughan, where dilution takes place, and includes all of the modelled groundwater baseflow underneath the site. Similar to the individual SSACs derived for the individual source areas, dilution available in the river has been reduced by a factor 10. The results of the model are summarised in Table 12-4 below.

The results of the Whole Site Level 4 assessment demonstrate that:

- The estimated groundwater contaminant flux from the whole site would not be expected to result in a breach of the TSVs within the River Faughan, as the estimated flux is below the maximum allowable flux including a reduction of the available dilution by a factor of ten.
- Average aquifer concentrations are below the site wide derived SSACs, indicating that current averaged aquifer concentrations do not pose a risk to the River Faughan

Table 12-4 - Whole site water balance derived contaminant flux and SSAC

Contaminant of Concern	RTC (mg/l)	Maximum allowable flux including FoS of 10 (mg/day)	Estimated GW flux (mg/day)	Average Aquifer Concentration (mg/l)	SSAC (mg/l)
Metals					
Arsenic	5.00E-02	3.67E+06	4.89E+03	6.88E-03	5.16E+00
Boron	1.00E+00	7.34E+07	3.40E+05	4.78E-01	1.03E+02
Cadmium	9.00E-05	6.61E+03	9.95E+01	1.40E-04	9.30E-03
Copper	3.49E-02	2.57E+06	2.48E+03	3.48E-03	3.61E+00
Mercury	7.00E-05	5.14E+03	3.81E+01	5.36E-05	7.23E-03
Nickel	1.50E-02	1.10E+06	1.42E+04	2.00E-02	1.55E+00
Zinc	3.72E-02	2.73E+06	2.71E+04	3.81E-02	3.84E+00
BTEX					
Benzene	1.00E-02	7.34E+05	1.24E+05	1.75E-01	1.03E+00
Toluene	7.40E-02	5.43E+06	1.15E+04	1.62E-02	7.64E+00
Ethylbenzene	3.00E-01	2.20E+07	1.17E+04	1.64E-02	3.10E+01
TPH					
Aromatic EC5-7	1.00E-02	7.34E+05	3.62E+03	5.10E-03	1.03E+00
Aromatic EC8-10	3.00E-01	2.20E+07	2.28E+03	3.21E-03	3.10E+01
Aromatic EC10-12	9.00E-02	6.61E+06	4.63E+04	6.51E-02	9.30E+00
Aromatic EC12-16	9.00E-02	6.61E+06	1.09E+04	1.54E-02	9.30E+00

Aromatic EC16-21	9.00E-02	6.61E+06	6.86E+02	9.64E-04	9.30E+00
Aromatic EC21-35	9.00E-02	6.61E+06	4.42E+02	6.21E-04	9.30E+00
PAH					
Anthracene	1.00E-04	7.34E+03	3.85E+01	5.42E-05	1.03E-02
Fluoranthene	6.30E-06	4.63E+02	4.25E+01	5.98E-05	6.51E-04
Naphthalene	2.00E-03	1.47E+05	1.90E+04	2.68E-02	2.07E-01
Other					
Ammonia	3.00E-01	2.20E+07	9.17E+05	1.29E+00	3.10E+01
Chloride	2.50E+02	1.84E+10	1.05E+08	1.48E+02	2.58E+04
Free Cyanide	1.00E-03	7.34E+04	4.28E+03	6.03E-03	1.03E-01

13. RISK EVALUATION AND LIMITATIONS

13.1. CALIBRATION OF MODEL PREDICTIONS

13.1.1. Predicted Contaminant Concentrations

Generally, it is expected that the ConSim Level3a groundwater model will over predict concentrations of contaminants downgradient of the source areas. One of the main limitations of a Level 3a (ConSim) model is that each groundwater source area acts a continuous source; consequentially, there is no decline of source concentrations over time, which would be the case in reality. Therefore, there is a tendency in Level 3a ConSim assessments to over predict groundwater contaminant concentrations downgradient of the groundwater source areas.

Comparison of predicated versus measured downgradient concentrations in BH628 (downgradient of Source Area 5), and in BH104 (downgradient of Source area 7) indicate that model predicted concentrations are typically in excess of measured concentrations at the 10-year time slice. While this would suggest that the modelling has not achieved a perfect fit with the observed site date, it also shows the conservative nature of the ConSim modelling, in that predicted concentrations are in excess of those actually observed on site; the RTM derived SSACs for the site are therefore considered highly conservative in nature.

Exceedances of the ConSim and RTM derived SSACs result in a Moderate risk rating (see Table 12-3 and Appendix 18). A ‘High’ risk rating is assigned to exceedances of the Water Balance derived SSACs, which are thought to more accurately reflect the risk to the River Faughan.

13.1.2. Calibration of Predicted Aquifer Flow

Based on the results of the sensitivity analysis (discussed further below), the groundwater contaminant transport model is most sensitive to hydraulic conductivity and hydraulic gradient. The combination of these parameters is used within the model to estimate the likely volume of groundwater flow. Predicted aquifer flows, at various confidence levels derived from the ConSim are shown in Table 13-1. These flows are compared with groundwater flows estimated for each source zone calculated using the water balance approach.

Table 13-1 – Summary of predicted aquifer flows, m^3/year

Simulation	Source Area 1,2,3	Source Area 3,8	Source Area 5	Source Area 6	Source Area 7	Source Area 8	Source Area 9
ConSim 95th %ile	73,247	21,059	21,957	38,984	41,889	30,322	123,349
ConSim 90th %ile	59,044	16,029	17,200	30,789	32,015	24,757	95,307
ConSim 75th %ile	35,904	10,371	10,750	18,069	19,879	14,951	61,695
ConSim 50th %ile	18,438	5,267	5,612	9,553	10,778	8,375	32,318
Water Balance Modelling	49,275	16,425	18,067	32,850	34,492	20,531	98,550

The above comparison indicates that the ConSim groundwater transport model is estimating significantly higher rates of aquifer flow at the 95th percentile when compared to the flows calculated as part of the water balance modelling. On the basis of several complimentary site-specific lines of evidence, including hydraulic conductivity testing, groundwater level monitoring and calculation of infiltration rates from meteorological data, together with calibration of the modelling against site observations, it is considered that the rates of groundwater flow calculated within the ConSim model are unrealistically high at the 95th percentile and consequently indicate an unrealistic level of potential risk.

Overall, therefore, the results of the model calibration show that the ConSim model is highly conservative at the 95th percentile confidence level. Based on the comparison carried out, it is considered that adoption of ConSim model outputs at the 90th percentile level provides a more accurate but still conservative assessment of the likely level of risk associated with the site and remains fully protective of controlled water receptors.

Assessment criteria calculated on the basis of the 90th percentile attenuation factors generated within ConSim are comparable with those calculated using the water balance approach and are therefore considered to be the most appropriate for use when determining remediation target concentrations, whilst remaining conservative.

13.1.3. Hyporheic Zone

Much though has been afforded to the role of the hyporheic zone and bank storage when it comes to reducing contaminant concentrations entering the River Faughan. If bank storage plays a significant role, it is likely that this mixing zone may result in a greater amount of dilution near river than is currently predicted by the models. Notwithstanding this, the models are still conservative and additional mixing within the hyporheic zone or due to bank storage is only going to increase the factor of safety to the river.

13.2. BIODEGRADATION

ConSim and RTM groundwater transport modelling has assumed that biodegradation of organic contaminants and ammoniacal nitrogen will take place within the superficial sand and gravel aquifer. Degradation rates are based upon those utilised previously within the Sirius DQRA, which were based on the range of reported rates that include ‘worst case’ values measured in the field (i.e., the longest environmental half-lives) for each of the contaminants of concern. This approach is still considered justified and conservative on the following basis:

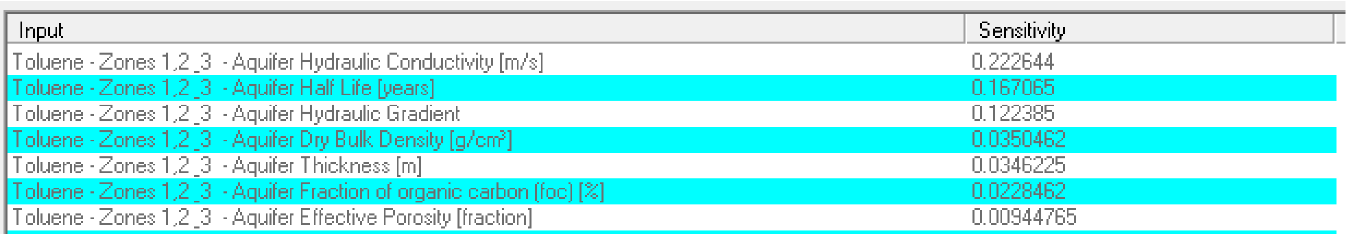
- There is significant evidence from gas monitoring data within the source areas containing domestic type wastes that rapid methanogenic degradation of putrescible waste materials is occurring.
- The aquifer downgradient of the main source areas is surficial and aerobic in nature, which will support the relatively rapid aerobic biodegradation of hydrocarbons and ammoniacal nitrogen.
- The background geology and hydrochemistry indicate that there is an abundant source of respiratory substrates for anaerobic microbial biodegradation, such as manganese and iron. Elevated concentrations of dissolved iron and manganese, which would be products of contaminant biodegradation, are widely present in the groundwater and particularly so in close proximity to source areas.
- Calibration of observed contaminant concentrations within downgradient wells against concentrations predicted by the modelling, even after adjusting for aquifer flow, suggests that the models over-predict the magnitude of impacts for organic substances and ammonia compared to actual conditions. It is likely therefore that actual rates of biodegradation are higher than those used within the model.
- Degradation has only been allowed within the dissolved phase, rather than the dissolved and sorbed phase, a conservative assumption which reduces the degradation rates of the contaminants.

13.3. SENSITIVITY ANALYSIS

The ConSim model provides the results of an internal sensitivity analysis for the groundwater transport pathway. A summary of sensitivity results for selected contaminants of concern are summarised below. Representative substances for each of the major contaminant groups have been selected to illustrate the factors important for each. Sensitivity analysis was performed on the Zone 1, 2 and 3 but, given the similarity of the conceptual site model, model sensitivity is expected to be comparable for the other source areas. The sensitivity results reflect the correlation between the input parameter and the predicted impact across each of the individual simulations within the ConSim assessment (1001 iterations run).

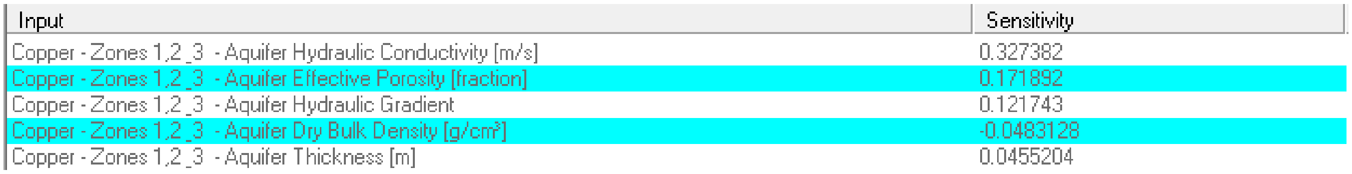
The sensitivity analysis results vary between 1 and –1. A value of 1 indicates a perfect positive linear correlation between the input value and the result. A result of –1 indicates a perfect negative linear correlation between the input and the result. A value of 0 indicates no correlation between the input and the result.

Table 13-2 - Sensitivity analysis, Source Area 1,2,3 - Toluene



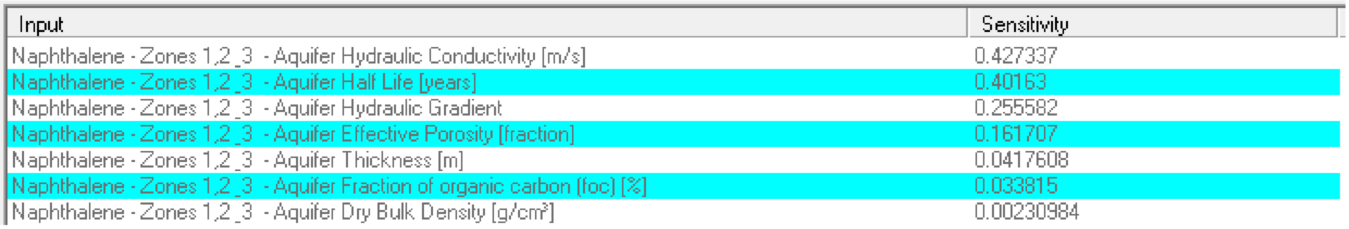
Input	Sensitivity
Toluene - Zones 1,2_3 - Aquifer Hydraulic Conductivity [m/s]	0.222644
Toluene - Zones 1,2_3 - Aquifer Half Life [years]	0.167065
Toluene - Zones 1,2_3 - Aquifer Hydraulic Gradient	0.122385
Toluene - Zones 1,2_3 - Aquifer Dry Bulk Density [g/cm³]	0.0350462
Toluene - Zones 1,2_3 - Aquifer Thickness [m]	0.0346225
Toluene - Zones 1,2_3 - Aquifer Fraction of organic carbon (foc) [%]	0.0228462
Toluene - Zones 1,2_3 - Aquifer Effective Porosity [fraction]	0.00944765

Table 13-3 - Sensitivity analysis, Source Area 1,2,3 - Copper



Input	Sensitivity
Copper - Zones 1,2_3 - Aquifer Hydraulic Conductivity [m/s]	0.327382
Copper - Zones 1,2_3 - Aquifer Effective Porosity [fraction]	0.171892
Copper - Zones 1,2_3 - Aquifer Hydraulic Gradient	0.121743
Copper - Zones 1,2_3 - Aquifer Dry Bulk Density [g/cm³]	-0.0483128
Copper - Zones 1,2_3 - Aquifer Thickness [m]	0.0455204

Table 13-4 - Sensitivity analysis, Source Area 1,2,3 - Naphthalene



Input	Sensitivity
Naphthalene - Zones 1,2_3 - Aquifer Hydraulic Conductivity [m/s]	0.427337
Naphthalene - Zones 1,2_3 - Aquifer Half Life [years]	0.40163
Naphthalene - Zones 1,2_3 - Aquifer Hydraulic Gradient	0.255582
Naphthalene - Zones 1,2_3 - Aquifer Effective Porosity [fraction]	0.161707
Naphthalene - Zones 1,2_3 - Aquifer Thickness [m]	0.0417608
Naphthalene - Zones 1,2_3 - Aquifer Fraction of organic carbon (foc) [%]	0.033815
Naphthalene - Zones 1,2_3 - Aquifer Dry Bulk Density [g/cm³]	0.00230984

The results of the sensitivity analysis show that hydraulic conductivity and hydraulic gradient within the aquifer are the primary factors that influence the predicted impacts. Whilst measured hydraulic gradients are relatively stable across the site and the likely range of values is constrained by topography and geology, a wide range of hydraulic conductivities have been measured on site and the range used within the model accounts for this variability.

The separate water balance modelling, which considers the likely magnitudes of infiltration and groundwater flux, helps to constrain the likely range of hydraulic conductivity values. Taking into consideration the shallow aquifer body as a whole, it is concluded that the values used to represent hydraulic conductivity in the ConSim model are appropriate and tend to be towards the more conservative (i.e., higher) end of the likely true value.

Environmental half-lives govern the rate of biodegradation and consequently the rate of contaminant mass loss within the aquifer downgradient of the source. The impact of this parameter for low molecular weight compounds (which have short travel times) is secondary to the influence of groundwater flow velocity.

Conservative degradation rates have been used within the modelling and no allowance has been made for degradation in the sorbed phase. The fact that, even following calibration of model outputs against aquifer flow rates, predicted downgradient impacts are still higher than observed concentrations indicates that, in reality, degradation rates within the aquifer are likely to be higher than those which have been modelled.

Fraction of organic carbon, effective porosity and bulk density are important for certain contaminants as these parameters generally influence travel times. Data for these inputs is based on site specific information and is considered to be as accurate as possible. However, the impact of these parameters and parameters other than those discussed above are of little real significance for the model outputs with sensitivity values of less than 0.1.

14. CONCLUSIONS

Tetra Tech Limited (Tetra Tech) were appointed by Northern Ireland Environment Agency (NIEA), an executive Agency within the Department of Agriculture, Environment and Rural Affairs (DAERA) under the Mobuoy Road Waste Site Remediation Project to undertake all aspects required to recommend and implement a remediation strategy for the Mobuoy Road waste site.

This document updates the previous DQRA completed by Sirius, 2017 and is informed by additional site investigations and monitoring data collected between October 2021 and May 2022. The DQRA completed by Sirius deals specifically with risk to water receptors only and the update presented here reflects the same. The recent site investigation includes further characterisation of wastes, soils and an assessment of ground gas conditions. This information will be used to inform the future remediation design.

As part of this DQRA preparation an additional 76no. boreholes and 56 no. trial pits have been completed as well as on-site testing and the collection of associated gas, soil, leachate, groundwater and surface water samples. A vast amount of monitoring data has been collated and reviewed which has significantly enhanced our understanding of the site and the contamination issues. This data has allowed us to build on the previous work completed by NIEA and their consultants up to the point of the Integrated Consultant Team (ICT) appointment in June 2021. The additional investigation and monitoring have also allowed us to refine and update the Conceptual Site Model and reduce uncertainty in respect of contamination risks to the water environment. Additional contaminant modelling completed as part of this assessment has benefited from the data captured as part of the 141no. additional investigation points completed since 2021. The DQRA findings provide a strong basis for the subsequent Remedial Options Appraisal and Optimum Remediation Strategy development.

Potential Contaminants of Concern (PCoCs) observed generally remain consistent with those observed during earlier phases of site investigation since 2016. With respect to heavy metals, the main PCoC's are iron and manganese. Lower concentrations of nickel, zinc, copper, lead and cadmium have also been detected. Ammonia has been recorded site wide. There are localised areas of elevated organic pollutants, particularly in the central area of the CIW site. These organic pollutants are linked to the deposition of 'tarry' hydrocarbon containing wastes which have been observed on site. Analytical data supports a direct correlation between observed hydrocarbon containing waste signatures detected in groundwater within Zone 3 and those observed within Zone 8 to the immediate west and down hydraulic gradient.

In updating the modelling contained within the Sirius 2017 DQRA, the same overall quantitative approach has been followed, namely adopting an assessment of identified source areas (using ConSim and the Environment Agency's Remedial Targets Methodology), and the second using best available data to complete a water balance assessment for the site.

The two approaches are complementary and provide equally important information about the different pathways which are potentially present at the site. Furthermore, cross-referencing between the two methodologies allows the overall risk assessment to be refined so that a robust and balanced overall assessment is made.

It is unavoidable that in undertaking detailed quantitative risk assessment of the Mobuoy Road site, simplification and assumptions have been made as part of the modelling of these complex and heterogenous source areas. Local variations in both physical geological and hydrogeological parameters, and contaminant concentrations mean that simplification of the modelled system have been necessary. However, where assumptions and simplifications have been made, every effort has been made to make sure that the assumptions err on the side of caution and adopt as conservative an approach as reasonably possible.

14.1.1. Measured Impacts on Shallow Groundwater

The shallow River Faughan Groundwater Body (GWB) is not only a contaminant pathway but is also categorised as an environmental receptor in its own right for the purpose of risk assessment under statutory protection obligations such as the Water Framework Directive (WFD) and The Environmental Liability Regulations (2009).

Relying upon dilution within the River Faughan may be considered appropriate in terms of assessing the risk to the river itself, and in protecting the downstream surface water abstraction, as modelling has shown that impacts on the river are likely to be very low. However, such an approach still results in derogation of the quality status of the groundwater body from ‘good’ to ‘poor’ under the WFD and prevents the future utilisation of shallow groundwater resources in the proximity of the Mobuoy Road site.

Ground investigation and groundwater monitoring has demonstrated that there are significant impacts to the shallow groundwater body present beneath the site, with exceedances of the environmental quality standards (EQS) for a wide range of organic and inorganic contaminants in groundwater.

In addition, the results of ConSim modelling and the derivation of ConSim derived site-specific assessment criteria (SSAC) demonstrate that the average measured groundwater concentrations are predicted to exceed the modelling derived Site-Specific Assessment Criteria downgradient of the modelled source areas. These are the contaminants which have been assigned a “Moderate” risk rating within Table 12-3, and include heavy metals, poly-aromatic hydrocarbons, BTEX compounds, and ammonia and free cyanide

The overall impact to the River Faughan is assessed as low to moderate and relies on dilution within the receptor to achieve this rating. Remediation is necessary to improve the quality of the groundwater locally and achieve betterment of the chemical status of the Faughan Groundwater Body, which in turn will reduce the risk to the River Faughan. Remediation will provide increased confidence in the water quality of the River Faughan and subsequently improve the long term security of the public drinking water abstraction downstream of the site.

Water balance modelling, conceptual site models, and groundwater level measurements have demonstrated a connection between the groundwater body and the River Faughan. The impact from the Mobuoy site has resulted in the Faughan Groundwater Body being reclassified from ‘good’ to ‘poor’ status in the 3rd cycle River Basin Management Plan (2021-2027). Remediation of the Mobuoy site is included in the plan as a key targeted measure required to be implemented in order to achieve the statutory Water Framework Directive objective of ‘good’ status for all groundwater bodies by 2027 - an important additional driver for remediation.

The modelling demonstrates avenues for remediation of the site – for example, the ratios of infiltration through the source areas to groundwater base flow shown within table 13.1 demonstrate that reducing infiltration through the deposited waste is a promising avenue for improving groundwater quality beneath the site. Considering the wealth of exploratory positions (boreholes and trial pits), plus soil and groundwater sampling conducted to date, the site is well characterised and source removal or treatment can also be considered.

14.1.2. Predicted Impacts on the River Faughan

The Tetra Tech updated DQRA found that based on several lines of evidence, the overall impact of the Mobuoy Road site on the River Faughan is likely to be low. This is consistent with the earlier DQRA findings by Sirius in 2017. ConSim modelling indicates that when current groundwater quality concentrations are modelled using realistic aquifer parameters, predicted groundwater concentrations for multiple contaminants of concern are likely to exceed their respective environmental screening criteria at the site boundary / the banks of the River Faughan.

However, when dilution in the River Faughan is taken account of, the water balance modelling demonstrates that it is very unlikely that the level of impact will be sufficient to compromise the quality of the River Faughan in terms of measurable impacts, and its suitability for drinking water abstraction at Cloghole. Even during drought conditions, the contaminant flux leaving the site is limited compared to the flow in the River Faughan and contaminants of concern are expected to remain essentially undetectable. The level of dilution afforded by the river is simply too high to result in a measurable impact on river quality. This remains the case despite modelling including a further factor of safety by reducing the flow in the river by a factor of ten. This is the reason why none of the modelled contaminants have been afforded a “high” risk rating.

The appropriateness of relying upon dilution within a receptor to reduce the level of risk is considered to represent a special case within the Remedial Target Methodology: ***Level 4 (Dilution in the Receptor)*** *– Considers dilution in the receptor. This is a special case, and the assessment must demonstrate that any impact on groundwater does not jeopardise future use of the resource or that the cost of remediation is disproportionate in relation to the improvement in relation to the improvement of the groundwater or surface water quality.* – Environment Agency Remedial Targets Methodology, 2006.

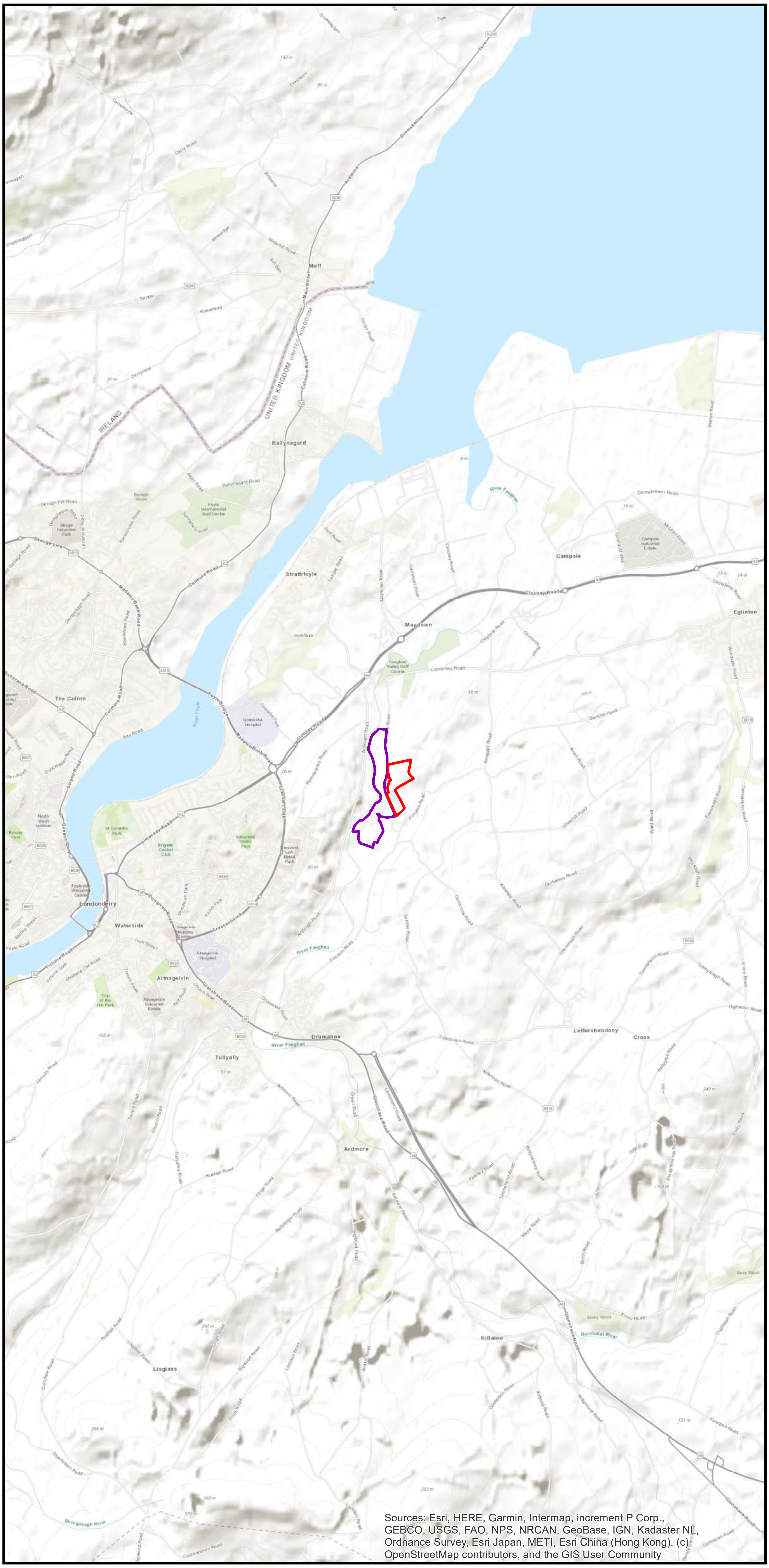
The ’assessment’ refers to the DQRA conducted to assess the risks to environmental receptors. Whilst a level 4 assessment has been used to assess the risks posed by the site to the river and the downstream drinking water abstraction, the Level 4 assessment is not being used as a justification for a ‘do nothing’ scenario. Despite no contaminants being modelled as posing a 'high' risk rating, a number of parameters have been modelled as posing a 'moderate' risk rating, posing a threat to the quality of the groundwater body.. In order to reduce 'moderate' risks to 'low' or 'negligible', this should be a considered the driver for the Remediation Options Appraisal (ROA) for the site. The ROA will consider the proportionality of costs in relation to improvement in groundwater and surface water quality.

Variable and uncontrollable long-term factors such as climate change, flooding, bank erosion, or changing water resource demands. A change in any of these could alter the observed or predicted risks presented within this DQRA, and thus, these factors need to be accounted for in the ROA.

Whilst the modelling and risk assessment has adopted a conservative approach wherever possible, such as reducing available dilution within the river to account for low flow conditions brought on by drought or climate change, the unpredictability future potential impacts from uncontrollable long-term factors must also be considered when evaluating the need to remediate the site.

FIGURES

Figure 1- Site Location Plan



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Figure 1. Site Location Plan

N

Legend

🟥	City Industrial Waste
🟪	Campsie Sand Gravel

Note:

Drawn by: TH

Checked by: PH

Office: Belfast   Revision: No.1

Client: NIEA   Project: B030252 - Mobuoy Road Remediation

0   850   1,700   3,400 Meters

Date: 30/06/2022

Locksley Business Park
Montgomery Road
Belfast
BT6 9UP
Tel: 028 9070 6000
Email: ireland@tetratech.com

Figure 2- Site Layout Plan

Figure 2. Site Layout Plan

Legend

🟥 City Industrial Waste

▢ Campsie Sand Gravel

Note:

Drawn by: TH

Checked by: PH

Office: Belfast Revision: No.1

Client: NIEA Project: B030252 - Mobuoy Road Remediation

Date: 05/08/2022

Locksley Business Park
Montgomery Road
Belfast
BT6 9UP
Tel: 028 9070 6000
Email: ireland@tetratech.com

Figure 3 - Site Investigation Location Plans

Figure 3. Site Investigation Location Plan

N

Legend

◆	Waste Wells
◆	Groundwater Wells
◆	BHs (400 Series)
◆	BHs (2021 - 2022)
■	TPs (2021 - 2022)
🟥	City Industrial Waste
🟪	Campsie Sand Gravel

Note:

Drawn by: TH

Checked by: PH

Office: Belfast Revision: No.1

Client: NIEA Project: B030252 - Mobuoy Road Remediation

0 75 150 300 Meters

Date: 05/08/2022

Locksley Business Park
Montgomery Road
Belfast
BT6 9UP
Tel: 028 9070 6000
Email: ireland@tetratech.com

Figure 4- Proposed A6 Roads Scheme Layout

Figure 4. Proposed A6 Roads Scheme

N

Legend

🟥 City Industrial Waste

🟪 Campsie Sand Gravel

Note:

Drawn by: TH

Checked by: PH

Office: Belfast Revision: No.1

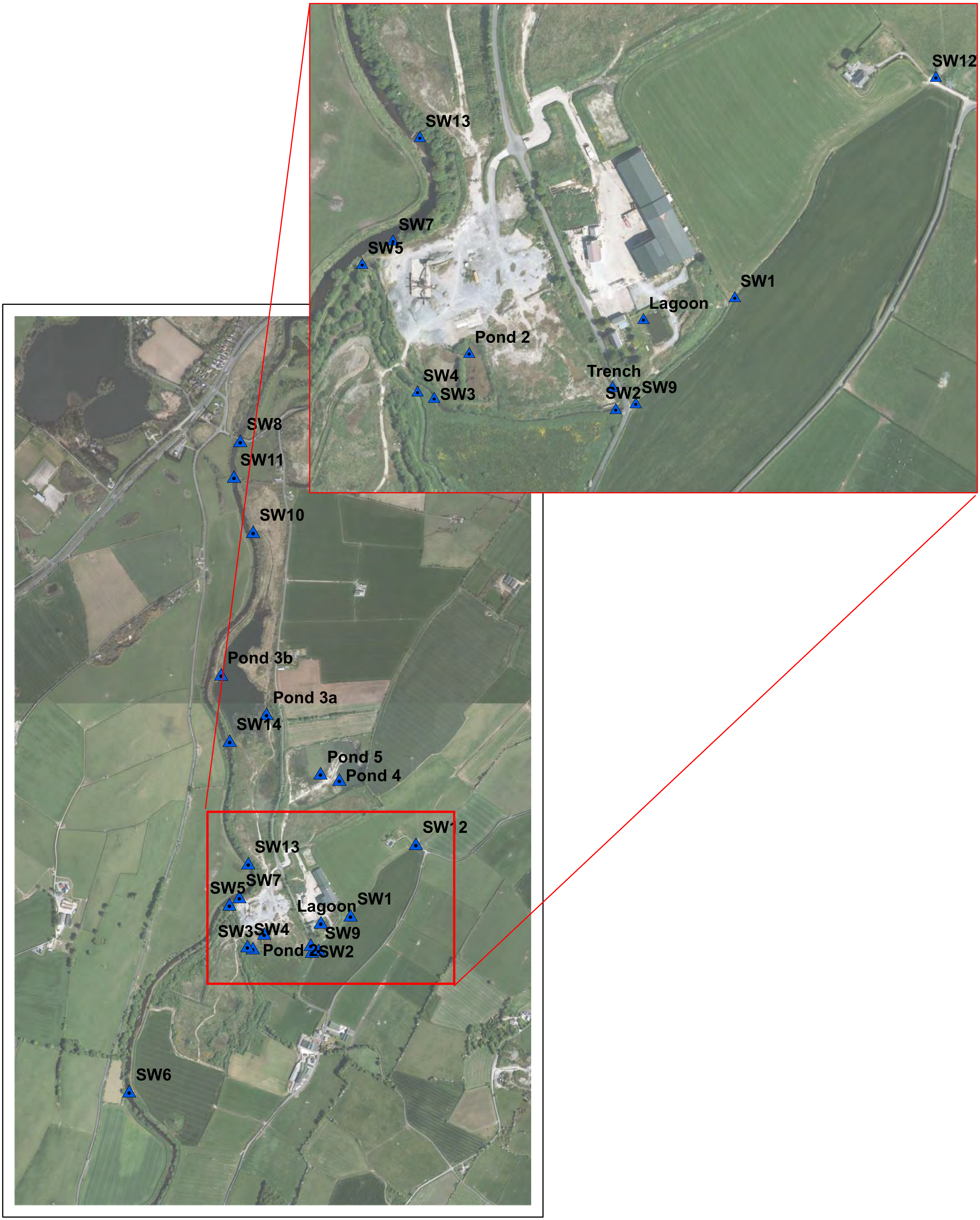
Client: NIEA Project: B030252 - Mobuoy Road Remediation

0 75 150 300 Meters

Date: 05/08/2022

Locksley Business Park
Montgomery Road
Belfast
BT6 9UP
Tel: 028 9070 6000
Email: ireland@tetratech.com

Figure 5- MPRT Surface Water Monitoring Locations



2018/2019 Surface Water Monitoring Sites

Key

▲ SW Monitoring Sites

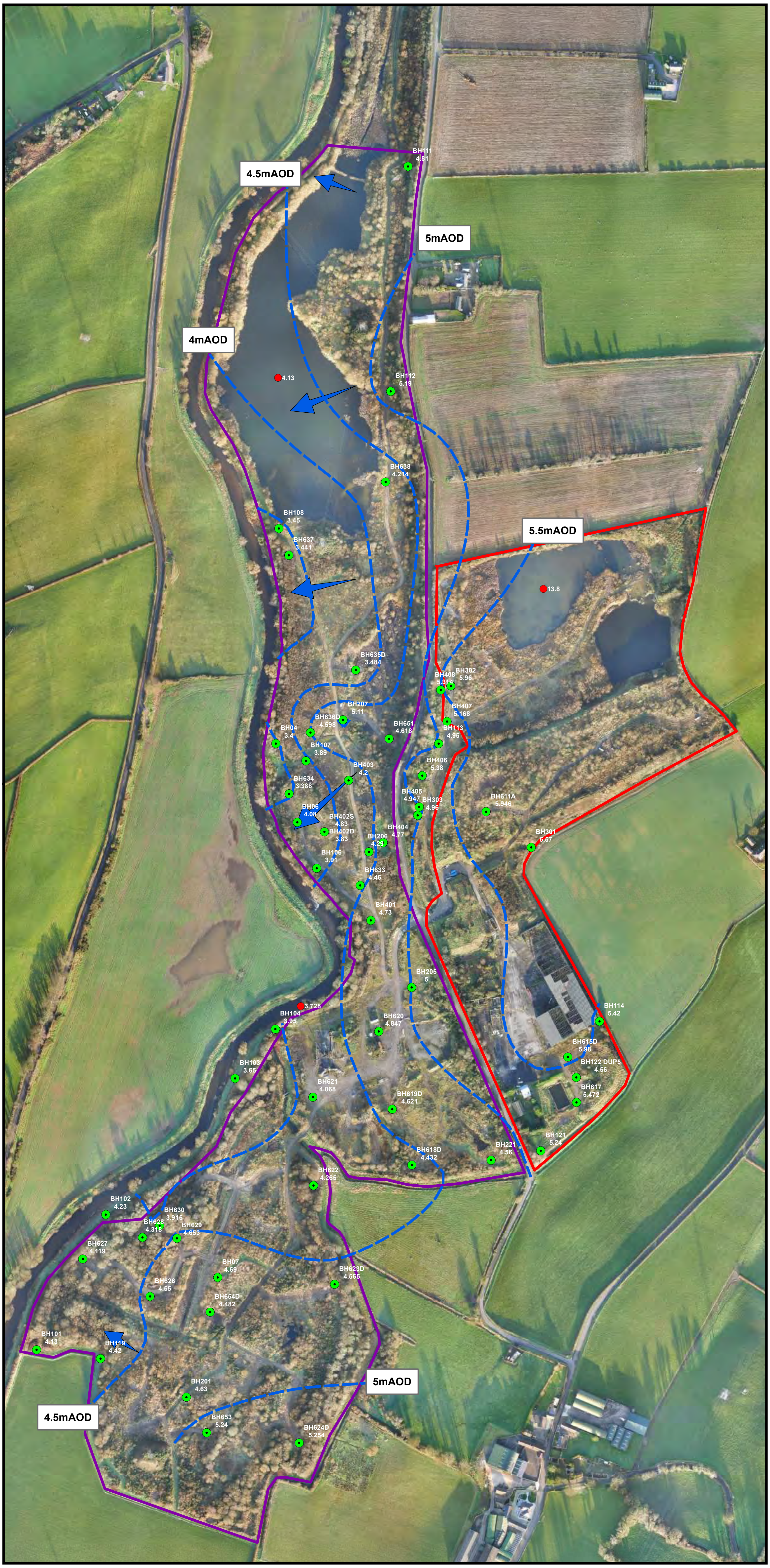
0 0.2 0.4 0.8Km

An Agency within the Department of
Agriculture, Environment and Rural Affairs
www.daera-ni.gov.uk

NIEA Northern Ireland Environment Agency
www.daera-ni.gov.uk

Figure 6- Groundwater Flow Mapping

Figure 6a. TT Round One Groundwater Flows



N

Legend

- ● TT Round One Monitored BHs (mAOD)
- → Groundwater Flow Direction
- - - TT Round One Groundwater Contours (mAOD)
- ● Surface Water Level (mAOD)
- 🟥 City Industrial Waste
- 🟪 Campsie Sand Gravel

Notes:

Round 1 Groundwater flows based on data gathered between January and February 2022

Surface water levels at ponds based on bathymetric survey carried out in December 2021

Drawn by: TH

Checked by: CJL

Office: Belfast

Client: NIEA

Project: B030252 - Mobuoy Road Remediation

0 70 140 280 Meters

Date: 05/08/2022

Locksley Business Park
Montgomery Road
Belfast
BT6 9UP
Tel: 028 9070 6000
Email: ireland@tetratech.com

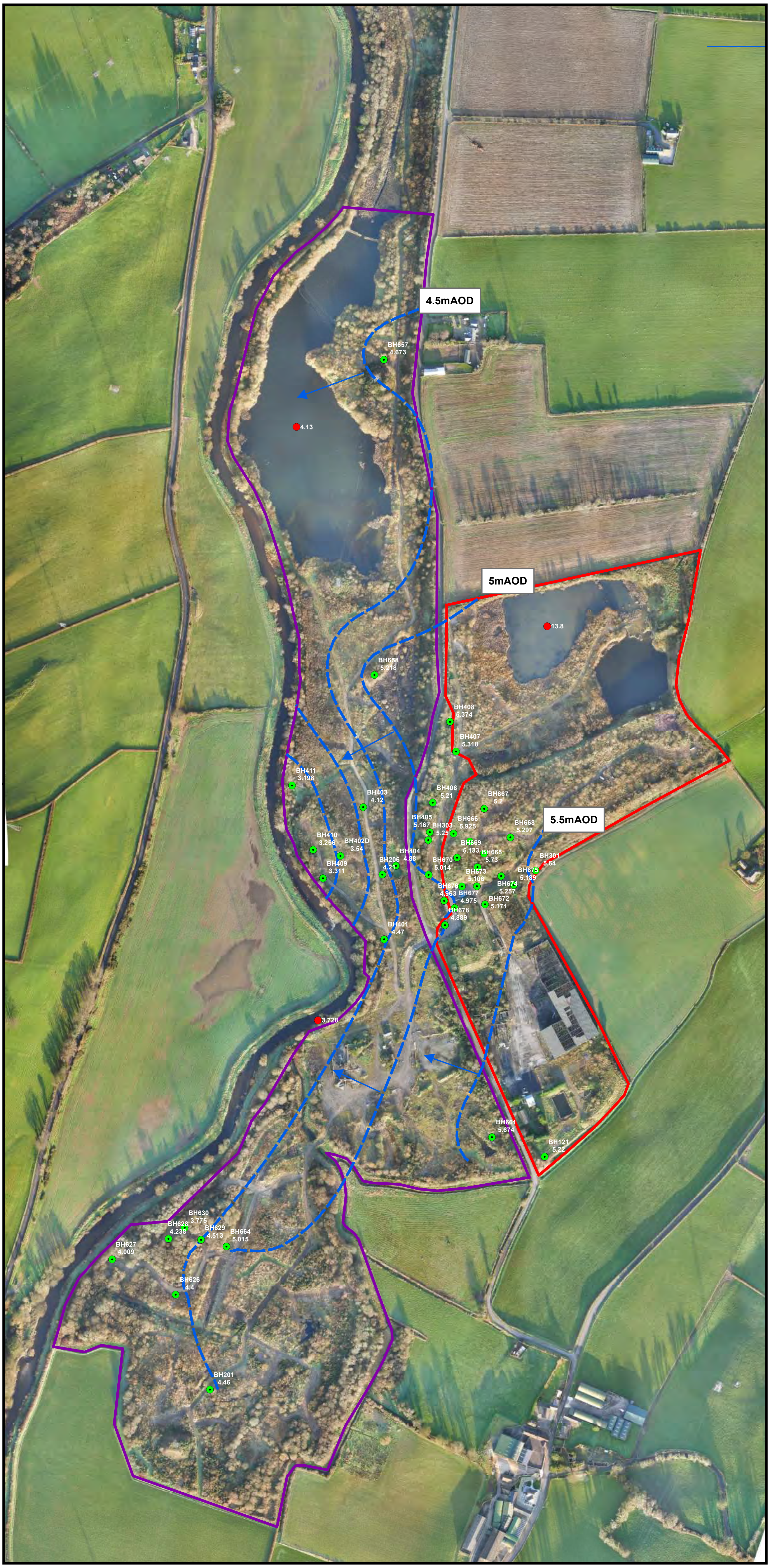


Figure 6b. TT Round Two Groundwater Flows

N

Legend

- ● TT Round Two Monitored BHs (mAOD)
- → Groundwater Flow Direction
- - - TT Round Two Groundwater Contours (mAOD)
- ● Water Level (mAOD)
- 🟥 City Industrial Waste
- 🟪 Campsie Sand Gravel

Notes:

Round 2 Groundwater flows based on data gathered between March and April 2022

Surface water levels at ponds based on bathymetric survey carried out in December 2021

Drawn by: TH

Checked by: CJL

Office: Belfast

Client: NIEA Project: B030252 - Mobuoy Road Remediation

0 75 150 300 Meters

Date: 05/08/2022

Locksley Business Park
Montgomery Road
Belfast
BT6 9UP
Tel: 028 9070 6000
Email: ireland@tetratech.com

Figure 7- Contaminants in Groundwater Distribution Mapping

Legend

N

Ammonia (free) Concentration (ug/l)

10
9
8
7
5
4
3
2
1
0.3

☒ Monitored Boreholes (ug/l)

Notes:

TSV: 0.3ug/l

Lab LOD: <0.05ug/l

All values displayed as 0.05 are below LOD

Project: B030252 **Date:** 05/10/2022 **Site:** Mobuoy Road **Client:** NIEA **Drawn by:** TH **Checked by:** PH **Verified by:** PH Drawn with Surfer 23

Figure 7a.

Ammonia (free) Contamination Plot - Round 1

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
tetratecheurope.com

TETRA TECH

Legend

N

Ammonia (free) Concentration (ug/l)

1.9	
1.7	
1.5	
1.3	
1.1	
0.9	
0.7	
0.5	
0.3	

☒ Monitored Boreholes (ug/l)

Notes:

TSV: 0.3ug/l

Lab LOD: <0.05ug/l

All values displayed as 0.05 are below LOD

Project: B030252 **Date:** 05/10/2022 **Site:** Mobuoy Road **Client:** NIEA **Drawn by:** TH **Checked by:** PH **Verified by:** PH Drawn with Surfer 23

Figure 7b.

Ammonia (free) Contamination Plot - Round 2

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
tetratecheurope.com

TETRA TECH

Legend

N

Benzene Concentration (ug/l)

4000
3000
2000
1000
500
100
10

☒ Monitored Boreholes (ug/l)

Notes:

TSV: 10ug/l

Lab LOD: <1ug/l

All values displayed as 1 are below LOD

Project: B030252
Date: 22/07/2022
Site: Mobuoy Road
Client: NIEA
Drawn by: TH
Checked by: PH
Verified by: PH
Drawn with Surfer 23

Figure 7c.

Benzene Contamination Plot - Round 1

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
tetratecheurope.com

TETRA TECH

Legend

N

Benzene Concentration (ug/l)

- 4000
- 3000
- 2000
- 1000
- 500
- 100
- 10

☒ Monitored Boreholes (ug/l)

Notes:

TSV: 10ug/l

Lab LOD: <1ug/l

All values displayed as 1 are below LOD

Project: B030252	**Date:** 05/10/2022	**Site:** Mobuoy Road	**Client:** NIEA	**Drawn by:** TH	**Checked by:** PH	**Verified by:** PH	Drawn with Surfer 23

Figure 7d.

Benzene Contamination Plot - Round 2

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
tetratecheurope.com

Legend

N

Napthalene Concentration (ug/l)

500
400
300
200
100
50
10
2

☒ Monitored Boreholes (ug/l)

Notes:

TSV: 2ug/l

Lab LOD: <0.01ug/l

All values displayed as 0.01 are below LOD

Project: B030252	**Date:** 22/07/2022	**Site:** Mobuoy Road	**Client:** NIEA	**Drawn by:** TH	**Checked by:** PH	**Verified by:** PH	Drawn with Surfer 23

Figure 7e.

Napthalene Contamination Plot - Round 1

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
tetratecheurope.com

TETRA TECH

Legend

N

Napthalene Concentration (ug/l)

1000
500
400
300
200
100
50
10
2

☒ Monitored Boreholes (ug/l)

Notes:

TSV: 2ug/l

Lab LOD: <0.01ug/l

All values displayed as 0.01 are below LOD

Project: B030252	**Date:** 05/10/2022	**Site:** Mobuoy Road	**Client:** NIEA	**Drawn by:** TH	**Checked by:** PH	**Verified by:** PH	Drawn with Surfer 23

Figure 7f.

Napthalene Contamination Plot - Round 2

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
tetratecheurope.com

TETRA TECH

Legend

N

TPH Concentration (ug/l)

500
400
300
200
100
25

☒ Monitored Boreholes (ug/l)

Notes:

Lab LOD: <10ug/l

All values displayed as 10 are below LOD

Project: B030252	**Date:** 05/10/2022	**Site:** Mobuoy Road	**Client:** NIEA	**Drawn by:** TH	**Checked by:** PH	**Verified by:** PH	Drawn with Surfer 23

Figure 7g.

TPH Contamination Plot - Round 1

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
tetratecheurope.com

TETRA TECH

Legend

N

TPH Concentration (ug/l)

500
400
300
200
100
25

☒ Monitored Boreholes (ug/l)

Notes:

Lab LOD: <10ug/l

All values displayed as 10 are below LOD

Project: B030252	**Date:** 05/10/2022	**Site:** Mobuoy Road	**Client:** NIEA	**Drawn by:** TH	**Checked by:** PH	**Verified by:** PH	Drawn with Surfer 23

Figure 7h

TPH Contamination Plot - Round 2

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
tetratecheurope.com

TETRA TECH

Legend

N

Zinc Concentration (ug/l)

125
115
105
95
85
75
65
55
45
35

☒ Monitored Boreholes (ug/l)

Notes:

PNEC: 37.15ug/l

Lab LOD: <2.5

All values displayed as 2.5 are below LOD

Project: B030252	**Date:** 05/10/2022	**Site:** Mobuoy Road	**Client:** NIEA	**Drawn by:** TH	**Checked by:** PH	**Verified by:** PH	Drawn with Surfer 23

Figure 7i.

Zinc Contamination Plot - Round 1

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
tetratecheurope.com

TETRA TECH

Legend

N

Zinc Concentration (ug/l)

☒ Monitored Boreholes (ug/l)

Notes:

PNEC: 37.15ug/l

Lab LOD: <2.5

All values displayed as 2.5 are below LOD

Project: B030252	**Date:** 05/10/2022	**Site:** Mobuoy Road	**Client:** NIEA	**Drawn by:** TH	**Checked by:** PH	**Verified by:** PH	Drawn with Surfer 23

Figure 7j.

Zinc Contamination Plot - Round 2

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

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TETRA TECH

Legend

N

Iron Concentration (ug/l)

20000
19000
18000
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000

☒ Monitored Boreholes (ug/l)

Notes:

TSV: 1000ug/l

Lab LOD: <5ug/l

All values displayed as 5 are below the LOD

Project: B030252	**Date:** 07/10/2022	**Site:** Mobuoy Road	**Client:** NIEA	**Drawn by:** TH	**Checked by:** PH	**Verified by:** PH	Drawn with Surfer 23

Figure 7k.

Iron Contamination Plot - Round 1

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
tetratecheurope.com

TETRA TECH

Legend

N

Iron Concentration (ug/l)

20000
19000
18000
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000

☒ Monitored Boreholes (ug/l)

Notes:

TSV: 1000ug/l

Lab LOD: <5ug/l

All values displayed as 5 are below the LOD

Project: B030252 **Date:** 07/10/2022 **Site:** Mobuoy Road **Client:** NIEA **Drawn by:** TH **Checked by:** PH **Verified by:** PH Drawn with Surfer 23

Figure 7I

Iron Contamination Plot - Round 2

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
tetratecheurope.com

TETRA TECH

Legend

N

Manganese Concentration (ug/l)

19250
18250
17250
16250
15250
14250
13250
12250
11250
10250
9250
8250
7250
6250
5250
4250
3250
2250
1250
250

☒ Monitored Boreholes (ug/l)

Notes:

TSV: 276.92ug/l

Lab LOD: <1ug/l

All values displayed as 1 are below the LOD

Project: B030252	**Date:** 07/10/2022	**Site:** Mobuoy Road	**Client:** NIEA	**Drawn by:** TH	**Checked by:** PH	**Verified by:** PH	Drawn with Surfer 23

Figure 7m

Manganese Contamination Plot - Round 1

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

028 90706000
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TETRA TECH

Legend

N

Manganese Concentration (ug/l)

14500
13500
12500
11500
10500
9500
8500
7500
6500
5500
4500
3500
2500
1500
250

☒ Monitored Boreholes (ug/l)

Notes:

TSV: 276.92ug/l

Lab LOD: <1ug/l

Project: B030252	**Date:** 22/07/2022	**Site:** Mobuoy Road	**Client:** NIEA	**Drawn by:** TH	**Checked by:** PH	**Verified by:** PH	Drawn with Surfer 23

Figure 7n

Manganese Contamination Plot - Round 2

Tetra Tech
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

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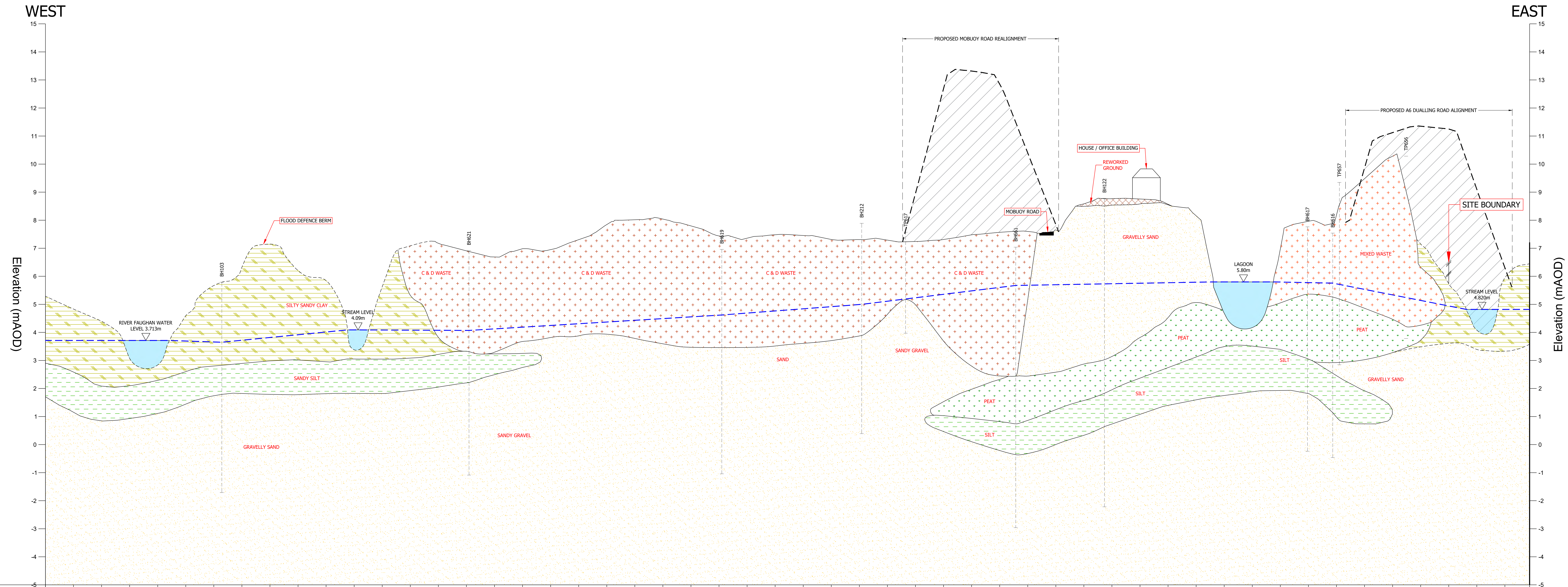
TETRA TECH

Figure 8 – Conceptual Site Models

CONCEPTUAL SITE MODEL 1
SCALE: H 1:500,V 1:50. DATUM: -5.000



Chainage	Existing Ground Level
00.00	
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	
120.00	
130.00	
140.00	7.18
150.00	6.91
160.00	6.69
170.00	6.99
180.00	6.95
190.00	7.31
200.00	7.84
210.00	8.02
220.00	8.04
230.00	7.80
240.00	7.44
250.00	7.36
260.00	7.48
270.00	7.45
280.00	7.31
290.00	7.31
300.00	7.29
310.00	7.24
320.00	7.31
330.00	7.48
340.00	7.57
350.00	7.60
360.00	7.65
370.00	8.58
380.00	8.77
390.00	8.76
400.00	8.57
410.00	8.16
420.00	4.69
430.00	4.17
440.00	6.97
450.00	7.96
460.00	8.18
470.00	9.48
480.00	10.28
490.00	
500.00	
510.00	
520.00	
528.81	

KEY

▨ C & D WASTE	▨ PEAT
▨ MIXED WASTE	▨ SILT
▨ REWORKED GROUND	🟦 WATER
▨ SAND / GRAVEL	╱ GROUNDWATER
▨ CLAY	┆ BOREHOLE LOCATION

NOTES:

1. GROUNDWATER MEASUREMENTS WERE TAKEN BETWEEN 2021 AND 2022 AS SHOWN ON THE TETRA TECH ROUND ONE AND ROUND TWO GROUNDWATER FLOW MAPPING.
2. IN ADDITION TO THIS CONCEPTUAL SITE MODEL, CONTAMINANT DISTRIBUTION PLOTS HAVE BEEN PREPARED FOR KEY CONTAMINANTS OF CONCERN (INCLUDING AMMONIA, NAPHTHALENE, BENZENE, MANGANESE AND IRON) IN GROUNDWATER. THESE ARE SHOWN ON FIGURE 7.

0 0.5 1.0 1.5 2.0 2.5m
SCALE 1:50

0 5 10 15 20 25m
SCALE 1:500

FOR INFORMATION ONLY

Rev	Description	Date	Drn / Chk / App		
P03	NOTE 2 ADDED	27.09.22	CM	JB	CL
P02	UPDATED FOLLOWING CLIENT / NIEA COMMENTS	18.08.22	CM	CL	CL
P01	PRELIMINARY FIRST ISSUE	28.07.22	CM	JB	CL

Document Control

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www.tetratecheurope.com

TETRA TECH

Client
DEPARTMENT OF AGRICULTURE, ENVIRONMENT AND RURAL AFFAIRS

Project Name
MOBUOY REMEDIAL CONTRACT

Sheet Title
CONCEPTUAL SITE MODEL 1

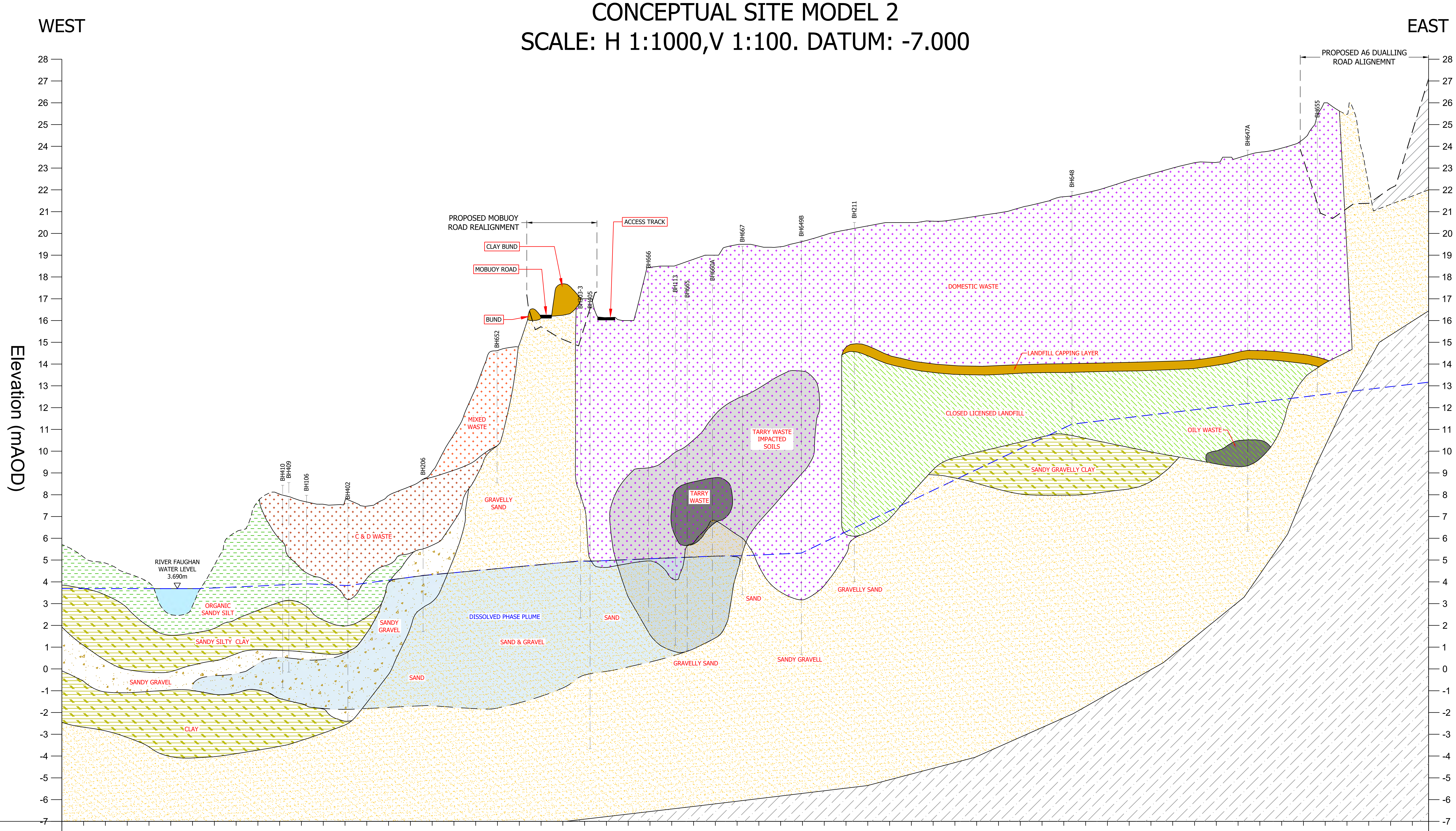
Model Reference
N/A

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A0	Status
B030252	CM	28.07.22	JB	28.07.22	CL	28.07.22	As Shown	S2

Client Project Number	Originator	Function	Spatial	Form	Role	Number	Revision
B030252	TTE	00	XX	DR	U	0001	P03

TTE_MT_v2

CONCEPTUAL SITE MODEL 2
SCALE: H 1:1000,V 1:100. DATUM: -7.000



KEY

- ▨ C & D WASTE
- ▨ MIXED WASTE
- ▨ DOMESTIC WASTE
- ▨ REWORKED GROUND
- ▨ SAND / GRAVEL
- ▨ CLAY
- ▨ PEAT
- ▨ SILT
- ■ LANDFILL CAPPING LAYER
- ▨ CLOSED LICENSED LANDFILL
- ▨ BEDROCK
- ■ WATER
- ■ TARRY / OILY WASTE
- ■ TARRY WASTE IMPACTED SOILS
- ■ DISSOLVED PHASE PLUME
- ╱ GROUNDWATER
- ¦ BOREHOLE LOCATION

Chainage	00.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	110.00	120.00	130.00	140.00	150.00
Existing Ground Level											8.03	7.72	7.56	7.73	7.48	7.62

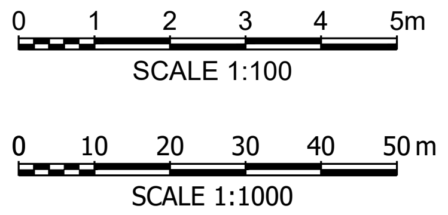
Chainage	160.00	170.00	180.00	190.00	200.00	210.00	220.00	230.00	240.00	250.00	260.00	270.00	280.00	290.00	300.00	310.00
Existing Ground Level	7.80	8.07	8.54	9.57	11.32	13.29	15.94	18.21	17.00	16.14	16.00	18.44	18.50	18.81	19.00	19.48

Chainage	320.00	330.00	340.00	350.00	360.00	370.00	380.00	390.00	400.00	410.00	420.00	430.00	440.00	450.00	460.00	470.00
Existing Ground Level	19.42	19.39	19.63	19.92	20.16	20.35	20.50	20.50	20.56	20.64	20.79	20.94	21.18	21.42	21.68	21.86

Chainage	480.00	490.00	500.00	510.00	520.00	530.00	540.00	550.00	560.00	570.00	580.00	590.00	600.00	610.00	620.00	627.47
Existing Ground Level	22.12	22.45	22.73	23.00	23.25	23.26	23.47	23.73	23.92	24.33	26.00					

NOTES:

1. GROUNDWATER MEASUREMENTS WERE TAKEN BETWEEN 2021 AND 2022 AS SHOWN ON THE TETRA TECH ROUND ONE AND ROUND TWO GROUNDWATER FLOW MAPPING.
2. BH666 THROUGH TO BH647A ENCOUNTERED TARRY/ OILY WASTE AND HEAVILY TARRY WASTE IMPACTED SOILS, AS EVIDENCED BY VISUAL AND OLFACTORY OBSERVATIONS DURING THE SITE INVESTIGATION WORKS.
3. THE DISSOLVED PHASE PLUME ASSOCIATED WITH THE TARRY WASTE HAS BEEN INFERRED VERTICALLY, HOWEVER THE LATERAL EXTENT OF THE PLUME HAS BEEN CONFIRMED THROUGH THE NETWORK OF MONITORING BOREHOLES ON SITE.
4. IN ADDITION TO THIS CONCEPTUAL SITE MODEL, CONTAMINANT DISTRIBUTION PLOTS HAVE BEEN PREPARED FOR KEY CONTAMINANTS OF CONCERN (INCLUDING AMMONIA, NAPHTHALENE, BENZENE, MANGANESE AND IRON) IN GROUNDWATER. THESE ARE SHOWN ON FIGURE 7.



FOR INFORMATION ONLY

Rev	Description	Date	Drn / Chk / App		
P03	NOTES 2, 3 AND 4 ADDED. TARRY WASTE GROUNDWATER PLUME UPDATED	27.09.22	CM	JB	CL
P02	UPDATED FOLLOWING CLIENT / NIEA COMMENTS	18.08.22	CM	CL	CL
P01	PRELIMINARY FIRST ISSUE	28.07.22	CM	JB	CL

Document Control

Issuing Office

Tetra Tech Belfast

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Client

DEPARTMENT OF AGRICULTIRE,
ENVIRONMENT AND RURAL AFFAIRS

Project Name

MOBUOY REMEDIAL CONTRACT

Sheet Title

CONCEPTUAL SITE MODEL 2

Model Reference

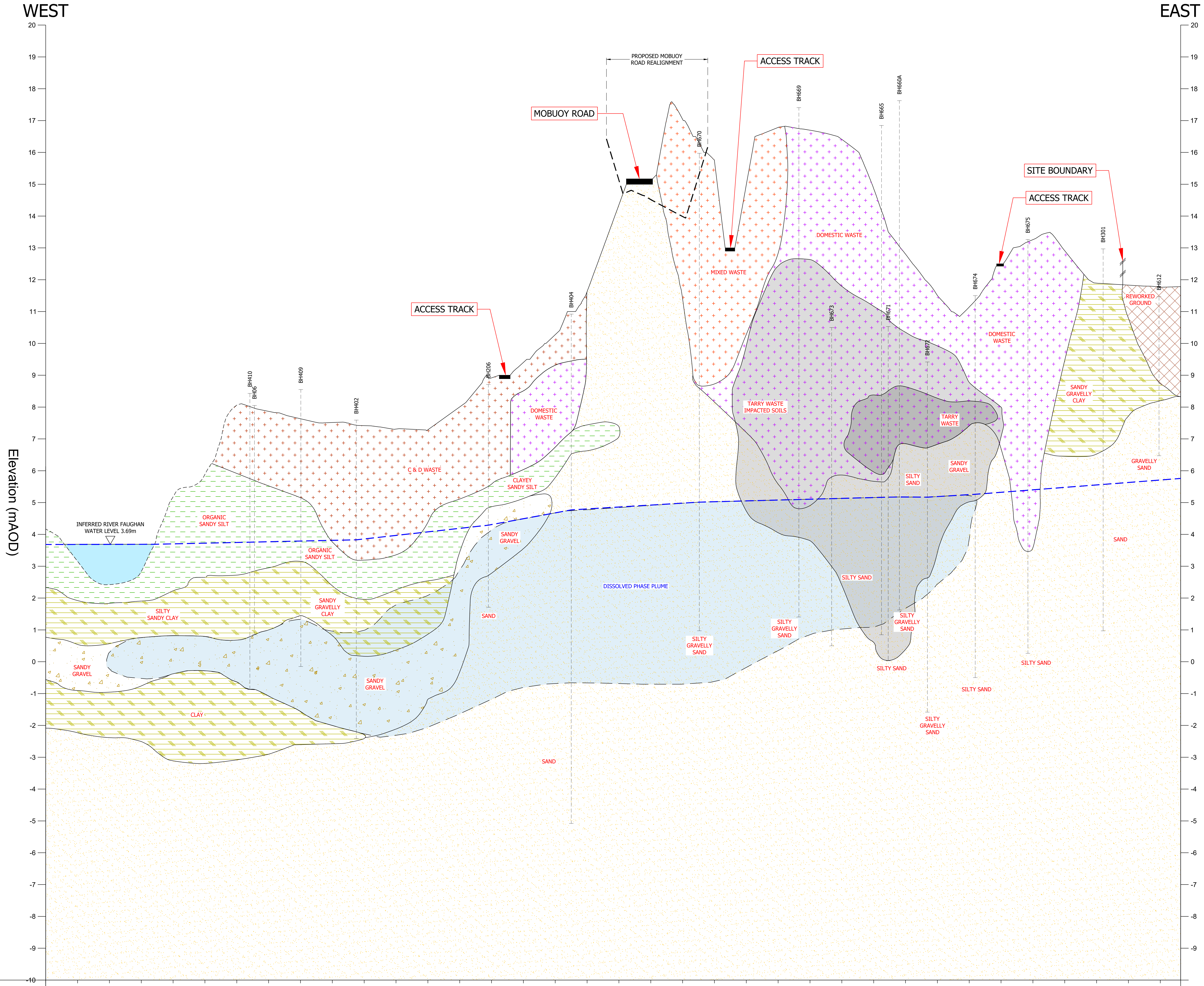
N/A

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Status
B030252	CM	28.07.22	JB	28.07.22	28.07.22		As Shown	S2

Client Project Number	Originator	Function	Spatial	Form	Role	Number	Revision
B030252	- TTE -	00 -	XX -	DR -	U -	0002	P03

TTE_MT_v2

CONCEPTUAL SITE MODEL 3
SCALE: H 1:500,V 1:50. DATUM: -10.000



Chainage	00.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	110.00	120.00	130.00	140.00	150.00	160.00	170.00	180.00	190.00	200.00	210.00	220.00	230.00	240.00	250.00	260.00	270.00	280.00	290.00	300.00	310.00	320.00	330.00	340.00	350.00	356.40
Existing Ground Level								7.86	7.63	7.51	7.42	7.31	7.29	8.00	8.92	9.40	10.27	11.63	14.36	15.16	17.04	15.73	14.98	16.78	16.70	16.41	14.86	12.80	11.51	11.14	12.50	13.26	12.91	11.89	11.83	11.77	11.78

0 0.5 1.0 1.5 2.0 2.5m
SCALE 1:50

0 5 10 15 20 25m
SCALE 1:500

KEY

▨	C & D WASTE	▤	SILT
▨	MIXED WASTE	🟦	WATER
▨	DOMESTIC WASTE	■	TARRY WASTE
▨	REWORKED GROUND	▩	TARRY WASTE IMPACTED SOILS
░	SAND / GRAVEL	▢	DISSOLVED PHASE PLUME
▤	CLAY	╱	GROUNDWATER
▨	PEAT	┆	BOREHOLE LOCATION

NOTES:

1. GROUNDWATER MEASUREMENTS WERE TAKEN BETWEEN 2021 AND 2022 AS SHOWN ON THE TETRA TECH ROUND ONE AND ROUND TWO GROUNDWATER FLOW MAPPING.
2. BH669 THROUGH TO BH647 ENCOUNTERED TARRY/ OILY WASTE AND HEAVILY TARRY WASTE IMPACTED SOILS, AS EVIDENCED BY VISUAL AND OLFACTORY OBSERVATIONS DURING THE SITE INVESTIGATION WORKS.
3. THE DISSOLVED PHASE PLUME ASSOCIATED WITH THE TARRY WASTE SOURCE HAS BEEN INFERRED VERTICALLY, HOWEVER THE LATERAL EXTENT OF THE PLUME HAS BEEN CONFIRMED THROUGH THE NETWORK OF MONITORING BOREHOLES ON SITE.
4. IN ADDITION TO THIS CONCEPTUAL SITE MODEL, CONTAMINANT DISTRIBUTION PLOTS HAVE BEEN PREPARED FOR KEY CONTAMINANTS OF CONCERN (INCLUDING AMMONIA, NAPHTHALENE, BENZENE, MANGANESE AND IRON) IN GROUNDWATER. THESE ARE SHOWN ON FIGURE 7.

Rev	Description	Date	Drn	Chk	App
P03	NOTES 2, 3 AND 4 ADDED	27.09.22	CM	JB	CL
P02	UPDATED FOLLOWING CLIENT / NIEA COMMENTS	18.08.22	CM	CL	CL
P01	PRELIMINARY FIRST ISSUE	28.07.22	CM	JB	CL

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www.tetratecheurope.com

Client
DEPARTMENT OF AGRICULTURE, ENVIRONMENT AND RURAL AFFAIRS

Project Name
MOBUOY REMEDIAL CONTRACT

Sheet Title
CONCEPTUAL SITE MODEL 3

Model Reference
N/A

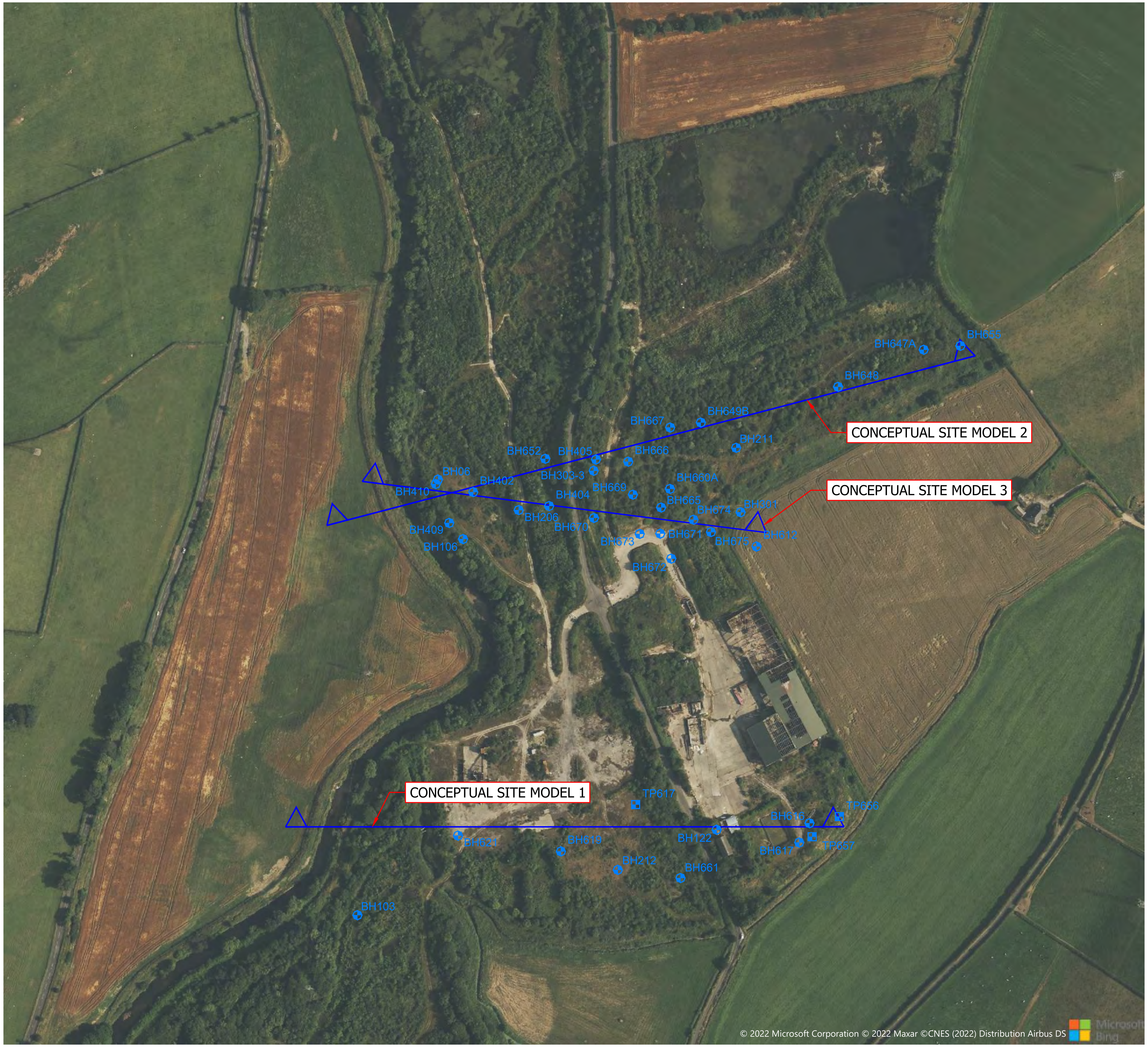
TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A0	Status
B030252	CM	28.07.22	JB	28.07.22	CL	28.07.22	As Shown	S2

Client Project Number		Originator		Function		Spatial		Form		Role		Number	Revision
B030252	-	TTE	-	00	-	XX	-	DR	-	U	-	0003	P03

FOR INFORMATION ONLY

TTE_MT_v2

N



KEY

△——△ LOCATION OF CONCEPTUAL SITE MODEL

● BOREHOLE

▨ TRIAL PIT

FOR INFORMATION ONLY

Rev	Description	Date	Drn / Chk / App		
P02	UPDATED FOLLOWING CLIENT COMMENTS	18.08.22	CM	CL	CL
P01	PRELIMINARY FIRST ISSUE	01.08.22	CM	JB	CL

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Client

DEPARTMENT OF AGRICULTURE,
ENVIRONMENT AND RURAL AFFAIRS

Project Name

MOBUOY REMEDIAL CONTRACT

Sheet Title

CONCEPTUAL SITE MODEL LOCATION PLAN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A3	Suitability
B030252	CM	01.08.22	JB	01.08.22	CL	01.08.22	N.T.S	S2

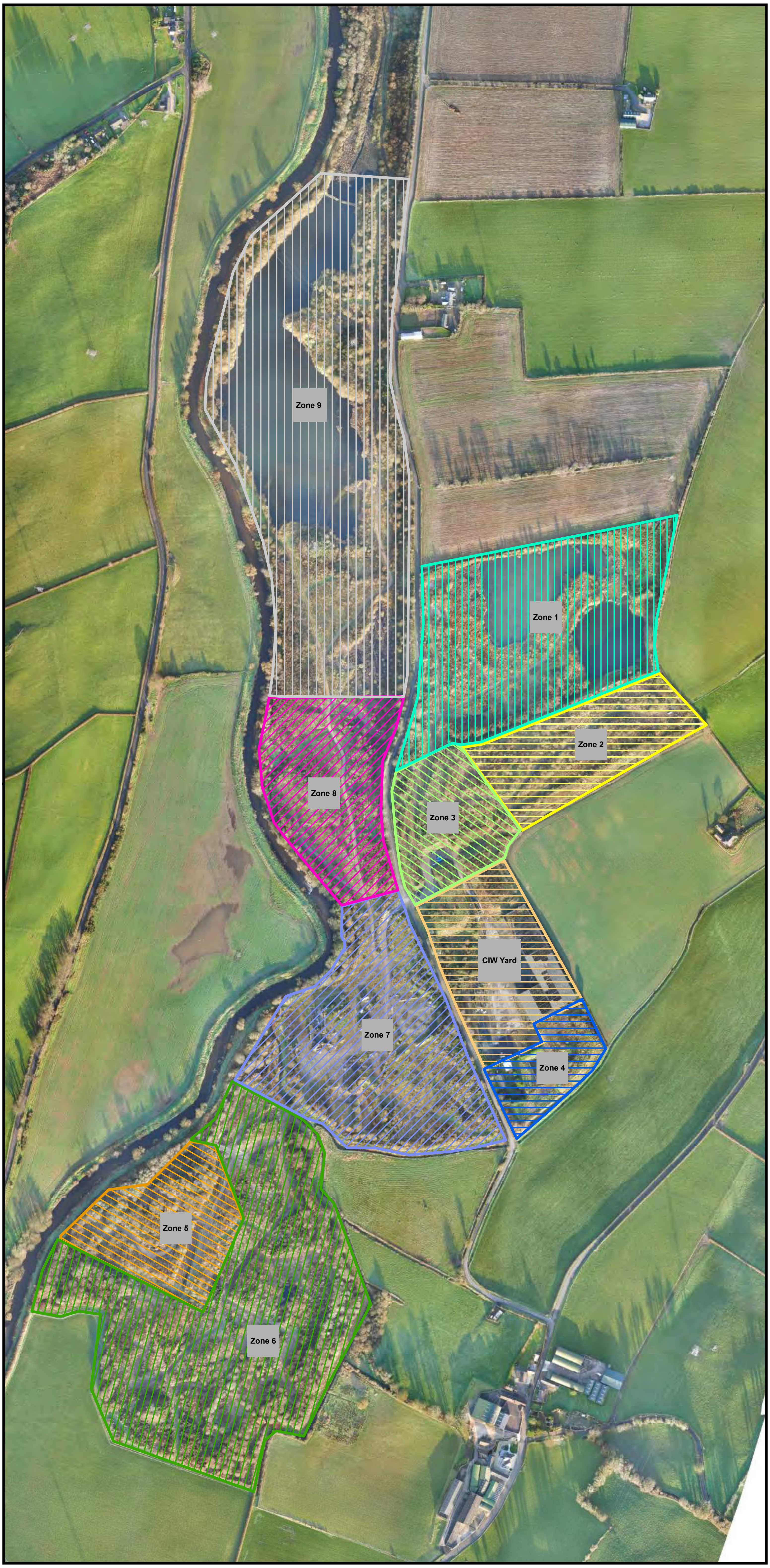
Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B030252 -	TTE -	00 -	XX -	DR -	U -	0004	P02

TTE_MT_v1

Figure 9 – Site Zoning and Modelled ConSim Source Areas

Figure 9a. Site Zoning

N



Legend

- ▥ Zone 1
- ▤ Zone 2
- ▧ Zone 3
- ▤ Zone 4
- ▧ Zone 5
- ▨ Zone 6
- ▨ Zone 7
- ▨ Zone 8
- ▥ Zone 9
- ▤ CIW Yard

Note:

Drawn by: TH

Checked by: PH

Office: Belfast Revision: No.1

Client: NIEA Project: B030252 - Mobuoy Road Remediation

0 75 150 300 Meters

Date: 05/08/2022

Locksley Business Park
Montgomery Road
Belfast
BT6 9UP
Tel: 028 9070 6000
Email: ireland@tetratech.com

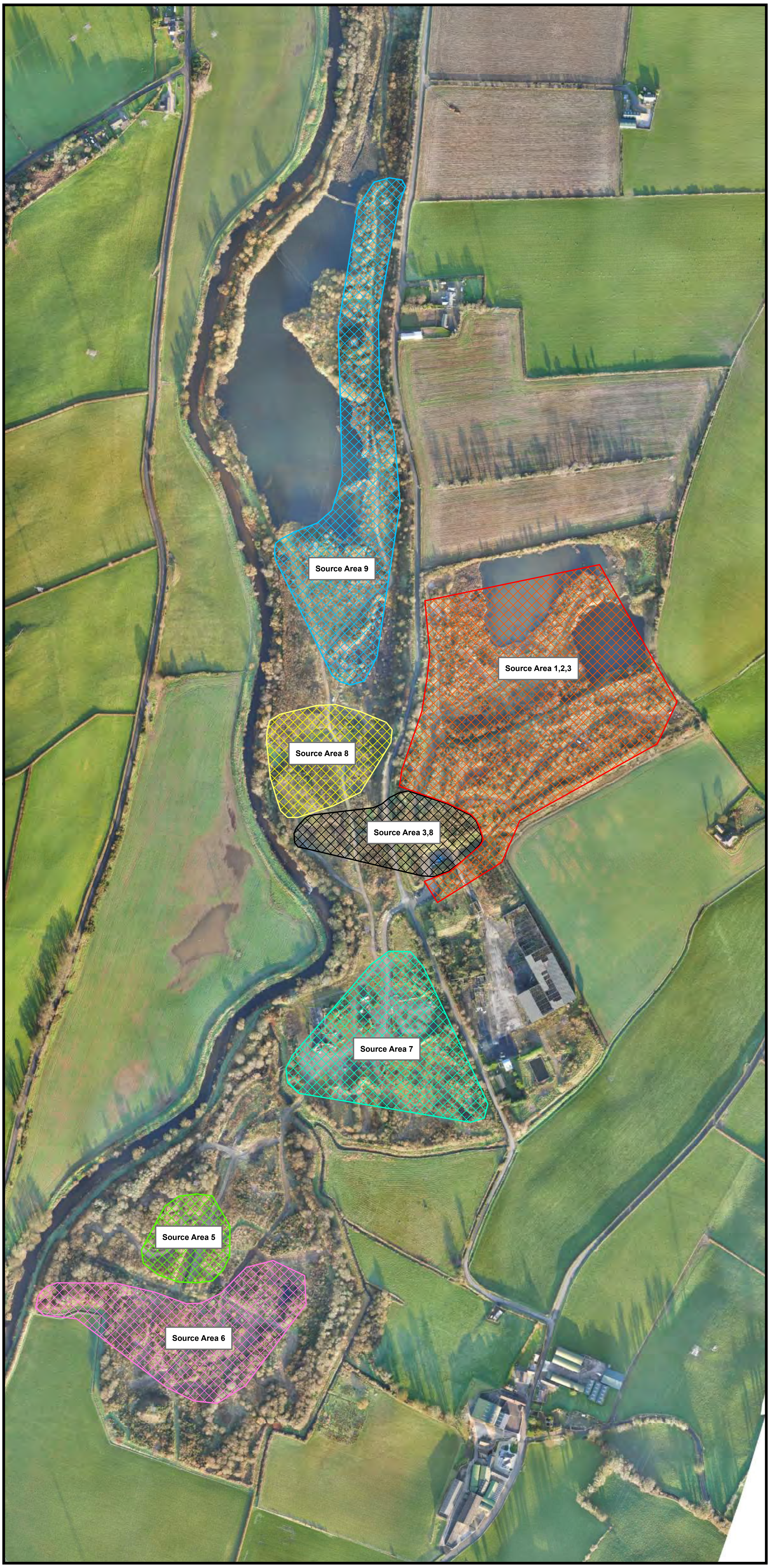


Figure 9b. Modelled ConSim Source Areas

N

Legend

▨ Source Area 1,2,3

▨ Source Area 3,8

▨ Source Area 5

▨ Source Area 6

▨ Source Area 7

▨ Source Area 8

▨ Source Area 9

Note:

Drawn by: TH

Checked by: PH

Office: Belfast Revision: No.1

Client: NIEA Project: B030252 - Mobuoy Road Remediation

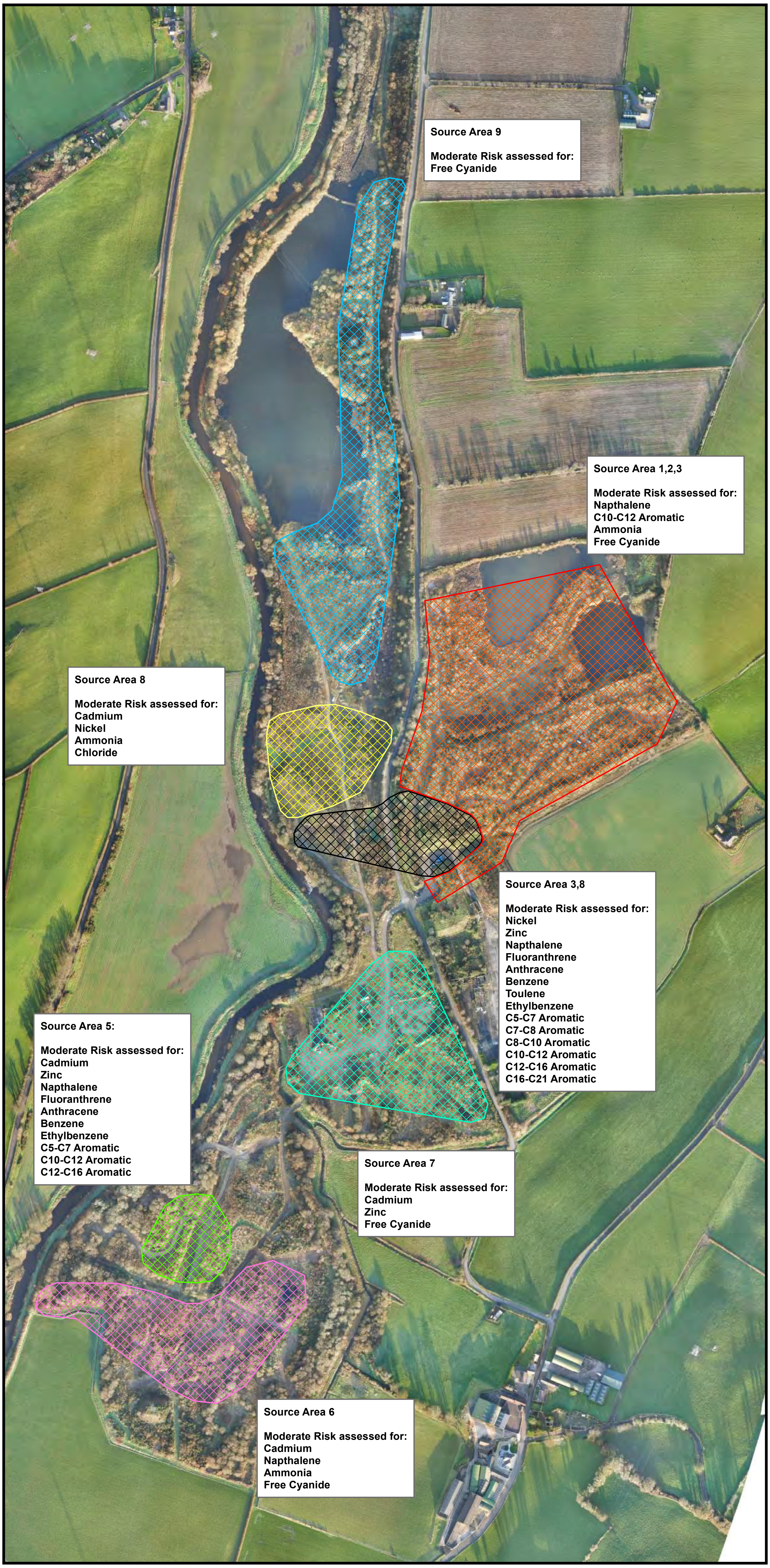
0 75 150 300 Meters

Date: 05/08/2022

Locksley Business Park
Montgomery Road
Belfast
BT6 9UP
Tel: 028 9070 6000
Email: ireland@tetratech.com

Figure 10 – Summary of Modelling Risk Rating Results

Figure 10. Summary of DQRA results - Risk to River Faughan



Source Area 9

Moderate Risk assessed for:
Free Cyanide

Source Area 1,2,3

Moderate Risk assessed for:
Napthalene
C10-C12 Aromatic
Ammonia
Free Cyanide

Source Area 8

Moderate Risk assessed for:
Cadmium
Nickel
Ammonia
Chloride

Source Area 3,8

Moderate Risk assessed for:
Nickel
Zinc
Napthalene
Fluoranthrene
Anthracene
Benzene
Toulene
Ethylbenzene
C5-C7 Aromatic
C7-C8 Aromatic
C8-C10 Aromatic
C10-C12 Aromatic
C12-C16 Aromatic
C16-C21 Aromatic

Source Area 5:

Moderate Risk assessed for:
Cadmium
Zinc
Napthalene
Fluoranthrene
Anthracene
Benzene
Ethylbenzene
C5-C7 Aromatic
C10-C12 Aromatic
C12-C16 Aromatic

Source Area 7

Moderate Risk assessed for:
Cadmium
Zinc
Free Cyanide

Source Area 6

Moderate Risk assessed for:
Cadmium
Napthalene
Ammonia
Free Cyanide

Legend

🟥	Source Area 1, 2, 3
▨	Source Area 3, 8
🟩	Source Area 5
🟪	Source Area 6
▨	Source Area 7
🟨	Source Area 8
🟦	Source Area 9

Note:

Drawn by: TH

Checked by: PH

Office: Belfast Revision: No.2

Client: NIEA Project: B030252 - Mobuoy Road Remediation

0 75 150 300 Meters

Date: 29/09/2022

Locksley Business Park
Montgomery Road
Belfast
BT6 9UP
Tel: 028 9070 6000
Email: ireland@tetratech.com

APPENDIX 1 – TERMS & CONDITIONS

REPORT CONDITIONS

Mobuoy Updated DQRA

This report is produced solely for the benefit of ***NIEA,*** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Tetra Tech. In time improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of Tetra Tech using due skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary, and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted, and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.

Reliance has been placed on the documents and information supplied to Tetra Tech by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted, or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Tetra Tech accept no liability for issues with performance arising from such factors.

APPENDIX 2- EXPLORATORY LOGS (2021/2022)

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH639**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				
Cable Percussion	Dando 3000	0.00	7.20	247686.10 E 418407.20 N	**Final Depth:** 7.20 m	**Start Date:** 23/03/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:40
					Elevation: 4.38 mOD	**End Date:** 23/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Very soft brownish grey SILT with rubble.		
0.50	ES1									
					3.78	0.60	✕	Soft greyish brown slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular fine to medium.		
1.00	ES2				3.38	1.00	∴	Brown sandy angular to subangular fine to coarse GRAVEL with low cobble content. Sand is fine to coasre. Cobbles are subangular to subrounded.		
2.00	ES3									
					-2.82	7.20		End of Borehole at 7.20m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
7.20	200

Water Added

From (m)	To (m)

Remarks

DTB 3.50m

Termination Reason

Terminated on refusal.

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	22-0242
Project Name:	Mobuoy Remediation Project Phase 2
Client:	DAERA/NIEA
Client's Rep:	Tetra Tech
Borehole ID	BH610

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	5.00	248010.98 E
Rotary Drilling	Beretta T44	5.00	5.30	418224.34 N
Rotary Coring	Beretta T44	5.30	10.80	

Final Depth: 10.80 m **Start Date:** 16/11/2021 **Driller:** MK+PJ

Elevation: 15.16 mOD **End Date:** 02/02/2022 **Logger:** SF+TH

Sheet 1 of 2

Scale: 1:50

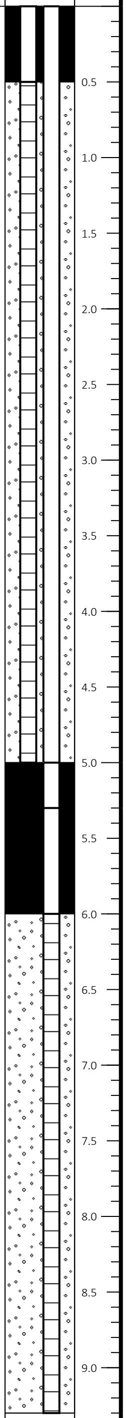
FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.30	ES1			
0.70	ES2			
0.80 - 1.10	B7			
1.20 - 1.65	SPT (S)	N=6 (2,2/2,2,1,1) Hammer SN = 1264	1.50	Dry
2.00	ES3			
3.00	ES4			
4.00	ES5			
4.80 - 5.00	B8			
4.80 - 5.00	D9			
4.80 - 4.89	SPT (S)	N=50 (28 for 50mm/50 for 45mm) Hammer SN = 1264		
5.00	ES6			
5.68	C1			
6.30	C2			
6.50	C3			
6.70				
7.85	C4			
8.20				
9.24	C5			

TCR	SCR	RQD	FI
100	70	30	11
100	30	15	>20 18
91	29	17	NI >20 NI

Level mOD	Depth (m)	Description
14.96	0.20	MADE GROUND: Greyish brown sandy silty CLAY. Sand is fine to coarse.
13.26	1.90	MADE GROUND: Soft black CLAY with fragments of wood, plastic and glass.
12.96	2.20	MADE GROUND: Firm grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse angular.
10.36	4.80	MADE GROUND: Black DOMESTIC WASTE consisting of plastics, wood, glass and tyres.
9.86	5.30	Weathered PEILTE recovered as very silty very sandy angular fine to coarse GRAVEL. Sand is fine to coarse.
6.96	(2.90) 8.20	Weak very narrowly foliated grey PELITE. Partially weathered: reduced strength, closer fracture spacing, dark orangish brown discolouration on fracture surfaces. Discontinuities: 1. 5-20 degree joints, medium spaced (40/480/1500), planar, rough, dark orangish brown staining on joint surfaces. 2. 50-60 degree foliation fractures, closely spaced (10/95/85), undulating, smooth, dark orangish brown staining on fractures surfaces, orangish brown silty clay infill on some fracture surfaces (1-2mm thick). 3. 70-80 degree joints, medium spaced (45/480/230), undulating, smooth, dark orangish brown staining on joint surfaces. Extremely weak indistinctly very narrowly foliated dark grey PELITE (possible fault gouge). Partially weathered: further weakened, much closer fracture spacing, dark orangish brown discolouration throughout, orangish brown clay infill on some fracture surfaces. Discontinuities: 1. 50-60 degree foliation fractures, closely spaced (2/65/70), planar, rough, dark orangish brown staining on fracture surfaces, orangish brown clay infill on some fracture surfaces (up to 3mm thick).
5.96	(1.00) 9.20	Medium strong very narrowly foliated PELITE. Partially weathered: dark orangish brown discolouration on fracture. surfaces Discontinuities: 1. 5-10 degree joint, at 9.09m, planar, rough, dark orangish brown staining on joint surface. 2. 55-65 degree foliation fractures, at 9.23m and 9.32m, undulating, smooth, dark orangish brown staining on joint surfaces.

Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diam (mm)
5.00	200
10.80	200

Water Added

From (m)	To (m)

Core Barrel	Flush Type	Termination Reason	Last Updated
SK6L	Water	Terminated on engineers instruction	28/06/2022

AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH610
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	5.00	248010.98 E
Rotary Drilling	Beretta T44	5.00	5.30	418224.34 N
Rotary Coring	Beretta T44	5.30	10.80	

Final Depth: 10.80 m	**Start Date:** 16/11/2021	**Driller:** MK+PJ	Sheet 2 of 2	Scale: 1:50
Elevation: 15.16 mOD	**End Date:** 02/02/2022	**Logger:** SF+TH	FINAL	

Depth (m)	Samples / Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					6				(0.50)		Medium strong very narrowly foliated PELITE. Partially weathered: dark orangish brown discolouration on fracture. surfaces Discontinuities: 1. 5-10 degree joint, at 9.09m, planar, rough, dark orangish brown staining on joint surface. 2. 55-65 degree foliation fractures, at 9.23m and 9.32m, undulating, smooth, dark orangish brown staining on joint surfaces.		
9.70								5.46	9.70		Very weak very narrowly foliated grey PELITE. Partially weathered: further weakened, much closer fracture spacing, orangish brown discolouration on some fracture surfaces, clay infill on most fracture surfaces. Discontinuities: 1. 10-20 degree joint, at 9.80m, undulating, rough, grey silty clay infill on joint surface (15mm thick) 2. 50-60 degree foliation fractures, closely spaced (1/65/100), planar, rough, patchy dark orangish brown staining on fracture surfaces, gravelly silty clay infill on most fracture surfaces (up to 25mm thick). *10.40-10.80m: Extremely weak (possible fault gouge)*		
		98	25	10	>20				(1.10)				
10.80								4.36	10.80		End of Borehole at 10.80m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diam (mm)
5.00	200
10.80	200

Water Added

From (m)	To (m)

Core Barrel	Flush Type	Termination Reason	Last Updated
SK6L	Water	Terminated on engineers instruction	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH611**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	10.30	247873.65 E 417956.60 N

Final Depth: 10.30 m	**Start Date:** 23/11/2021	**Driller:** MK	Sheet 1 of 2 Scale: 1:40
Elevation: 18.61 mOD	**End Date:** 23/11/2021	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**
0.30	ES1			
0.70	ES2			
2.00	ES3			
3.00	D4			
3.00 - 3.45	SPT (S)	N=7 (1,2/2,2,1,2) Hammer SN = 1264	3.00	Dry
4.00	ES5			
5.00	ES6			
6.00	ES7			
7.00	ES8			

Level mOD	**Depth (m)**	**Description**
		MADE GROUND: Firm brownish black gravelly CLAY. Gravel is subangular to angular fine to coarse.
18.01	0.60	MADE GROUND: Black sandy angular to subangular fine to coarse GRAVEL with general waste including shredded plastics. Sand is fine to coarse. Gravel is angular to subangular fine to coarse.
17.21	1.40	MADE GROUND: Black WASTE in a silty gravel matrix included shredded plastic bags and metal.
15.81	2.80	MADE GROUND: Firm brownish black gravelly CLAY. Gravel is angular to subrounded of shale, brick and concrete.
15.51	3.10	MADE GROUND: Black silty angular to subangular fine to coarse GRAVEL with fragments of brick, concrete, tar and shredded plastics.
14.41	4.20	MADE GROUND: Grey silty sandy angular to subangular fine to coarse GRAVEL with fragments of concrete and brick. Sand is fine to coarse. Gravel is angular to subangular fine to coarse.
13.81	4.80	MADE GROUND: Brownish grey silty sandy angular to subangular fine to coarse GRAVEL of brick and concrete with fragments of wood, plastic and rope. Sand is fine to coarse.
13.21	5.40	MADE GROUND: Firm brownish grey gravelly silty CLAY with pockets of organic peaty material. Gravel is subangular fine to coarse of brick and concrete.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)
9.40	10.30	01:30

Casing Details

To (m)	Diameter
6.00	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m Move to redrill BH611A

Termination Reason

Terminated on concrete obstruction

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH611**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	10.30	247873.65 E 417956.60 N

Final Depth: 10.30 m	**Start Date:** 23/11/2021	**Driller:** MK	Sheet 2 of 2 Scale: 1:40
Elevation: 18.61 mOD	**End Date:** 23/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Firm brownish grey gravelly silty CLAY with pockets of organic peaty material. Gravel is subangular fine to coarse of brick and concrete.		■
					10.81	7.80	▨	MADE GROUND: Black WASTE in a silty gravel matrix. Gravel is angular to subangular fine to coarse of brick and concrete. with fragments of glass, metal, shredded plastic and ceramics.		■
8.00	ES9									
9.00	ES10									
					9.21	9.40	▨	MADE GROUND: Grey silty sandy subangular fine to coarse GRAVEL of brick and concrete, Sand is fine to coarse.		■
10.00	ES11									
10.30 - 10.39	SPT (C)	N=50 (35 for 85mm/50 for 5mm) Hammer SN = 1264			8.31	10.30		End of Borehole at 10.30m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)
9.40	10.30	01:30

Casing Details

To (m)	Diameter
6.00	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m Move to redrill BH611A

Termination Reason

Terminated on concrete obstruction

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
	22-0242	Client: DAERA/NIEA	BH611A
		Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	13.00	247872.24 E 417958.82 N

Final Depth: 13.00 m	**Start Date:** 01/12/2021	**Driller:** CC	Sheet 1 of 2
Elevation: 18.68 mOD	**End Date:** 02/12/2021	**Logger:** SF	Scale: 1:40
			FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Firm brown and black sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
					18.08	0.60	▨	MADE GROUND: Black silty sandy subangular to subrounded fine to coarse GRAVEL with plastics. Sand is fine to coarse.		
					17.38	1.30	▨	MADE GROUND: Black sandy gravelly SILT with high volume of shredded plastic, metal, timber, textiles and tyres. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
		Water strike at 3.00m			15.88	2.80	▨	MADE GROUND: Firm black and greyish brown sandy gravelly silty CLAY with plastic. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	▼	
					15.58	3.10	▨	MADE GROUND: Black silty sandy subangular to subrounded fine to coarse GRAVEL with plastics.		
					14.48	4.20	▨	MADE GROUND: Firm greyish black sandy gravelly CLAY with fragments of brick, plastic, timber and metal. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
					13.88	4.80	▨	MADE GROUND: Firm brown and grey sandy gravelly silty CLAY with fragments of plastic, timber, metal, carpet and tyre. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
					13.28	5.40	▨	MADE GROUND: Firm black and brownish grey sandy gravelly SILT with plastics, carpet, polystyrene, red brick, metal, rubber, textiles. tiles and concrete. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
3.00	3.00		

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
13.00	150

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated due to casing refusal

Last Updated

28/06/2022

AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	**Client:** DAERA/NIEA	BH611A
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	13.00	247872.24 E 417958.82 N

Final Depth:	13.00 m	**Start Date:**	01/12/2021	**Driller:**	CC
Elevation:	18.68 mOD	**End Date:**	02/12/2021	**Logger:**	SF

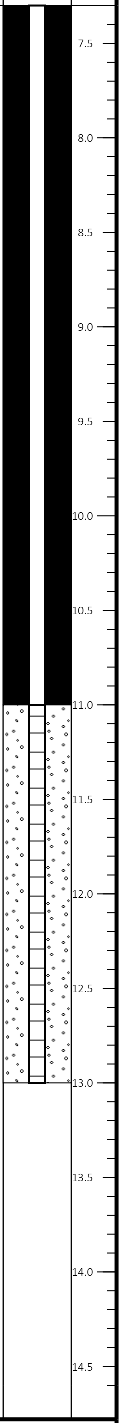
Sheet 2 of 2

Scale: 1:40

FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description
							▩	MADE GROUND: Firm black and brownish grey sandy gravelly SILT with plastics, carpet, polystyrene, red brick, metal, rubber, textiles. tiles and concrete. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
					8.68	10.00	▩	MADE GROUND: Brownish grey slightly silty slightly gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to medium.
					7.88	10.80	⁙	Medium dense greyish brown silty fine to coarse SAND
11.00	B3							
11.00	ES1							
12.00	ES2							
13.00 - 13.45	SPT (S)	N=27 (4,4/5,6,7,9) Hammer SN = 0197	13.0	Dry	5.68	13.00		End of Borehole at 13.00m

Water | Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
3.00	3.00		

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
13.00	150

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	Last Updated
Terminated due to casing refusal	28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2		**Borehole ID**
22-0242	**Client:** DAERA/NIEA		**BH612**
	Client's Rep: Tetra Tech		

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Dynamic Sampling	Dando Terrier	0.00	5.00	247937.14 E 417888.30 N

Final Depth: 5.00 m	**Start Date:** 26/11/2021	**Driller:** CC	Sheet 1 of 1 Scale: 1:50
Elevation: 11.69 mOD	**End Date:** 26/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Firm brown slightly gravelly sandy silty CLAY with roots and pockets of silty sand. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone and rare brick.		
0.50	ES1									
1.00	ES2									
1.00 - 1.45	U5	Ublow=21 100%		Dry						
2.00	ES3									
2.00 - 2.45	SPT (S)	N=11 (2,2/2,3,3,3) Hammer SN = 0197	2.00	Dry						
					8.99	2.70		Light brownish grey slightly sandy slightly gravelly organic SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse.		
3.00	ES4				8.69	3.00		Medium dense brown slightly gravelly silty fine to medium SAND. Gravel is subangular fine to medium of quartz.		
3.00 - 3.45	SPT (S)	N=14 (2,3/3,3,4,4) Hammer SN = 0197	3.00	Dry						
					8.09	3.60		Medium dense brown silty fine to medium SAND.		
4.00 - 4.45	SPT (S)	N=19 (2,3/4,4,5,6) Hammer SN = 0197	4.00	Dry						
5.00 - 5.45	SPT (S)	N=27 (4,5/6,6,7,8) Hammer SN = 0197	5.00	Dry	6.69	5.00		End of Borehole at 5.00m		

Water Strikes				**Casing Details**	
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	To (m)	Diameter
				4.00	200

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated at scheduled depth	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH613**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Dynamic Sampling	Dando Terrier	0.00	2.50	247837.69 E 417843.56 N

Final Depth: 2.50 m	**Start Date:** 21/12/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:50
Elevation: 15.52 mOD	**End Date:** 21/12/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Soft brown slightly sandy gravelly CLAY with angular cobbles and boulders at surface. Sand is fine to coarse. Gravel is angular fine to coarse of pelite.		
0.50 0.50 - 2.00	ES1 B4				15.02	0.50	▨	MADE GROUND: Black and dark brown slightly sandy slightly gravelly silty CLAY with fragments of timber, rubber, plastic, metal, textile and concrete.		
1.00	ES2									
2.00	ES3									
					13.02	2.50		End of Borehole at 2.50m		

Water Strikes				**Casing Details**	
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	To (m)	Diameter

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated on refusal 2 attempts made to carry out boreholes	28/06/2022

AGS

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Borehole ID** BH614
	Client: DAERA/NIEA		
	Client's Rep: Tetra Tech		

Method	Plant Used	Top (m)	Base (m)	Coordinates
Dynamic Sampling	Dando Terrier	0.00	5.00	247919.27 E 417726.88 N

Final Depth: 5.00 m	**Start Date:** 19/11/2021	**Driller:** JS	Sheet 1 of 1 Scale: 1:50
Elevation: 7.80 mOD	**End Date:** 19/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records
0.30 - 0.50	ES1	
0.55 - 0.70	ES2	
1.00 - 1.20	ES3	
		Seepage at 2.00m
3.00 - 3.20	ES4	

Level mOD	Depth (m)	Description
7.64	0.16	MADE GROUND: CONCRETE.
7.40	0.40	MADE GROUND: Dark greyish brown sandy subangular to subrounded fine to coarse GRAVEL with high cobble content and rare timber fragments.
7.25	0.55	MADE GROUND: Dark grey sandy silty subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse.
7.10	0.70	MADE GROUND: Dark grey sandy silty GRAVEL with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse.
6.60	1.20	Firm greenish brown slightly gravelly SILT. Gravel is subrounded to subangular of semi-pelite.
3.70	4.10	Light yellowish brown silty fine to medium SAND with frequent seams of brown sandy SILT. Sand is fine to medium.
2.80	5.00	Brown silty fine to coarse SAND with seams of brown sandy gravel. Sand is fine to coarse. Gravel is subangular to subrounded of quartz.

End of Borehole at 5.00m

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	0.00	20	2.00

Casing Details

To (m)	Diameter
5.00	150

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated due to blowing sands

Last Updated

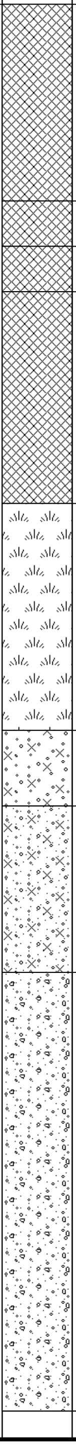
28/06/2022

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** BH615

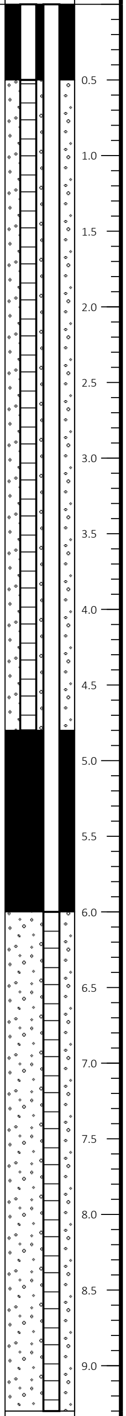
Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	12.00	247964.62 E
Rotary Drilling	Beretta T44	12.00	16.00	417680.68 N

Final Depth:	16.00 m	**Start Date:**	05/01/2022	**Driller:**	PJ+DE	Sheet 1 of 2	Scale: 1:50
Elevation:	8.24 mOD	**End Date:**	27/01/2022	**Logger:**	SF	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.50	ES1			
1.00	B6			
1.00	ES2			
1.30	B7			
1.50	ES3			
1.60	B8			
1.80	ES4			
2.00	B9			
2.00	ES5			
2.00 - 2.45	SPT (S)	N=4 (1,0/1,1,1,1) Hammer SN = 1368	2.00	
2.50	D10			
3.50	B11			



Level mOD	Depth (m)	Description
		MADE GROUND: Grey slightly sandy angular to subangular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular.
6.94	1.30	MADE GROUND: Black WASTE in a silt matrix. Waste comprises abundant shredded plastics, paper, cardboard, timber and metal.
6.64	1.60	MADE GROUND: Grey sandy silty angular to subangular fine to coarse GRAVEL. Sand is fine to coarse.
6.34	1.90	MADE GROUND: Soft brown sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded fine to medium.
4.94	3.30	Plastic brown amorphous PEAT.
3.44	4.80	Grey silty subrounded fine GRAVEL.
2.94	5.30	Grey silty sandy subrounded fine GRAVEL. Sand is fine to coarse.
1.84	6.40	Grey sandy subrounded fine GRAVEL with low cobble content. Sand is fine to coarse.



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m NB: Deeper install used 38mm diameter pipe

Casing Details

To (m)	Diam (mm)
12.00	200

Water Added

From (m)	To (m)
4.00	12.00

Core Barrel

Flush Type

Termination Reason

Terminated due to unable to advance casing

Last Updated

28/06/2022

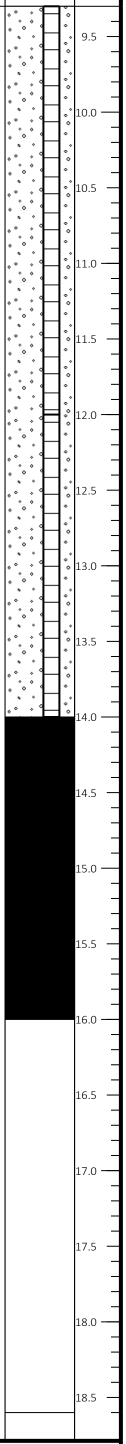
AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH615**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	12.00	247964.62 E
Rotary Drilling	Beretta T44	12.00	16.00	417680.68 N

Final Depth: 16.00 m	**Start Date:** 05/01/2022	**Driller:** PJ+DE	Sheet 2 of 2	Scale: 1:50
Elevation: 8.24 mOD	**End Date:** 27/01/2022	**Logger:** SF	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Grey sandy subrounded fine GRAVEL with low cobble content. Sand is fine to coarse.		
					-3.76	12.00		Sandy GRAVEL (Driller's description).		
					-7.76	16.00		End of Borehole at 16.00m		



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m NB: Deeper install used 38mm diameter pipe

Casing Details

To (m)	Diam (mm)
12.00	200

Water Added

From (m)	To (m)
4.00	12.00

Core Barrel	**Flush Type**

Termination Reason

Terminated due to unable to advance casing

Last Updated

28/06/2022

AGS

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH616**

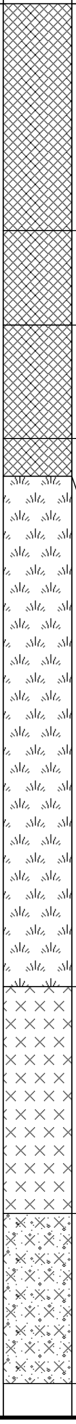
Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247983.54 E 417646.11 N

Final Depth: 8.00 m	**Start Date:** 04/01/2022	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 7.60 mOD	**End Date:** 05/01/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**
0.50	ES1			
1.00	B7			
1.00 - 1.45	SPT (C)	N=6 (1,2/1,1,2,2) Hammer SN = 1368	1.00	0.70
1.20	B8			
1.50	ES2			
1.70	B9			
1.70 - 2.15	SPT (C)	N=8 (1,1/2,2,2,2) Hammer SN = 1368	1.70	1.60
2.00	ES3			
2.20	D10			
2.30	B11			
2.40	ES4			
2.50	B12			
2.50 - 3.00	U6			
3.00	D13			
3.00	ES5			
3.50	B14			
3.50 - 3.95	SPT (S)	N=1 (0,0/0,0,0,1) Hammer SN = 1368	3.50	
4.00	D15			
4.00 - 4.45	SPT (S)	N=1 (0,0/0,0,0,1) Hammer SN = 1368	4.00	3.20
5.00	ES16			
5.50	ES17			
5.50 - 5.95	SPT (S)	N=2 (0,0/0,0,0,2) Hammer SN = 1368	5.50	1.60
6.00 - 6.50	U19			3.40
7.00 - 7.45	SPT (S)	N=14 (2,3/3,3,4,4) Hammer SN = 1368	7.00	2.50

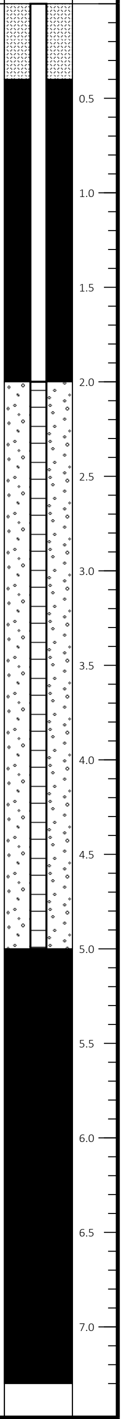
Level mOD	**Depth (m)**	**Description**
		MADE GROUND: Grey slightly sandy angular to subangular fine to coarse GRAVEL with low cobble content, concrete and brick. Sand is fine to coarse. Cobbles are angular.
6.40	1.20	MADE GROUND: Loose black sandy silty subrounded fine to medium GRAVEL with concrete, brick, plastics and ceramics. Sand is fine to coarse.
5.90	1.70	MADE GROUND: Soft to firm grey silty gravelly CLAY with concrete and occasional plastic. Gravel is subrounded fine to medium.
5.30	2.30	MADE GROUND: Soft black sandy SILT with high volume of domestic waste including shredded plastic bags, hard plastic, ceramics, timber, paper, cardboard and pockets of peat. Sand is fine to coarse.
5.10	2.50	Plastic brown PEAT.
2.40	5.20	Very soft grey SILT.
1.20	6.40	Stiff grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded fine to medium.

Legend



Water

Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
4.00	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH616**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247983.54 E 417646.11 N

Final Depth: 8.00 m	**Start Date:** 04/01/2022	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 7.60 mOD	**End Date:** 05/01/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
7.50	ES18							Stiff grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded fine to medium.		
8.00 - 8.45	SPT (C)	N=28 (3,4/6,8,7,7) Hammer SN = 1368	8.00	2.90	-0.30	7.90		Dense subrounded fine to medium GRAVEL.		
					-0.40	8.00		End of Borehole at 8.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
4.00	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

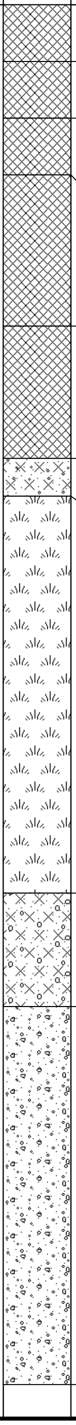
AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH617
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	8.00	247974.54 E 417629.23 N

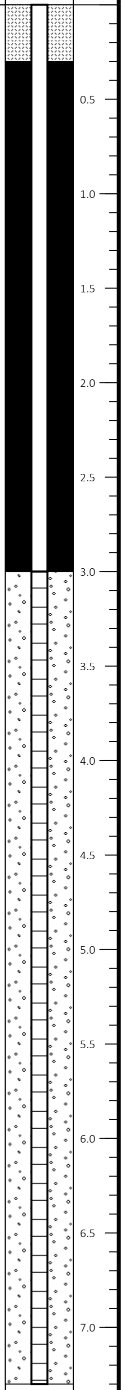
Final Depth: 8.00 m	**Start Date:** 20/12/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 7.80 mOD	**End Date:** 21/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.00	B6			
0.50	ES1			
0.60	B7			
1.00	B8			
1.00	ES2			
1.50	B9			
1.80	B10			
1.80 - 2.25	SPT (S)	N=7 (1,1/2,1,2,2) Hammer SN = 1368	1.80	Dry
2.00	ES3			
2.30	D11			
2.40	B12			
3.00	B13			
3.00	ES4			
4.00	B14			
4.00	ES5			
4.00 - 4.45	SPT (S)	N=2 (0,0/0,1,0,1) Hammer SN = 1368	4.00	Dry
4.50	D15			
4.70	B16			
5.50	B17			
5.50 - 5.95	SPT (C)	N=23 (2,6/5,4,6,8) Hammer SN = 1368	5.50	Dry



Level mOD	Depth (m)	Description
7.50	0.30	MADE GROUND: Grey silty sandy angular fine to coarse GRAVEL. Sand is fine to coarse. (Hard core fill)
7.20	0.60	MADE GROUND: Grey coarse angular GRAVEL.
6.90	0.90	MADE GROUND: Firm black slightly gravelly slightly gravelly SILT with fragments of red brick, timber, glass and plastics. Sand is fine to coarse. Gravel is angular fine to medium.
6.10	1.70	MADE GROUND: Firm greyish black slightly sandy slightly gravelly SILT with fragments of red brick, timber, glass and plastics. Sand is fine to coarse. Gravel is subrounded fine to medium.
5.40	2.40	MADE GROUND: Soft grey slightly sandy SILT. Sand is fine to coarse.
5.20	2.60	Soft black slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subrounded fine to coarse.
3.10	4.70	Very soft brown pseudo fibrous PEAT.
2.50	5.30	Soft grey slightly sandy SILT with low cobble content. Sand is fine to coarse.
		Medium dense brown sandy subrounded fine to coarse GRAVEL with low cobble content. Sand is fine to coarse.

Water | Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
4.20	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH617**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247974.54 E 417629.23 N

Final Depth: 8.00 m	**Start Date:** 20/12/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 7.80 mOD	**End Date:** 21/12/2021	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
					-0.20	8.00	⁘	Medium dense brown sandy subrounded fine to coarse GRAVEL with low cobble content. Sand is fine to coarse.		⁘
								End of Borehole at 8.00m		

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes				**Chiselling Details**		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
8.00	200	4.20	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated at scheduled depth	28/06/2022

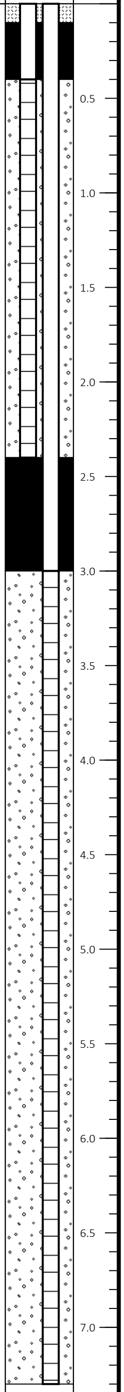
AGS

CAUSEWAY GEOTECH	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
	22-0242	Client: DAERA/NIEA	BH618
		Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	8.00	247787.93 E 417558.17 N

Final Depth: 8.00 m	**Start Date:** 16/12/2021	**Driller:** DE	Sheet 1 of 2		
			Scale: 1:40		
Elevation: 7.33 mOD	**End Date:** 16/12/2021	**Logger:** SF	FINAL		

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.00	B4							MADE GROUND: Soft brown slightly sandy slightly gravelly silty CLAY with rootlets, occasional timber fragments and Duracell AAA battery. Sand is fine to coarse. Gravel is angular fine to coarse.		
0.50	ES1									
1.00	B5				6.33	1.00		MADE GROUND: Loose greyish black slightly sandy angular fine to coarse GRAVEL with low cobble content, brick, concrete, rope, metal bar and cobble size fragments of asphalt. Sand is fine to coarse. Cobbles are subangular.		
1.00	ES2									
1.00 - 1.45	SPT (S)	N=7 (1,1/3,2,1,1) Hammer SN = 1368		Dry						
1.50	D6									
1.70	B7				5.63	1.70		MADE GROUND: Greyish brown silty sandy angular to subrounded fine to medium GRAVEL. Sand is fine to coarse.		
2.40	B8				4.93	2.40		Grey fine to coarse SAND.		
3.00	ES3									
4.80	B9				2.53	4.80		Loose brown silty fine to coarse SAND.		
4.80 - 5.25	SPT (S)	N=4 (2,1/1,1,1,1) Hammer SN = 1368	4.80	1.70						
5.30	D10									



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
2.40	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH618**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				Sheet 2 of 2 Scale: 1:40
Cable Percussion	Dando 2000	0.00	8.00	247787.93 E 417558.17 N	**Final Depth:** 8.00 m	**Start Date:** 16/12/2021	**Driller:** DE	
					Elevation: 7.33 mOD	**End Date:** 16/12/2021	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
								Loose brown silty fine to coarse SAND.		
					-0.67	8.00				
								End of Borehole at 8.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
2.40	8.00

Termination Reason	**Last Updated**
Terminated at scheduled depth	28/06/2022

AGS

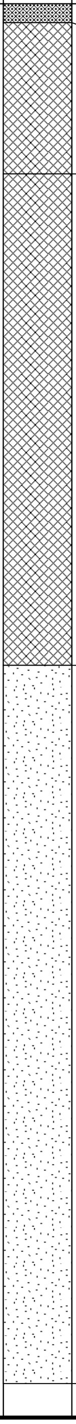
Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	**Client:** DAERA/NIEA	BH619
	Client's Rep: Tetra Tech	

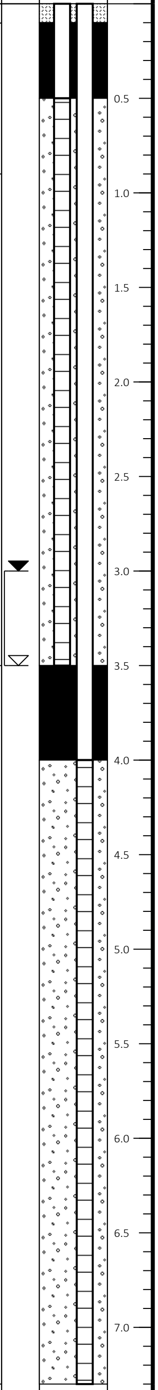
Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	8.00	247765.86 E 417621.45 N

Final Depth: 8.00 m	**Start Date:** 13/12/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 6.96 mOD	**End Date:** 13/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.00	B6			
0.05	ES1			
0.10	B7			
0.50	ES2			
1.00	B8			
1.00 - 1.45	SPT (S)	N=6 (1,1/1,2,1,2) Hammer SN = 1368		
1.50	D9			
1.50	ES3			
2.00	B10			
2.50	ES4			
3.50	B11			
3.50 - 3.95	SPT (S)	N=12 (1,2/2,3,3,4) Hammer SN = 1368 Water strike at 3.50m	3.50	3.00
4.00	D12			
4.00	ES5			

Level mOD	Depth (m)	Description
6.86	0.10	MADE GROUND: BITMAC.
6.06	0.90	MADE GROUND: Grey slightly sandy angular to subangular fine to coarse GRAVEL with low cobble content, fragments of brick and concrete. Sand is fine to coarse. Cobbles are angular.
3.46	3.50	MADE GROUND: Soft greyish brown slightly gravelly sandy SILT with fragments of brick. Sand is fine to coarse. Gravel is subangular fine to medium.
		Medium dense brown fine SAND.





Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
3.50	3.50	20	3.00

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
3.50	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** BH619

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	8.00	247765.86 E 417621.45 N

Final Depth: 8.00 m	**Start Date:** 13/12/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 6.96 mOD	**End Date:** 13/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							░	Medium dense brown fine SAND.		░
					-1.04	8.00		End of Borehole at 8.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
3.50	3.50	20	3.00

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
3.50	8.00

Termination Reason

Terminated at scheduled depth

Last Updated

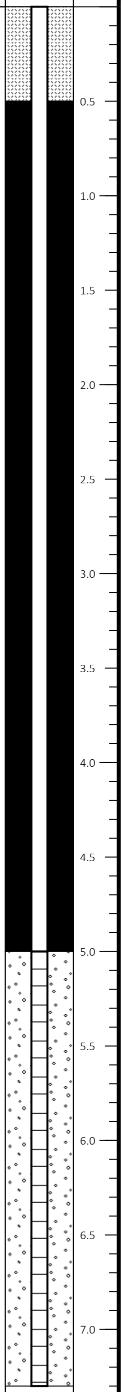
28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH620**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247750.50 E 417709.59 N

Final Depth: 8.00 m	**Start Date:** 13/12/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 8.46 mOD	**End Date:** 14/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.00 0.05 0.10	B4 ES1 B5				8.36	0.10	▩	MADE GROUND: BITMAC.		
0.70 1.00	B6 ES2						▨	MADE GROUND: Brown silty sandy angular to subrounded fine to medium GRAVEL with fragments of concrete. Sand is fine to coarse.		
1.20 1.50 1.50 - 1.95 1.80	B7 ES3 SPT (S) B8	 N=6 (1,1/1,2,1,2) Hammer SN = 1368			7.26	1.20		Loose grey sandy subrounded fine to medium GRAVEL. Sand is fine to coarse.		
2.00 2.50	D10 B9				6.46	2.00		Brown fine SAND.		



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
2.50	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH620**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247750.50 E 417709.59 N

Final Depth: 8.00 m	**Start Date:** 13/12/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 8.46 mOD	**End Date:** 14/12/2021	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
							░	Brown fine SAND.		
					0.46	8.00		End of Borehole at 8.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
2.50	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH621**

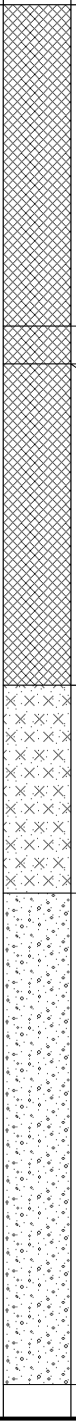
Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247675.78 E 417635.25 N

Final Depth: 8.00 m	**Start Date:** 10/12/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 6.97 mOD	**End Date:** 10/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.00	B7			
0.50	ES1			
1.00	B8			
1.00	ES2			
1.70	B9			
1.70	D10			
1.70 - 2.15	SPT (S)	N=5 (0,1/1,1,1,2) Hammer SN = 1368		
1.80	ES3			
2.80	ES4			
3.60	B11			
3.60 - 4.05	SPT (S)	N=5 (0,0/1,1,1,2) Hammer SN = 1368	3.60	1.40
3.80	ES5			
4.10	D12			
5.00	B13			
5.00 - 5.45	SPT (C)	N=16 (1,2/2,3,4,7) Hammer SN = 1368	5.00	1.70
5.10	ES6			

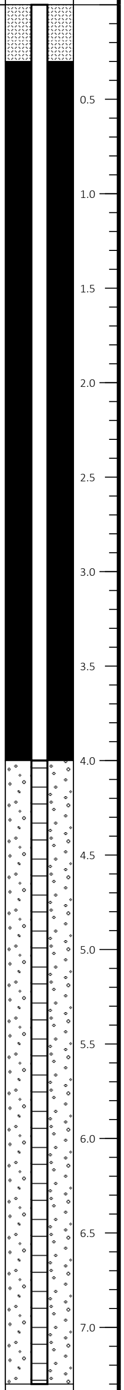
Level mOD	Depth (m)	Description
		MADE GROUND: Brown slightly gravelly sandy SILT with medium cobble content, fragments of brick, slate, flint and concrete. Sand is fine to coarse. Gravel is angular to subangular fine to coarse.
5.27	1.70	MADE GROUND: Soft brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium.
5.07	1.90	MADE GROUND: Soft grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded fine to medium. *1.90m to 3.60m: Slight organic odour*
3.37	3.60	Soft grey sandy SILT. Sand is fine to coarse.
2.27	4.70	Medium dense sandy subrounded fine to medium GRAVEL. Sand is fine to coarse.

Legend



Water

Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
2.00	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated at scheduled depth	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH621**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247675.78 E 417635.25 N

Final Depth: 8.00 m	**Start Date:** 10/12/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 6.97 mOD	**End Date:** 10/12/2021	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
					-1.03	8.00		Medium dense sandy subrounded fine to medium GRAVEL. Sand is fine to coarse.		
								End of Borehole at 8.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
2.00	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
CAUSEWAY GEOTECH	22-0242	Client: DAERA/NIEA Client's Rep: Tetra Tech	BH622

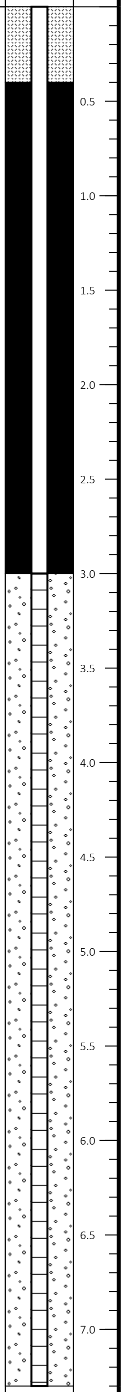
Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	12.00	247676.03 E 417535.59 N

Final Depth: 12.00 m	**Start Date:** 08/12/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 5.03 mOD	**End Date:** 09/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.00	B4			
0.50	ES1			
1.00	B5			
1.00	ES2			
1.80	B6			
		Water strike at 1.80m		
2.00	ES3			
2.00 - 2.45	SPT (S)	N=22 (1,4/5,6,6,5) Hammer SN = 1368		
2.50	D7			
3.00	B8			
3.00 - 3.45	SPT (C)	N=17 (2,2/3,4,4,6) Hammer SN = 1368		
4.60 - 5.05	SPT (S)	N=5 (0,1/0,1,2,2) Hammer SN = 1368	4.60	1.50
5.10	D10			
5.60	B9			
6.70	B11			
6.80	D12			
6.80 - 7.25	SPT (S)	N=6 (0,1/1,2,1,2) Hammer SN = 1368	6.80	2.40

Level mOD	Depth (m)	Description	Water
		MADE GROUND: Soft lightly brownish grey slightly sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium.	
4.13	0.90	Soft brown sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is subrounded fine to medium.	
3.33	1.70	Soft to firm brownish grey silty CLAY.	▼
3.23	1.80	Stiff grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded fine to medium.	
2.03	3.00	Loose to medium dense subrounded fine to medium GRAVEL.	
-0.57	5.60	Loose grey sandy subrounded fine to medium GRAVEL. Sand is fine to coarse.	
-1.67	6.70	Loose brown fine SAND.	

Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.80	1.80		

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
12.00	200

Water Added

From (m)	To (m)
3.00	12.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH622**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	12.00	247676.03 E 417535.59 N

Final Depth: 12.00 m	**Start Date:** 08/12/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 5.03 mOD	**End Date:** 09/12/2021	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
								Loose brown fine SAND.		
					-6.97	12.00		End of Borehole at 12.00m		

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.80	1.80		

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diameter
12.00	200

Water Added

From (m)	To (m)
3.00	12.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

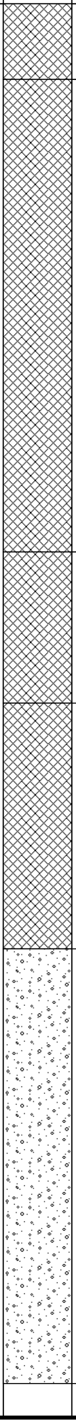
AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH623**
		Client's Rep: Tetra Tech	

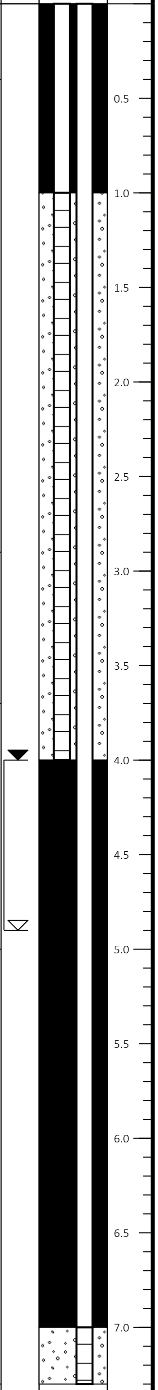
Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	12.00	247700.32 E 417422.98 N

Final Depth: 12.00 m	**Start Date:** 24/11/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 8.40 mOD	**End Date:** 25/11/2021	**Logger:** CH	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.00	B7			
0.50	ES1			
1.00	B8			
1.00	ES2			
2.00	B9			
2.00	ES3			
3.00	B10			
3.00	ES4			
3.00 - 3.45	SPT (S)	N=9 (1,1/2,2,2,3) Hammer SN = 1368	3.00	
3.50	D11			
4.00	B12			
4.00	ES5			
		Water strike at 4.90m		
5.00	B13			
5.00 - 5.45	SPT (S)	N=6 (1,1/2,1,2,1) Hammer SN = 1368	5.00	
5.50	D14			
6.00	ES6			
7.00	B15			



Level mOD	Depth (m)	Description
		MADE GROUND: Firm grey sandy SILT with low cobble content. Sand is fie to coarse.
8.00	0.40	MADE GROUND: Dark grey silty subangular fine to coarse GRAVEL with DOMESTIC WASTE- of plastic, timber, concrete, metal, rubber, paper. Sand is fine to coarse. *0.40m to 2.90m: Organic odour*
5.50	2.90	MADE GROUND: Loose grey sandy silty subrounded fine to coarse GRAVEL. Sand is fine to coarse.
4.70	3.70	MADE GROUND: Firm grey sandy gravelly SILT with domestic waste, paper, rubber, plastic, concrete, metal, ceramics, glass and timber. Sand is fine to coarse. Gravel is subrounded fine.
3.40	5.00	Loose grey sandy subrounded fine to medium GRAVEL. Sand is fine to coarse.



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
4.90	4.90	0	4.00

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diameter

Water Added

From (m)	To (m)
4.90	10.50

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH623**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	12.00	247700.32 E 417422.98 N

Final Depth: 12.00 m	**Start Date:** 24/11/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 8.40 mOD	**End Date:** 25/11/2021	**Logger:** CH	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
					1.00	7.40	Loose grey sandy subrounded fine to medium GRAVEL. Sand is fine to coarse.
7.50	D16						Medium dense greyish brown fine to coarse SAND.
7.50 - 7.95	SPT (S)	N=13 (2,3/2,3,4,4) Hammer SN = 1368	7.50	3.60			
					-2.10	10.50	Greyish brown fine to coarse SAND.
					-3.60	12.00	End of Borehole at 12.00m

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
4.90	4.90	0	4.00

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter

Water Added

From (m)	To (m)
4.90	10.50

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

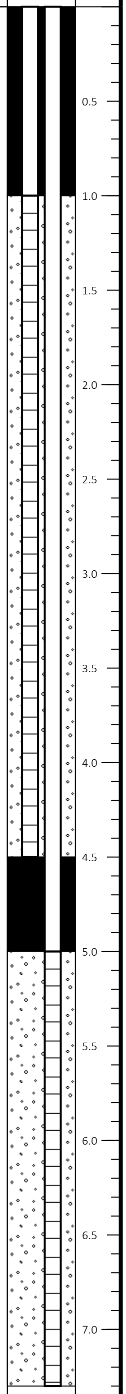
Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH624
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	12.00	247660.47 E 417243.13 N

Final Depth: 12.00 m	**Start Date:** 17/11/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 6.68 mOD	**End Date:** 18/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description	Water
0.00	B1				6.58	0.10	TOPSOIL	
							MADE GROUND: Soft brown sandy silty CLAY. Sand is fine.	
0.50	ES1							
1.00	ES2							
1.00 - 1.45	SPT (S)	N=8 (1,1/2,2,2,2) Hammer SN = 1368			5.58	1.10	MADE GROUND: Soft to firm brown silty CLAY.	
1.10	B2							
1.50	D3							
1.70	B4				4.98	1.70	MADE GROUND: Grey fine SAND.	▼
		Water strike at 1.80			4.88	1.80	MADE GROUND: Dark grey DOMESTIC WASTE with silt/clay matrix. Waste includes foam insulation, concrete, hard plastics and shredded plastic bags.	
1.90	B5							
1.90 - 2.35	SPT (S)	N=12 (5,3/2,2,1,7) Hammer SN = 1368						
2.00	ES3							
2.40	D6							
3.00	ES4							
4.00	ES5							
4.70	B7				1.98	4.70	Soft brown spongy fibrous sandy PEAT. Sand is fine to coarse.	
4.70 - 5.15	SPT (S)	N=2 (0,0/0,0,1,1) Hammer SN = 1368	4.70	2.40				
5.00	ES6							
5.20	D8							
					0.78	5.90	Soft brown sandy pseudo-fibrous PEAT. Sand is fine to medium.	
6.00	B9							
6.00	ES7							
6.80	D10				-0.12	6.80	Soft brown plastic pseudo-fibrous PEAT.	
6.80 - 7.25	SPT (S)	N=2 (0,0/0,0,1,1) Hammer SN = 1368	6.80	3.70				
7.30	D11							

Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.80	1.80		

Chiselling Details

From (m)	To (m)	Time (hh:mm)
2.40	3.80	01:00

Casing Details

To (m)	Diameter
3.80	200
12.00	200

Water Added

From (m)	To (m)
3.80	12.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH624**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				
Cable Percussion	Dando 2000	0.00	12.00	247660.47 E 417243.13 N	**Final Depth:** 12.00 m	**Start Date:** 17/11/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
					Elevation: 6.68 mOD	**End Date:** 18/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Soft brown plastic pseudo-fibrous PEAT.		
7.50 - 7.95	SPT (S)	N=2 (0,0/0,0,1,1) Hammer SN = 1368	7.50	1.60						
8.00	D12									
8.00	ES8									
9.50 - 9.95	SPT (S)	N=2 (0,0/1,0,0,1) Hammer SN = 1368	9.50	2.80						
10.00	D13									
11.30	B14				-4.62	11.30		Firm grey slightly sandy silty CLAY. Sand is fine.		
11.30 - 11.75	SPT (S)	N=8 (1,1/2,2,2,2) Hammer SN = 1368	11.3	3.40						
11.80	D15									
					-5.32	12.00		End of Borehole at 12.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.80	1.80		

Chiselling Details

From (m)	To (m)	Time (hh:mm)
2.40	3.80	01:00

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diameter
3.80	200
12.00	200

Water Added

From (m)	To (m)
3.80	12.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

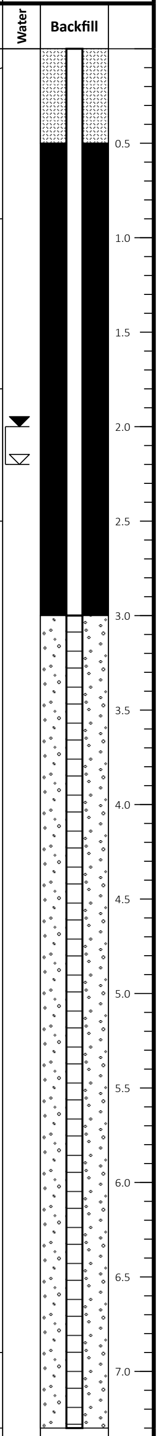
Project No.	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
22-0242	**Client:** DAERA/NIEA	**BH625**
	Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.50	247467.01 E 417259.84 N

Final Depth: 8.50 m	**Start Date:** 15/11/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 6.53 mOD	**End Date:** 16/11/2021	**Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.00	ES1			
0.50	B5			
0.50	ES2			
1.00	B6			
1.00	ES3			
1.00 - 1.45	SPT (S)	N=2 (0,0/1,0,0,1) Hammer SN = 1368		
1.50	D8			
2.00	B7			
2.00	ES4			
2.00 - 2.45	SPT (S)	N=1 (0,0/0,1,0,0) Hammer SN = 1368 Water Strike at 2.20m	2.00	
2.50	D9			
3.00	B10			
3.00 - 3.45	SPT (S)	N=7 (1,1/2,1,2,2) Hammer SN = 1368		
3.50	D11			
4.00	D12			
4.00 - 4.45	SPT (S)	N=7 (1,1/2,2,1,2) Hammer SN = 1368		
5.00 - 5.45	SPT (S)	N=10 (2,2/2,2,3,3) Hammer SN = 1368		
6.00	D13			
6.00 - 6.45	SPT (S)	N=12 (1,2/3,2,3,4) Hammer SN = 1368		
7.00	D14			
7.00 - 7.45	SPT (S)	N=13 (2,3/3,3,3,4) Hammer SN = 1368		

Level mOD	Depth (m)	Description
6.43	0.10	TOPSOIL
5.63	0.90	MADE GROUND: Soft to firm greyish brown sandy SILT with domestic waste of plastics.
4.73	1.80	MADE GROUND: Very soft grey sandy SILT with domestic waste. including shredded plastics.
4.03	2.50	MADE GROUND: Very soft slightly gravelly sandy SILT with domestic waste. Sand is fine to coarse. Gravel is subrounded fine to coarse.
-0.37	6.90	Loose becoming medium dense grey fine SAND.
		Medium dense greyish brown fine SAND.



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.20		20	2.00

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
2.30	150
8.00	200

Water Added

From (m)	To (m)
2.50	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
22-0242	**Client:** DAERA/NIEA	**BH625**
	Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.50	247467.01 E 417259.84 N

Final Depth: 8.50 m	**Start Date:** 15/11/2021	**Driller:** DE	Sheet 2 of 2	Scale: 1:40
Elevation: 6.53 mOD	**End Date:** 16/11/2021	**Logger:** LN	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	Medium dense greyish brown fine SAND.		
8.00 - 8.45	SPT (S)	N=14 (2,3/3,3,4,4) Hammer SN = 1368								
8.50	D15				-1.97	8.50		End of Borehole at 8.50m		

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.20		20	2.00

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
2.30	150
8.00	200

Water Added

From (m)	To (m)
2.50	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

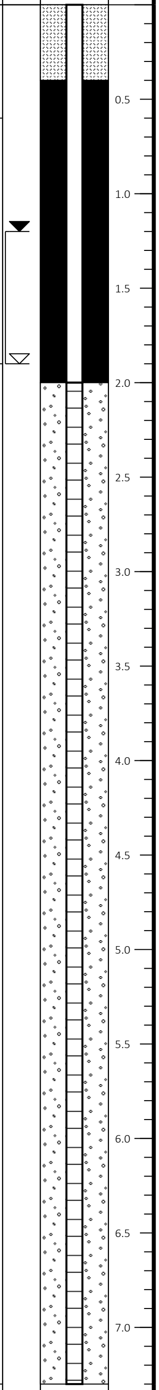
AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	**Client:** DAERA/NIEA	BH626
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	8.00	247491.42 E 417409.19 N

Final Depth: 8.00 m	**Start Date:** 26/11/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 5.44 mOD	**End Date:** 26/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
0.00	B1						MADE GROUND: Grey slightly gravelly sandy SILT/CLAY with roots. Sand is fine to medium. Gravel is subrounded to subangular fine to coarse of flint and brick.
0.50	ES6						
					4.84	0.60	Loose grey silty slightly gravelly fine to medium SAND. Gravel is subangular to subrounded fine of quartz.
1.00	B2						
1.00 - 1.45	SPT (S)	N=4 (0,1/1,1,1,1) Hammer SN = 1368					
1.50	D3						
		Water strike at 1.90m			3.54	1.90	Very loose brown silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine.
2.00	B4						
2.00	ES7						
2.00 - 2.45	SPT (S)	N=3 (0,1/0,1,1,0) Hammer SN = 1368	2.00	1.50			
2.50	D5						



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.90	1.90	20	1.20

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
2.00	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

CAUSEWAY GEOTECH

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
22-0242	**Client:** DAERA/NIEA	**BH626**
	Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247491.42 E 417409.19 N

Final Depth: 8.00 m	**Start Date:** 26/11/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 5.44 mOD	**End Date:** 26/11/2021	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
					-2.56	8.00		Very loose brown silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine.		
								End of Borehole at 8.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.90	1.90	20	1.20

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diameter
2.00	200

Water Added

From (m)	To (m)

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2		**Borehole ID**
22-0242	**Client:** DAERA/NIEA		**BH627**
	Client's Rep: Tetra Tech		

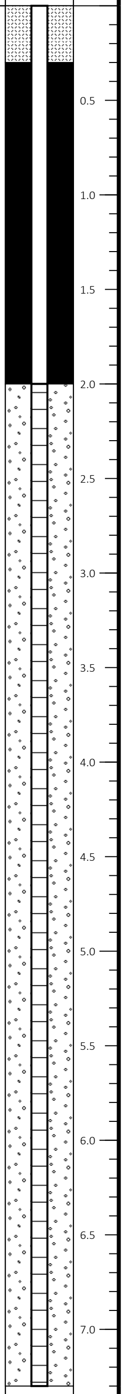
Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247415.15 E 417451.67 N

Final Depth: 8.00 m	**Start Date:** 30/11/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 5.19 mOD	**End Date:** 30/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.50	ES1			
0.60	B3			
1.00	B4			
1.00	ES2			
1.00 - 1.45	SPT (S)	N=8 (1,2/2,2,2,2) Hammer SN = 1368		
1.60	B5	Water strike at 1.60		
1.80 - 2.25	SPT (S)	N=8 (1,2/2,2,2,2) Hammer SN = 1368		
2.00	ES6			
2.00 - 2.45	SPT (C)	N=10 (1,2/2,3,2,3) Hammer SN = 1368		

Level mOD	Depth (m)	Legend	Description	Water
		╳	Brown very sandy SILT with roots and rootlets, and occasional seams of orangish brown fine to medium sand.	
4.29	0.90	╳	Firm grey very sandy slightly clayey SILT. Sand is fine to medium.	
3.59	1.60	⁘	Medium dense brown very silty very gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of predominantly limestone.	▼

Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.60	1.60		

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Client:** DAERA/NIEA	**Client's Rep:** Tetra Tech
Borehole ID BH627	Sheet 2 of 2	Scale: 1:40	FINAL

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	8.00	247415.15 E 417451.67 N

Final Depth:	8.00 m	**Start Date:**	30/11/2021	**Driller:**	DE
Elevation:	5.19 mOD	**End Date:**	30/11/2021	**Logger:**	SF

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					-2.81	8.00		Medium dense brown very silty very gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of predominantly limestone.		
								End of Borehole at 8.00m		

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.60	1.60		

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

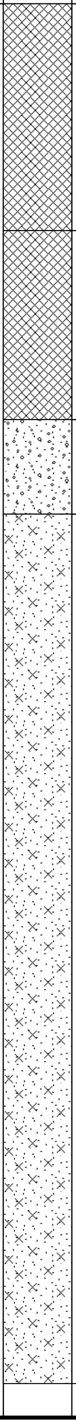
CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH628**

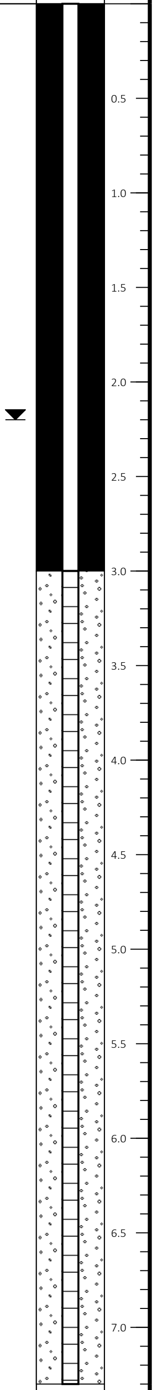
Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247482.77 E 417476.19 N

Final Depth: 8.00 m	**Start Date:** 01/12/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 6.46 mOD	**End Date:** 01/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
0.00	B1						MADE GROUND: Brown sandy silty subangular to subrounded fine to coarse GRAVEL with fragments of flint and brick. Sand is fine to coarse.
0.50	ES7						
1.00	B2						
1.00	ES8						
1.00 - 1.45	SPT (S)	N=10 (1,2/2,3,2,3) Hammer SN = 1368			5.26	1.20	MADE GROUND: Firm greyish black sandy gravelly SILT with pockets of black stained sandy clay with occasional rootlets and fragments of brick. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse. *1.20m to 2.20m: Strong tar/hydrocarbon odour*
1.50	D3						
2.00	ES9						
2.20	B4	Water Strike at 2.2m			4.26	2.20	Grey silty fine to coarse SAND and subrounded to rounded fine to coarse GRAVEL of predominantly limestone. *2.20m to 2.70m: Weak hydrocarbon odour / oily luster on water*
2.50	ES10						
2.50 - 2.95	SPT (C)	N=8 (1,1/1,2,2,3) Hammer SN = 1368			3.76	2.70	Loose grey fine to medium silty SAND. *2.70m to 8.00m: Mild hydrocarbon odour*
2.70	B5						
3.00	D6						
3.00	ES11						
3.00 - 3.45	SPT (S)	N=8 (1,1/2,2,2,2) Hammer SN = 1368					

Legend | Water | Backfill





Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.20			

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
2.20	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech

Borehole ID
BH628

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247482.77 E 417476.19 N

Final Depth: 8.00 m	**Start Date:** 01/12/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 6.46 mOD	**End Date:** 01/12/2021	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
					-1.54	8.00		Loose grey fine to medium silty SAND.		
								End of Borehole at 8.00m		

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.20			

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
2.20	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH629**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247521.86 E 417475.06 N

Final Depth: 8.00 m	**Start Date:** 06/12/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 6.01 mOD	**End Date:** 06/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.10	ES1			
0.80	ES2			
1.30	ES3			
2.00	B7			
2.00	ES4			
2.70	B8			
3.00	ES5			
3.80	B9			
4.00	ES6			

Level mOD	Depth (m)	Legend	Description	Water	Backfill
5.81	0.20	▨	MADE GROUND: Light brown slightly gravelly very sandy silty CLAY with roots and rootlets, fragments of glass brick and ceramics. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of flint, pelite and brick.		
5.11	0.90	▨	MADE GROUND: Brown very sandy silty angular to subrounded fine to coarse GRAVEL with fragments of brick, concrete, glass, ceramic and coal. Sand is fine to medium.		
4.51	1.50	▨	MADE GROUND: Brown gravely silty fine to medium SAND with fragments of coal. Gravel is subangular to subrounded of flint and pelite. *0.9m to 1.5m: Very strong hydrocarbon odour*		
3.41	2.60	▨	MADE GROUND: Grey sandy very gravelly SILT with low cobble content and rootlets. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of concrete and slate. *1.5m to 2.6m: Very strong hydrocarbon odour*		
		⁙	Light brown fine to medium SAND. *2.6m to 3.7m: Strong odours, sheen on water* *3.7m: no oil/hydrocarbon odours or sheen present*		

Water Strikes				**Chiselling Details**		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated at scheduled depth	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH629**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247521.86 E 417475.06 N

Final Depth: 8.00 m	**Start Date:** 06/12/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 6.01 mOD	**End Date:** 06/12/2021	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
								Light brown fine to medium SAND.		
					-1.99	8.00		End of Borehole at 8.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH630**

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	8.00	247502.20 E 417489.50 N

Final Depth: 8.00 m	**Start Date:** 02/12/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 5.38 mOD	**End Date:** 03/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
0.00 - 1.00	B5						Brown slightly gravelly silty fine to medium SAND. Gravel is subangular to subrounded fine to coarse.
0.50	ES1						
1.00	ES2						
1.00 - 1.45	SPT (S)	N=6 (0,1/1,2,1,2) Hammer SN = 1368					
1.50	D6						
					3.48	1.90	Brown fine to medium SAND.
2.00	ES3						
2.00 - 2.50	B7						
2.00 - 2.45	SPT (S)	N=4 (0,0/1,1,1,1) Hammer SN = 1368					
2.50	D8						
					-0.42	5.80	Brown silty fine to medium SAND.
5.80	B9						
5.90	ES4						

Water Strikes				Chiselling Details		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Casing Details		Water Added	
To (m)	Diameter	From (m)	To (m)
8.00	200	1.90	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	Last Updated
Terminated at scheduled depth	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH630**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247502.20 E 417489.50 N

Final Depth: 8.00 m	**Start Date:** 02/12/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 5.38 mOD	**End Date:** 03/12/2021	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
7.50	B10						▨	Brown silty fine to medium SAND.		▨
					-2.62	8.00		End of Borehole at 8.00m		

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
1.90	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

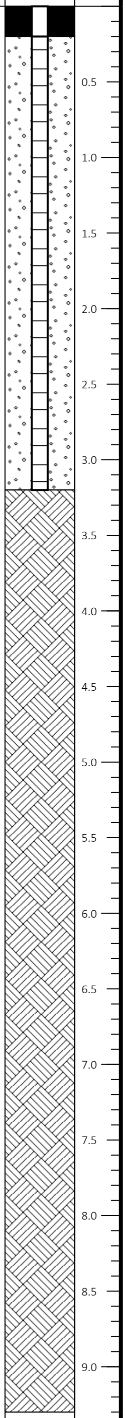
Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH631
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	10.00	247551.01 E
Rotary Drilling	Beretta T44	10.00	19.00	417543.15 N

Final Depth:	19.00 m	**Start Date:**	06/12/2021	**Driller:**	DE+PJ	Sheet 1 of 3 Scale: 1:50
Elevation:	6.57 mOD	**End Date:**	03/02/2022	**Logger:**	SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
0.00 - 1.00	B1						MADE GROUND: Grey slightly sandy angular to subangular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular.
0.50	ES1						
1.00	ES2						
1.30	B2				5.27	1.30	Soft brown sandy SILT. Sand is fine.
1.50	D4						
2.00	B3						
2.00	ES3						
2.60	B5				3.97	2.60	Soft brownish grey SILT.
3.00	B10				3.57	3.00	Soft light grey SILT.
3.00	ES4						
3.00 - 3.45	SPT (S)	N=2 (0,0/1,0,0,1) Hammer SN = 1368					
3.50	D11						
5.70	B12				0.87	5.70	Medium dense sandy subrounded fine to medium GRAVEL. Sand is fine to coarse.
6.70 - 7.15	SPT (C)	N=19 (2,3/3,4,5,7) Hammer SN = 1368					

Water **Backfill**



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diam (mm)
10.00	200
19.00	200

Water Added

From (m)	To (m)
3.00	10.00

Core Barrel

Flush Type

Remarks

Hand dug inspection pit excavated to 1.20m location of rotary borehole was moved approx 12m from cable percussion hole due to proximity of over head electricity cables it should be noted dual install was attempted at location with deep installation to10.0m and shallow to 5.0m but due to extreme blowing sands installation pipe was pulled up with casing when it was removed resulting in one shallow install

Termination Reason

Terminated on engineers instruction.

Last Updated

28/06/2022

CAUSEWAY GEOTECH

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH631
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	10.00	247551.01 E
Rotary Drilling	Beretta T44	10.00	19.00	417543.15 N

Final Depth: 19.00 m	**Start Date:** 06/12/2021	**Driller:** DE+PJ	Sheet 2 of 3
			Scale: 1:50
Elevation: 6.57 mOD	**End Date:** 03/02/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Medium dense sandy subrounded fine to medium GRAVEL. Sand is fine to coarse.		
					-3.43	10.00		Brown very silty fine SAND.		

9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5
15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diam (mm)
10.00	200
19.00	200

Water Added

From (m)	To (m)
3.00	10.00

Core Barrel

Flush Type

Remarks

Hand dug inspection pit excavated to 1.20m location of rotary borehole was moved approx 12m from cable percussion hole due to proximity of over head electricity cables it should be noted dual install was attempted at location with deep installation to10.0m and shallow to 5.0m but due to extreme blowing sands installation pipe was pulled up with casing when it was removed resulting in one shallow install

Termination Reason

Terminated on engineers instruction.

Last Updated

28/06/2022

AGS

Project No.	**Project Name:**	Mobuoy Remediation Project Phase 2	**Borehole ID**
22-0242	**Client:**	DAERA/NIEA	**BH631**
	Client's Rep:	Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	10.00	247551.01 E
Rotary Drilling	Beretta T44	10.00	19.00	417543.15 N

Final Depth: 19.00 m	**Start Date:**	06/12/2021	**Driller:**	DE+PJ	Sheet 3 of 3	Scale: 1:50
Elevation: 6.57 mOD	**End Date:**	03/02/2022	**Logger:**	SF	FINAL	

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
							▨	Brown very silty fine SAND.		▨
					-12.43	19.00		End of Borehole at 19.00m		

19.0
19.5
20.0
20.5
21.0
21.5
22.0
22.5
23.0
23.5
24.0
24.5
25.0
25.5
26.0
26.5
27.0
27.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details

To (m)	Diam (mm)
10.00	200
19.00	200

Water Added

From (m)	To (m)
3.00	10.00

Remarks

Hand dug inspection pit excavated to 1.20m location of rotary borehole was moved approx 12m from cable percussion hole due to proximity of over head electricity cables it should be noted dual install was attempted at location with deep installation to10.0m and shallow to 5.0m but due to extreme blowing sands installation pipe was pulled up with casing when it was removed resulting in one shallow install

Core Barrel	**Flush Type**	**Termination Reason**	**Last Updated**
		Terminated on engineers instruction.	28/06/2022

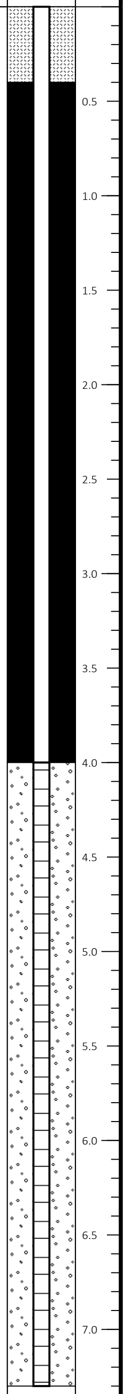
	Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH632**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	14.00	247643.47 E 417383.92 N

Final Depth: 14.00 m	**Start Date:** 22/11/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 7.50 mOD	**End Date:** 23/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
0.00	B1						Very soft brown sandy CLAY. Sand is fine to coarse.
0.50	ES1						
1.00	B2						
1.00	ES2						
1.00 - 1.45	SPT (S)	N=3 (0,0/1,0,1,1) Hammer SN = 1368					
1.50	D3				6.00	1.50	Soft grey sandy SILT. Sand is fine to coarse.
2.00	B4				5.50	2.00	Very soft grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded fine to coarse.
2.00	ES3						
2.00 - 2.45	SPT (S)	N=2 (1,1/0,0,1,1) Hammer SN = 1368	2.00	1.20			
2.50	D5						
3.00	D6						
3.00	ES4						
3.00	ES9						
3.70	B7				3.80	3.70	Very soft black SILT with roots.
3.70 - 4.15	SPT (S)	N=1 (0,0/0,0,0,1) Hammer SN = 1368	3.70	1.50			
4.00	ES10				3.40	4.10	Very soft brown PEAT.
4.00	ES5						
4.10	D8						
4.90	B11						
5.00 - 5.45	SPT (S)	N=1 (0,0/0,0,0,1) Hammer SN = 1368	5.00	2.70			
5.50	D12						
6.00	B13						
6.30	D14						
6.50 - 6.95	SPT (S)	N=2 (0,0/1,0,0,1) Hammer SN = 1368	6.50	3.80			
7.00	D15						
7.00 - 7.45	SPT (S)	N=2 (0,0/1,0,0,1) Hammer SN = 1368	7.00	5.60			

Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
14.00	200

Water Added

From (m)	To (m)
2.00	4.10
7.00	14.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH632
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	14.00	247643.47 E 417383.92 N

Final Depth:	14.00 m	**Start Date:** 22/11/2021	**Driller:** DE	Sheet 2 of 2	Scale: 1:40
Elevation:	7.50 mOD	**End Date:** 23/11/2021	**Logger:** SF	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
							Very soft brown PEAT.
8.00	D16						
8.00 - 8.45	SPT (S)	N=2 (0,0/0,1,0,1) Hammer SN = 1368	8.00	1.30			
9.00	D17						
9.00 - 9.45	SPT (S)	N=1 (0,0/0,0,0,1) Hammer SN = 1368	9.00	3.20			
10.00 - 10.45	SPT (S)	N=3 (0,0/1,1,0,1) Hammer SN = 1368	10.0	1.90			
11.00	D18						
11.00 - 11.45	SPT (S)	N=4 (0,0/1,1,1,1) Hammer SN = 1368	11.0	2.70			
12.00	D19						
12.00 - 12.45	SPT (S)	N=4 (0,1/1,1,1,1) Hammer SN = 1368	12.0	3.60			
13.50	D20						
13.50 - 13.95	SPT (S)	N=4 (0,0/1,1,1,1) Hammer SN = 1368	13.5	1.60			
					-6.50	14.00	End of Borehole at 14.00m

Water | Backfill

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
14.00	200

Water Added

From (m)	To (m)
2.00	4.10
7.00	14.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** BH633

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	11.00	247729.50 E 417875.18 N

Final Depth: 11.00 m	**Start Date:** 14/12/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 8.18 mOD	**End Date:** 15/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.00	B6			
0.50	ES1			
1.00	B7			
1.00	ES2			
1.00 - 1.45	SPT (S)	N=16 (1,2/3,3,4,6) Hammer SN = 1368		
1.50	D8			
1.70	B9			
1.80	B10			
1.90	ES3			
2.00	B11			
2.00 - 2.45	SPT (S)	N=10 (7,4/3,2,2,3) Hammer SN = 1368	2.00	
2.50	D12			
2.50	ES4			
3.00	B13			
3.00 - 3.45	SPT (S)	N=6 (1,2/1,2,1,2) Hammer SN = 1368	3.00	
3.50	D14			
4.00	B15			
4.00 - 4.45	SPT (S)	N=7 (1,1/2,1,2,2) Hammer SN = 1368	4.00	
4.50	D16			
5.00	B17			
5.00 - 5.45	SPT (S)	N=6 (1,1/1,2,1,2) Hammer SN = 1368 Water strike at 5.00m	5.00	1.20
5.50	D18			
6.00	B19			
6.00	ES5			
6.00 - 6.45	SPT (S)	N=5 (0,0/1,1,2,1) Hammer SN = 1368	6.00	2.40
6.50	D20			
7.00	B21			
7.00 - 7.45	SPT (S)	N=7 (0,1/1,2,2,2) Hammer SN = 1368	7.00	1.30

Level mOD	Depth (m)	Description
		MADE GROUND: Grey slightly sandy angular to subangular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular.
7.28	0.90	MADE GROUND: Stiff grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
6.38	1.80	MADE GROUND: Soft brownish grey sandy CLAY with low cobble content and fragments of red brick. Sand is fine to coarse.
6.18	2.00	Loose light brown silty gravelly fine to coarse SAND. ravel is subangular to subrounded fine to medium.
2.28	5.90	Loose brown silty gravelly fine to coarse SAND with occasional seams of silt. Gravel is subangular to subrounded fine to medium.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
5.00	5.00		

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
11.00	200

Water Added

From (m)	To (m)
5.00	11.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
22-0242	**Client:** DAERA/NIEA	**BH633**
	Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	11.00	247729.50 E 417875.18 N

Final Depth: 11.00 m	**Start Date:** 14/12/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 8.18 mOD	**End Date:** 15/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
7.50	D22						Loose brown silty gravelly fine to coarse SAND with occasional seams of silt. Gravel is subangular to subrounded fine to medium.
8.00	B23						
8.00 - 8.45	SPT (S)	N=6 (0,0/1,1,2,2) Hammer SN = 1368	8.00	2.70			
8.50	D24						
9.00	B25						
9.00 - 9.45	SPT (S)	N=5 (0,1/0,1,2,2) Hammer SN = 1368	9.00	3.40			
10.00 - 10.45	SPT (S)	N=8 (0,1/2,2,2,2) Hammer SN = 1368	10.0	1.50			
11.00 - 11.45	SPT (S)	N=9 (0,1/2,2,2,3) Hammer SN = 1368	11.0	2.60	-2.82	11.00	End of Borehole at 11.00m

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
5.00	5.00		

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
11.00	200

Water Added

From (m)	To (m)
5.00	11.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH633A**

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	6.00	E N

Final Depth: 6.00 m	**Start Date:** 24/02/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:40
Elevation: mOD	**End Date:** 24/02/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Grey silty sandy subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse.		
						1.00		Soft to firm sandy silty subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse.		
						1.80		Brown gravelly fine to coarse SAND with fragments of red brick. Gravel is subangular to subrounded fine to coarse.		
						2.10		Loose brown fine to coarse SAND.		
		Seepage at 5.00m								
6.00	ES1					6.00		End of Borehole at 6.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
5.00	5.00	20	4.20

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
6.00	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Last Updated
28/06/2022

AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH634
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2500	0.00	8.30	247648.84 E 417978.92 N

Final Depth: 8.30 m	**Start Date:** 16/12/2021	**Driller:** RW	Sheet 1 of 2	Scale: 1:40
Elevation: 8.12 mOD	**End Date:** 16/12/2021	**Logger:** SF	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY with fragments of concrete. Sand is fine to coarse. Gravel is subanuglar to subrounded fine to coarse.		
0.50 0.50 - 2.90	ES1 B7				7.62	0.50		MADE GROUND: Black slightly sandy slightly gravelly CLAY with high volume of shredded waste of plastics, timber, glass, textiles. *0.50m to 2.90m: Strong hydrocarbon/putrid odour*		
1.00	ES2									
2.00	ES3	Damp at 2.0m							▼	
2.90 - 5.70 3.00 3.00 - 3.45	B8 ES4 SPT (C)	N=11 (2,2/3,2,3,3) Hammer SN = 1368	3.00		5.22	2.90		Greyish brown sandy SILT with lenses of black organics. Sand is fine to coarse.		
4.00	ES5									
5.00	ES6									
5.70 - 7.60	B9				2.42	5.70		Greyish brown sandy silty CLAY with decaying plant material. Sand is fine to coarse.		
6.00 - 6.45	SPT (C)	N=16 (2,3/3,4,5,4) Hammer SN = 1368	6.00	5.50						

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00		

Chiselling Details

From (m)	To (m)	Time (hh:mm)
8.30	8.30	01:00

Casing Details

To (m)	Diameter
8.30	200

Water Added

From (m)	To (m)
6.00	8.30

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated on refusal

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH634**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2500	0.00	8.30	247648.84 E 417978.92 N

Final Depth:	8.30 m	**Start Date:**	16/12/2021	**Driller:**	RW	Sheet 2 of 2 Scale: 1:40
Elevation:	8.12 mOD	**End Date:**	16/12/2021	**Logger:**	SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Greyish brown sandy silty CLAY with decaying plant material. Sand is fine to coarse.		
7.60 - 8.30	B10				0.52	7.60		Dark grey and brown sandy subrounded to rounded fine to coarse GRAVEL with high cobble content. Sand is fine to coarse. Cobbles are rounded.		
					-0.18	8.30		End of Borehole at 8.30m		

Water Strikes				**Chiselling Details**		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)
2.00	2.00			8.30	8.30	01:00

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
8.30	200	6.00	8.30

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated on refusal	28/06/2022

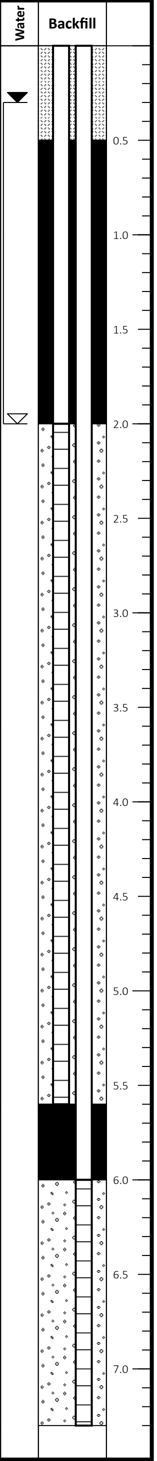
AGS

CAUSEWAY GEOTECH	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
	22-0242	Client: DAERA/NIEA	BH635
		Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2500	0.00	8.30	247724.50 E 418119.25 N

Final Depth: 8.30 m	**Start Date:** 13/12/2021	**Driller:** RW	Sheet 1 of 2 Scale: 1:40
Elevation: 6.46 mOD	**End Date:** 14/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description
0.00 - 1.00	B1						▨	MADE GROUND: Soft to firm brown and bluish grey slightly sandy slightly gravelly silty CLAY with roots. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
0.50	ES9							
1.00	ES10				5.46	1.00	▨	MADE GROUND: Black DOMESTIC WASTE of plastics, electrical wire, rope, textiles, glass, tin buckets *1.00m to 3.60m: putrid and hydrocarbon odour*
1.00 - 3.60	B2							
2.00	D5							
2.00	ES11							
2.00 - 2.45	SPT (C)	N=10 (2,2/2,3,2,3) Hammer SN = 0894 Slow seepage at 2.00m	2.00	1.90				
3.00	ES12							
3.60 - 5.60	B3				2.86	3.60	▨	MADE GROUND: Black angular fine to coarse GRAVEL with medium cobble content, plastic, glass and textiles.
4.00	ES13							
5.00	ES14							
5.60 - 6.00	B4				0.86	5.60	⁘	Medium dene greyish brown clayey sandy angular to subangular fine to coarse GRAVEL with medium cobble content. Sand is fine to coarse.
6.00	D6							
6.00	ES8							
6.00 - 8.30	B7							
6.00 - 6.45	SPT (C)	N=25 (2,3/5,4,7,9) Hammer SN = 0894	6.00	3.10				



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00	20	0.30

Chiselling Details

From (m)	To (m)	Time (hh:mm)
4.00	4.50	01:00

Casing Details

To (m)	Diameter
8.30	200

Water Added

From (m)	To (m)
2.00	6.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	Last Updated
Terminated on refusal	28/06/2022

AGS

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH635**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2500	0.00	8.30	247724.50 E 418119.25 N

Final Depth: 8.30 m	**Start Date:** 13/12/2021	**Driller:** RW	Sheet 2 of 2 Scale: 1:40
Elevation: 6.46 mOD	**End Date:** 14/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					-1.84	8.30		Medium dene greyish brown clayey sandy angular to subangular fine to coarse GRAVEL with medium cobble content. Sand is fine to coarse.		
								End of Borehole at 8.30m		

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00	20	0.30

Chiselling Details		
From (m)	To (m)	Time (hh:mm)
4.00	4.50	01:00

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
8.30	200	2.00	6.00

Termination Reason

Terminated on refusal

Last Updated

28/06/2022

AGS

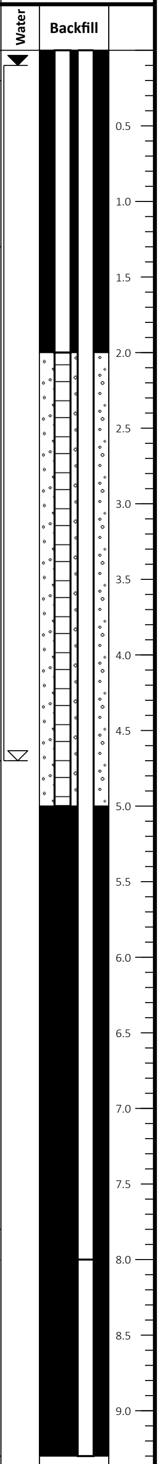
CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** BH636

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2500	0.00	8.00	247673.11 E
Rotary Drilling	Beretta T44	8.00	12.50	418048.44 N
Rortary Coring	Beretta T44	12.50	14.20	

Final Depth:	14.20 m	**Start Date:**	15/12/2021	**Driller:**	MJ+PJ +RW
Elevation:	7.09 mOD	**End Date:**	06/02/2022	**Logger:**	NP+SF

Sheet 1 of 2
Scale: 1:50
FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
							MADE GROUND: Soft light brown sandy CLAY. Sand is fine to coarse.
0.20 - 1.30	B1				6.89	0.20	MADE GROUND: Brown Fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL.
0.50	ES5						
1.00	ES6						
1.30 - 2.80	B2				5.79	1.30	MADE GROUND: Brown sandy gravelly CLAY with fragments of red brick, glass and plastic. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
2.00	ES7						
2.80 - 4.70	B3						
3.00	ES8						
4.00	ES9						
4.70 - 6.00	B4	Slow seepage at 4.70m			2.39	4.70	Medium dense brown Fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL.
5.00	ES10						
6.00	ES11						
6.00 - 6.45	SPT (C)	N=13 (4,6/4,3,3,3) Hammer SN = 0894	6.00	2.80			
					-0.71	7.80	Grey fine SAND. (Driller's Description)
					-0.91	8.00	SAND and GRAVEL. (Driller's Description)



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
4.70	4.70	10	0.10

Chiselling Details

From (m)	To (m)	Time (hh:mm)
1.30	2.50	

Remarks

Hand dug inspection pit excavated to 1.20m Deeper installation pipe pulled up through casing by 1m due to casing being blocked

Casing Details

To (m)	Diam (mm)
8.00	200
12.50	200

Water Added

From (m)	To (m)

Core Barrel	Flush Type	Termination Reason	Last Updated
SK6L	Water	Terminated on engineers instruction	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH636**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2500	0.00	8.00	247673.11 E
Rotary Drilling	Beretta T44	8.00	12.50	418048.44 N
Rortary Coring	Beretta T44	12.50	14.20	

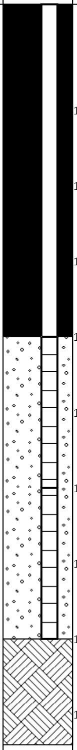
Final Depth:	14.20 m	**Start Date:**	15/12/2021	**Driller:**	MJ+PJ +RW	Sheet 2 of 2 Scale: 1:50
Elevation:	7.09 mOD	**End Date:**	06/02/2022	**Logger:**	NP+SF	FINAL

Depth (m)	Sample / Tests	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
										SAND and GRAVEL. (Driller's Description)
								-4.41	11.50	Weathered PSAMMITE/PELITE.
		56	0	0	NI			-5.41	12.50 (0.20)	Weathered bedrock: Recovered as grey clayey angular fine to coarse GRAVEL of graphitic pelite.
					NI			-5.61	12.70 (0.70)	Weak narrowly foliated grey PELITE. Partially weathered: slightly reduced strength, closer fracture spacing, orangish brown discolouration and grey clay deposits on some fracture surfaces. Discontinuities: 1. 35-45 degree foliation fractures, very closely spaced (1/20/25), probably planar, smooth, orangish brown staining and grey clay deposits on fracture surfaces.
13.30		100	8	0	>20 NI >20			-6.31	13.40 (0.80)	Medium strong (locally weak) narrowly foliated grey PELITE. Partially weathered: slightly reduced strength, closer fracture spacing, orangish brown staining and grey clay deposits on fracture surfaces. Discontinuities: 1. 0-5 degree joints, closely spaced (10/160/310), undulating, smooth, patchy orangish brown staining on joint surfaces. 2. 30-45 degree foliation fractures, closely spaced (10/65/330), planar, smooth, patchy orangish brown staining and grey clay deposits on fracture surfaces. 3. 70-80 degree joints, at 13.45-13.70m, planar, smooth, grey clay deposits on joint surface. 4. 70-80 degree joints, at 13.65-13.80m and 13.90-14.00m, stepped, smooth to rough, patchy orangish brown staining and grey clay deposits on joint surface.
14.20								-7.11	14.20	End of Borehole at 14.20m

Legend

Water

Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
4.70	4.70	10	0.10

Remarks

Hand dug inspection pit excavated to 1.20m Deeper installation pipe pulled up through casing by 1m due to casing being blocked

Casing Details		**Water Added**	
To (m)	Diam (mm)	From (m)	To (m)
8.00	200		
12.50	200		

Core Barrel	**Flush Type**	**Termination Reason**	**Last Updated**
SK6L	Water	Terminated on engineers instruction	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH636A**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				
Cable Percussion	Dando 3000	0.00	6.00	E N	**Final Depth:** 6.00 m	**Start Date:** 24/02/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:40
					Elevation: mOD	**End Date:** 24/02/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
						0.20		Firm light brown sandy CLAY. Sand is fine to coarse.		
						1.50		MADE GROUND: Brown sandy subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse.		
4.00	ES1									
		Seepage at 4.70m				4.70		MADE GROUND: Brown fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL with fragments of red brick, glass and plastic.	▼ ▽	
5.00	ES2									
6.00	ES3					6.00		Brown gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse.		
								End of Borehole at 6.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
4.70	4.70	20	4.50

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diameter
6.00	200

Water Added

From (m)	To (m)

Termination Reason

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH637**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2500	0.00	10.10	247648.70 E 418249.48 N

Final Depth:	10.10 m	**Start Date:**	14/12/2021	**Driller:**	RW	Sheet 1 of 2 Scale: 1:40
Elevation:	6.05 mOD	**End Date:**	15/12/2021	**Logger:**	SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.10 - 1.50	B1							MADE GROUND: Soft to firm light brown slightly sandy slightly gravelly SILT with roots. Sand is fine to coarse, Gravel is angular fine to coarse of pelite.		
0.50	ES6									
1.00	ES7									
1.50 - 3.00	B2	Slow seepage at 1.50m			4.55	1.50		MADE GROUND: Black sandy subangular to subrounded fine to coarse GRAVEL with high volume of waste including hard sand soft plastics, glass, metal, timber, textiles, ceramics, textiles and netting.		
2.00 2.00 - 2.45	ES8 SPT (C)	N=8 (4,3/2,1,2,3) Hammer SN = 1368	2.00	1.60						
3.00 3.00 - 5.10	ES9 B3									
4.00	ES10									
5.00 5.10 - 7.00	ES11 B4				0.95	5.10		Grey sandy subangular to subrounded fine to coarse GRAVEL with bands of clay.		
6.00 6.00 - 6.45	ES12 SPT (C)	N=21 (2,3/6,4,5,6) Hammer SN = 1368	6.00	4.60						
7.00 - 10.10	B5				-0.95	7.00		Grey fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL with bands of clay.		

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.50	1.50	5	0.30

Chiselling Details

From (m)	To (m)	Time (hh:mm)
10.00	10.10	01:00

Casing Details

To (m)	Diameter
10.10	200

Water Added

From (m)	To (m)
2.00	6.00

Remarks

Hand dug inspection pit excavated to 1.20m

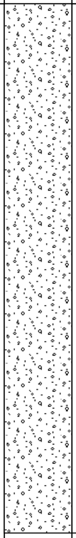
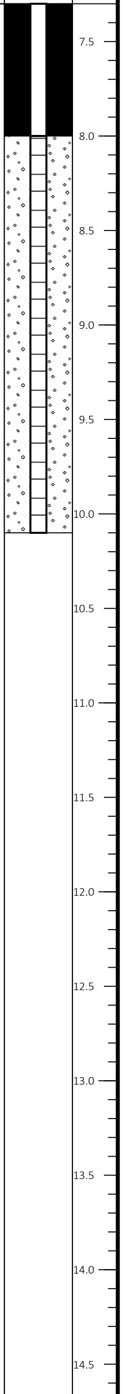
Termination Reason	**Last Updated**
Terminated on refusal	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH637**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2500	0.00	10.10	247648.70 E 418249.48 N

Final Depth:	10.10 m	**Start Date:**	14/12/2021	**Driller:**	RW	Sheet 2 of 2 Scale: 1:40
Elevation:	6.05 mOD	**End Date:**	15/12/2021	**Logger:**	SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
								Grey fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL with bands of clay.		
					-4.05	10.10		End of Borehole at 10.10m		

Water Strikes				**Chiselling Details**		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)
1.50	1.50	5	0.30	10.00	10.10	01:00

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
10.10	200	2.00	6.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated on refusal	28/06/2022

AGS

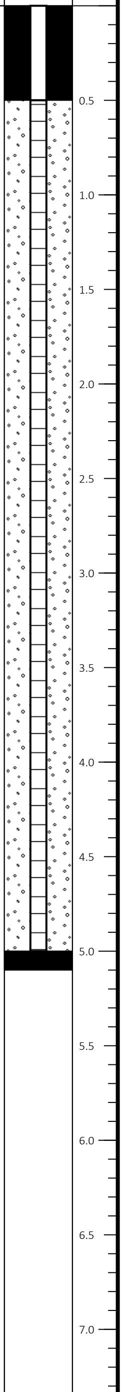
CAUSEWAY GEOTECH

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH638
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2500	0.00	5.10	247758.24 E 418332.52 N

Final Depth: 5.10 m	**Start Date:** 10/12/2021	**Driller:** RW	Sheet 1 of 1 Scale: 1:40
Elevation: 4.43 mOD	**End Date:** 13/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
0.00 - 1.20	B1						Greyish brown slightly sandy clayey angular to subangular fine to coarse GRAVEL. Sand is fine to coarse.
0.50	ES7						
1.00	ES8						
1.20	D4						
1.20 - 2.30	B2						
2.00	ES9						
2.30 - 4.40	B3						
3.00	D5						
3.00	ES10						
3.00 - 3.30	SPT (S)	N=48 (14,18/48 for 150mm) Hammer SN = 0894	3.00	1.60			
4.00	ES11						
4.40 - 5.00	B6				0.03	4.40	Light brown and grey clayey sandy subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse.
5.00 - 5.01	SPT (C)	N=50 (50 for 0mm/50 for 10mm) Hammer SN = 0894			-0.67	5.10	End of Borehole at 5.10m



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)
5.00	5.10	01:00

Casing Details

To (m)	Diameter
5.10	200

Water Added

From (m)	To (m)
1.20	5.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated on refusal

Last Updated

28/06/2022

AGS

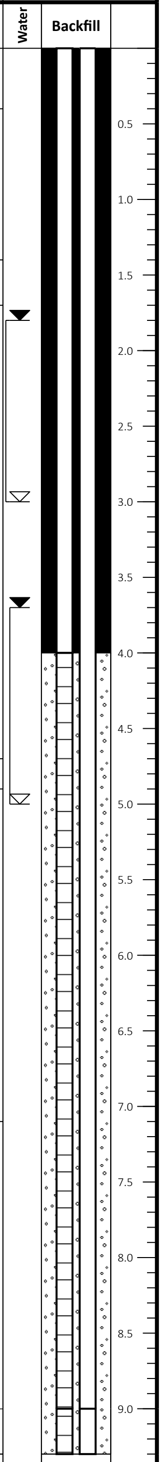
CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH644**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percssion	Dando 2000	0.00	9.00	247841.80 E
Rotary Drilling	Beretta T44	9.00	17.50	418181.44 N

Final Depth: 17.50 m	**Start Date:** 22/11/2021	**Driller:** MK+PJ	Sheet 1 of 2	Scale: 1:50
Elevation: 14.42 mOD	**End Date:** 01/02/2022	**Logger:** SF	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.30	ES1			
0.70	ES2			
2.00	ES3			
2.80 - 3.10	B10			
3.00	D12			
3.00	ES4	Fast seepage at 3.00m		
4.00	ES5			
5.00	ES6	Fast seepage at 5.00m		
6.00	ES7			
7.00	ES8			
7.80 - 8.10	B11			
8.00	D13			
8.00	ES9			

Level mOD	Depth (m)	Legend	Description
14.02	0.40	▩	MADE GROUND: Soft to firm brownish grey silty CLAY.
13.02	1.40	▩	MADE GROUND: Firm black CLAY with fragments of plastic, wood and metal.
12.72	1.70	▩	MADE GROUND: Firm greyish brown sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
9.72	4.70	▩	MADE GROUND: Firm black CLAY with plastic bags, toys and general waste.
9.52	4.90	▩	MADE GROUND: Firm grey silty sandy CLAY. Sand is fine to coarse.
7.32	7.10	▩	MADE GROUND: Firm grey slightly sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subrounded.
		▩	MADE GROUND: Firm grey slightly sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subrounded.
5.42	9.00	▩	MADE GROUND: Black WASTE including plastic bags, and timber.



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
3.00	3.00	20	1.80
5.00	5.00	20	3.70

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diam (mm)
9.00	200
17.50	200

Water Added

From (m)	To (m)

Core Barrel

Flush Type

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated due to unable to advance casing NB: Installation was decommissioned due to damage

Last Updated

28/06/2022

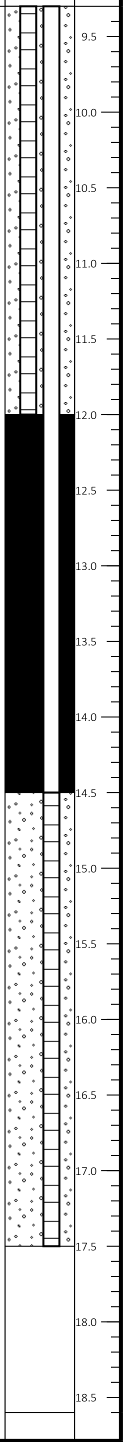
AGS

CAUSEWAY GEOTECH	Project No. 22-0242	Project Name: Mobuoy Remediation Project Phase 2 Client: DAERA/NIEA Client's Rep: Tetra Tech	Borehole ID BH644

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percssion	Dando 2000	0.00	9.00	247841.80 E
Rotary Drilling	Beretta T44	9.00	17.50	418181.44 N

Final Depth:	17.50 m	**Start Date:**	22/11/2021	**Driller:**	MK+PJ	Sheet 2 of 2 Scale: 1:50
Elevation:	14.42 mOD	**End Date:**	01/02/2022	**Logger:**	SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water
							▨	MADE GROUND: Black WASTE including plastic bags, and timber.	
					1.92	12.50	▒	Brown sandy CLAY with layers of subrounded fine to coarse gravel.	
					-3.08	17.50		End of Borehole at 17.50m	



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
3.00	3.00	20	1.80
5.00	5.00	20	3.70

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details		Water Added	
To (m)	Diam (mm)	From (m)	To (m)
9.00	200		
17.50	200		

Core Barrel	Flush Type	Termination Reason	Last Updated
		Terminated due to unable to advance casing NB: Installation was decommissioned due to damage	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH644A**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Rotary Drilling	Beretta T44	0.00	16.00	247831.47 E 418184.70 N

Final Depth: 16.00 m	**Start Date:** 07/02/2022	**Driller:** MJ	Sheet 1 of 3 Scale: 1:40
Elevation: 14.42 mOD	**End Date:** 09/02/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Black WASTE bands of dark brown sandy gravelly CLAY and GRAVEL.		■

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details		**Water Added**	
To (m)	Diam (mm)	From (m)	To (m)
16.00	200		

Core Barrel	**Flush Type**	**Termination Reason**	**Last Updated**
		Terminated due to major rig breakdown	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH644A**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Rotary Drilling	Beretta T44	0.00	16.00	247831.47 E 418184.70 N

Final Depth:	16.00 m	**Start Date:**	07/02/2022	**Driller:**	MJ	Sheet 2 of 3 Scale: 1:40
Elevation:	14.42 mOD	**End Date:**	09/02/2022	**Logger:**	SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
							▨	MADE GROUND: Black WASTE bands of dark brown sandy gravelly CLAY and GRAVEL.		■
					5.62	8.80	▤	Brown sandy gravelly CLAY with bands of sand and gravel.		■
					-0.08	14.50	░	Brown SAND and GRAVEL.		■

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details		**Water Added**	
To (m)	Diam (mm)	From (m)	To (m)
16.00	200		

Core Barrel	**Flush Type**	**Termination Reason**	**Last Updated**
		Terminated due to major rig breakdown	28/06/2022

AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH644A
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Rotary Drilling	Beretta T44	0.00	16.00	247831.47 E 418184.70 N

Final Depth: 16.00 m **Start Date:** 07/02/2022 **Driller:** MJ

Elevation: 14.42 mOD **End Date:** 09/02/2022 **Logger:** SF

Sheet 3 of 3

Scale: 1:40

FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	Brown SAND and GRAVEL.		■
					-1.58	16.00		End of Borehole at 16.00m		

15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
20.5
21.0
21.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details		Water Added	
To (m)	Diam (mm)	From (m)	To (m)
16.00	200		

Core Barrel	Flush Type	Termination Reason	Last Updated
		Terminated due to major rig breakdown	28/06/2022

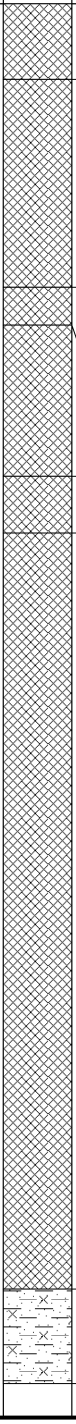
AGS

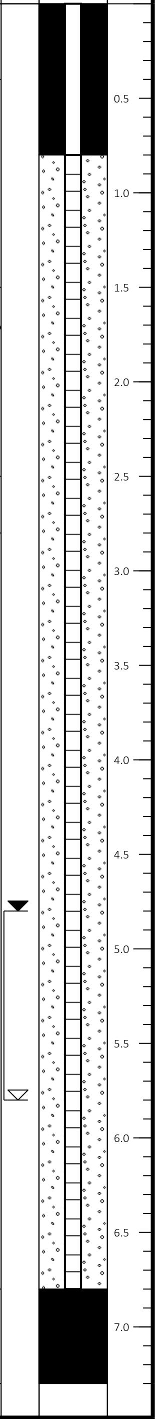
CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** BH645

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	9.80	247849.01 E 418227.12 N

Final Depth: 9.80 m	**Start Date:** 18/11/2021	**Driller:** MK	Sheet 1 of 2 Scale: 1:40
Elevation: 14.03 mOD	**End Date:** 22/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
							MADE GROUND: Firm brown silty sandy subangular to subrounded fine to coarse GRAVEL with fragments of red brick. Sand is fine to coarse.
0.30	ES1						
					13.63	0.40	MADE GROUND: Black CLAY with fragments of plastic and glass.
0.70	ES2						
1.50 - 1.70	B5				12.53	1.50	MADE GROUND: Firm brown slightly sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subrounded.
					12.33	1.70	MADE GROUND: Firm black CLAY with fragments of plastic and wood.
2.00	D6						
2.00	ES3						
2.00 - 2.45	SPT (S)	N=8 (2,3/2,2,2,2) Hammer SN = 1264	2.00	Dry			
					11.53	2.50	MADE GROUND: Firm brown sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
					11.23	2.80	MADE GROUND: Firm black CLAY with fragments of plastic and wood.
3.00	ES4						
		Fast seepage at 5.80m					
					7.23	6.80	Firm greyish brown silty sandy CLAY. Sand is fine to coarse.





Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
5.80	5.80	20	4.80

Chiselling Details

From (m)	To (m)	Time (hh:mm)
3.00	7.00	01:00

Casing Details

To (m)	Diameter
9.50	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated on refusal

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**	
22-0242	**Client:** DAERA/NIEA	**BH645**	
	Client's Rep: Tetra Tech		

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	9.80	247849.01 E 418227.12 N

Final Depth: 9.80 m	**Start Date:** 18/11/2021	**Driller:** MK	Sheet 2 of 2	Scale: 1:40
Elevation: 14.03 mOD	**End Date:** 22/11/2021	**Logger:** SF	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Firm greyish brown silty sandy CLAY. Sand is fine to coarse.		■
8.00 - 8.38	SPT (S)	N=50 (9,11/50 for 225mm) Hammer SN = 1264	8.00	7.00						
9.80 - 10.10	SPT (S)	N=33 (10,12/33 for 150mm) Hammer SN = 1264	9.80	8.10	4.23	9.80		End of Borehole at 9.80m		

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
5.80	5.80	20	4.80

Chiselling Details

From (m)	To (m)	Time (hh:mm)
3.00	7.00	01:00

Casing Details

To (m)	Diameter
9.50	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated on refusal	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH646**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	10.50	247875.13 E 418140.36 N

Final Depth: 10.50 m	**Start Date:** 16/11/2021	**Driller:** MK	Sheet 1 of 2 Scale: 1:40
Elevation: 14.97 mOD	**End Date:** 18/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.30	ES1			
0.70	ES2			
1.80 - 2.00	B3			
2.00	ES3			
2.00 - 2.45	SPT (S)	N=25 (10,5/6,10,5,4) Hammer SN = 1368		
2.60 - 3.00	B4			
3.00	D6			
3.00	ES4			
3.00 - 3.45	SPT (S)	N=11 (12,2/2,3,3,3) Hammer SN = 1368		
4.00	ES5			
5.00	ES6			
5.30	B5			
5.30	D7			
5.30 - 5.75	SPT (S)	N=16 (25,8/5,4,4,3) Hammer SN = 1368 Water strike at 5.70m		
6.00	ES7			
		Water strike at 6.70m		
7.00	ES8			

Level mOD	Depth (m)	Legend	Description
14.47	0.50	▨	MADE GROUND: Firm brown gravelly CLAY. Gravel is fine to coarse angular.
13.47	1.50	▨	MADE GROUND: Firm black CLAY with fragments of wood, plastic, glass and tyres.
12.37	2.60	▨	MADE GROUND: Stiff black CLAY with fragments of glass and plastic.
11.27	3.70	▨	MADE GROUND: Firm laminated CLAY.
10.57	4.40	▨	MADE GROUND: Firm black CLAY with plastic.
10.07	4.90	▨	MADE GROUND: Firm brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
9.27	5.70	▨	MADE GROUND: Firm brown gravelly CLAY. Gravel is fine to coarse angular.
8.27	6.70	▨	MADE GROUND: Firm black silty subangular fine to coarse GRAVEL with fragments of red brick.
7.77	7.20	▨	MADE GROUND: Firm brownish black sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
		⁘	Greyish brown clayey silty fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
5.70	5.80	20	4.90
6.70	6.70	20	6.00

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.50	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH646
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	10.50	247875.13 E 418140.36 N

Final Depth: 10.50 m **Start Date:** 16/11/2021 **Driller:** MK

Elevation: 14.97 mOD **End Date:** 18/11/2021 **Logger:** SF

Sheet 2 of 2

Scale: 1:40

FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Greyish brown clayey silty fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL.		
8.00	ES9									
8.80 - 9.10	B17									
9.00	D8									
9.00	ES10									
9.00 - 9.45	SPT (S)	N=50 (9,9/12,13,13,12) Hammer SN = 1368			5.77	9.20		Firm brown slightly sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subrounded.		
10.00	ES18									
10.50 - 10.65	SPT (S)	N=50 (25 for 75mm/50 for 75mm) Hammer SN = 1368	10.5	8.50	4.47	10.50		End of Borehole at 10.50m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
5.70	5.80	20	4.90
6.70	6.70	20	6.00

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.50	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH647**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2500	0.00	8.40	248086.53 E 418060.54 N

Final Depth: 8.40 m	**Start Date:** 04/01/2022	**Driller:** RW	Sheet 1 of 2 Scale: 1:40
Elevation: 23.60 mOD	**End Date:** 28/01/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Soft brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse.		■
0.50	ES1				23.10	0.50	▨	MADE GROUND: Black sandy gravelly CLAY with high volume of plastic waste including plastics, glass, metal, textiles, polystyrene, rubber, rope, red rick, carper, bedding and timber.		■
0.50 - 7.00	B10									
1.00	ES2									
2.00	ES3									
3.00	ES4									
4.00	ES5									
5.00	ES6									
5.00 - 5.45	SPT (C)	N=19 (2,3/5,4,5,5) Hammer SN = 0894	5.00	Dry						
6.00	ES7									
7.00	ES8				16.60	7.00	▨	MADE GROUND: Greyish brown slightly sandy gravelly CLAY with low cobble content, bands of gravel and fragments of plastic, metal and crockery. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of pelite.		■
7.00 - 8.10	B11									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)
8.00	8.40	01:00

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated on refusal, rebore with rotary rig

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** **BH647**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2500	0.00	8.40	248086.53 E 418060.54 N

Final Depth: 8.40 m	**Start Date:** 04/01/2022	**Driller:** RW	Sheet 2 of 2 Scale: 1:40
Elevation: 23.60 mOD	**End Date:** 28/01/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Greyish brown slightly sandy gravelly CLAY with low cobble content, bands of gravel and fragments of plastic, metal and crockery. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of pelite.		■
8.00	ES9									
8.10 - 8.40	B12									
8.40 - 8.51	SPT (C)	N=50 (20 for 75mm/50 for 35mm) Hammer SN = 0894	8.40	Dry	15.20	8.40		End of Borehole at 8.40m		

Water Strikes			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details		
From (m)	To (m)	Time (hh:mm)
8.00	8.40	01:00

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
8.00	200		

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated on refusal, rebore with rotary rig

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2		**Borehole ID**
22-0242	**Client:** DAERA/NIEA		**BH647A**
	Client's Rep: Tetra Tech		

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Rotary Drilling	Beretta T44	0.00	17.50	248083.52 E 418060.54 N

Final Depth: 17.50 m	**Start Date:** 28/01/2022	**Driller:** PJ	Sheet 1 of 3 Scale: 1:40
Elevation: 23.60 mOD	**End Date:** 28/01/2022	**Logger:**	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: WASTE-Black bag and brick. (Driller's description)		
					21.70	1.90	▨	MADE GROUND: Black sandy GRAVEL. (Driller's description)		
					20.40	3.20	▨	MADE GROUND: WASTE- Timber and black bags. (Driller's description)		

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details		**Water Added**	
To (m)	Diam (mm)	From (m)	To (m)
17.50	200		

Core Barrel	**Flush Type**	**Termination Reason**	**Last Updated**
		Terminated on engineers instruction	28/06/2022

AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH647A
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Rotary Drilling	Beretta T44	0.00	17.50	248083.52 E 418060.54 N

Final Depth: 17.50 m	**Start Date:** 28/01/2022	**Driller:** PJ	Sheet 2 of 3	Scale: 1:40
Elevation: 23.60 mOD	**End Date:** 28/01/2022	**Logger:**	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: WASTE- Timber and black bags. (Driller's description)		
					14.40	9.20	▨	MADE GROUND: Black sandy GRAVEL. (Driller's description)		
					14.00	9.60	▨	MADE GROUND: WASTE- Timber and plastic. (Driller's description)		
					10.10	13.50	▨	MADE GROUND: Oily WASTE with layers of gravel. (Driller's description)		
14.50	ES1				9.10	14.50	∴	Sandy GRAVEL. (Driller's description)		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details / **Water Added**

To (m)	Diam (mm)	From (m)	To (m)
17.50	200		

Remarks

Hand dug inspection pit excavated to 1.20m

Core Barrel	Flush Type	Termination Reason	Last Updated
		Terminated on engineers instruction	28/06/2022

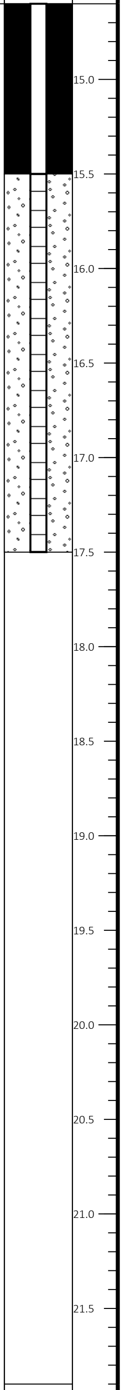
AGS

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
22-0242	**Client:** DAERA/NIEA	**BH647A**
	Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Rotary Drilling	Beretta T44	0.00	17.50	248083.52 E 418060.54 N

Final Depth: 17.50 m	**Start Date:** 28/01/2022	**Driller:** PJ	Sheet 3 of 3 Scale: 1:40
Elevation: 23.60 mOD	**End Date:** 28/01/2022	**Logger:**	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Sandy GRAVEL. (Driller's description)		
17.00	ES2									
					6.10	17.50		End of Borehole at 17.50m		



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details

To (m)	Diam (mm)
17.50	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Core Barrel	**Flush Type**	**Termination Reason**	**Last Updated**
		Terminated on engineers instruction	28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH648**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	12.10	248008.60 E 418028.08 N

Final Depth: 12.10 m	**Start Date:** 15/12/2021	**Driller:** MK	Sheet 1 of 2 Scale: 1:40
Elevation: 21.92 mOD	**End Date:** 20/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					21.72	0.20		MADE GROUND: Soft greyish brown silty sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
0.30	ES1									
					21.42	0.50		MADE GROUND: Soft black CLAY with plastic bags.		
0.70	ES2									
					20.52	1.40		MADE GROUND: Firm greyish brown silty sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
2.00	ES3									
3.00	ES4									
					18.12	3.80		MADE GROUND: Firm brown CLAY with plastic bags, bottles and wood.		
4.00	ES5									
4.00 - 4.45	SPT (S)	N=8 (2,2/2,3,2,1) Hammer SN = 1264	4.00	Dry						
					17.12	4.80		MADE GROUND: Firm black sandy organic soil with wood chips and plastic.		
5.00	ES6									
6.00	ES7									
7.00	ES8									
								MADE GROUND: Firm black CLAY with plastic bags, clothes and general waste.		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)
1.40	3.80	

Casing Details

To (m)	Diameter
12.00	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated on refusal

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH648**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				Sheet 2 of 2
Cable Percussion	Dando 2000	0.00	12.10	248008.60 E 418028.08 N	**Final Depth:** 12.10 m	**Start Date:** 15/12/2021	**Driller:** MK	Scale: 1:40
					Elevation: 21.92 mOD	**End Date:** 20/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Firm black CLAY with plastic bags, clothes and general waste.		
8.00	ES9				13.92	8.00		MADE GROND: Black CLAY with domestic waste of plastic, wood, bags, glass and general waste.		
					13.62	8.30		MADE GROUND: Firm brown and black CLAY with brick, flag stones, concrete, metal and plastic.		
					13.12	8.80		MADE GROUND: Firm black CLAY with plastic bags, wood and glass.		
9.00	ES10									
					12.72	9.20		MADE GROUND: Firm brown and black CLAY with bricks, concrete and metal.		
10.00	ES11									
11.00	ES12									
					10.72	11.20		Firm greyish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
					10.22	11.70		Medium dense grey slightly clayey subangular fine to coarse GRAVEL.		
12.00	ES13									
12.00 - 12.45	SPT (C)	N=26 (5,5/6,7,7,6) Hammer SN = 1264	12.0	Dry	9.82	12.10		End of Borehole at 12.10m		

Water Strikes				**Chiselling Details**		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)
				1.40	3.80	

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
12.00	200		

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated on refusal	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH649**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	5.00	247889.96 E 417997.37 N

Final Depth: 5.00 m	**Start Date:** 13/12/2021	**Driller:** MK	Sheet 1 of 1 Scale: 1:40
Elevation: 19.81 mOD	**End Date:** 14/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					19.71	0.10		Grass and TOPSOIL		
0.30	ES1							MADE GROUND: Soft brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
0.70	ES2									
					18.51	1.30		MADE GROUND: Firm black CLAY with fragments of brick, tile, plastic and flagstone.		
2.00	ES3									
3.00	D8									
3.00	ES4									
3.00 - 3.45	SPT (S)	N=14 (3,2/2,3,4,5) Hammer SN = 1264	3.00	Dry						
					16.21	3.60		MADE GROUND: Firm brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
3.80 - 4.10	B7									
					15.91	3.90		MADE GROUND: Firm black CLAY with fragments of wood, plastic, brick, glass and concrete.		
4.00	ES5									
					15.51	4.30		MADE GROUND: Firm brown sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
					15.01	4.80		MADE GROUND: Black CLAY with fragments of wood, plastic, grass, bricks and concrete.		
5.00	ES6				14.81	5.00		End of Borehole at 5.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
5.00	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated due to major rig breakdown	28/06/2022

CAUSEWAY GEOTECH

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2		**Borehole ID**
22-0242	**Client:**	DAERA/NIEA	**BH649A**
	Client's Rep:	Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2500	0.00	14.10	247892.17 E 417996.81 N

Final Depth: 14.10 m	**Start Date:** 05/01/2022	**Driller:** RW	Sheet 1 of 2 Scale: 1:40
Elevation: 19.69 mOD	**End Date:** 05/01/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: as per BH649.		■
6.00 6.00 - 10.00	ES1 B10				13.69	6.00	▨	MADE GROUND: Black and brown slightly gravelly sandy SILT with medium cobble content and high volume of was including plastics, timber, metal, glass, wire, concrete, red brick, polystyrene, textiles. *6.00m to 14.10m: Oily odour*		■
7.00	ES2						▨			■

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated on refusal, rebore with rotary rig

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH649A**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2500	0.00	14.10	247892.17 E 417996.81 N

Final Depth: 14.10 m	**Start Date:** 05/01/2022	**Driller:** RW	Sheet 2 of 2 Scale: 1:40
Elevation: 19.69 mOD	**End Date:** 05/01/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Black and brown slightly gravelly sandy SILT with medium cobble content and high volume of was including plastics, timber, metal, glass, wire, concrete, red brick, polystyrene, textiles.		■
8.00	ES3									
9.00	ES4									
10.00	ES5									
10.00 - 14.10	B11									
11.00	ES6									
12.00	ES7									
13.00	ES8									
13.00 - 13.45	SPT (C)	N=25 (4,6/5,5,7,8) Hammer SN = 0894	13.0	Dry						
14.00	ES9									
					5.59	14.10		End of Borehole at 14.10m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated on refusal, rebore with rotary rig

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Borehole ID** BH649B
	Client: DAERA/NIEA		
	Client's Rep: Tetra Tech		

Method	Plant Used	Top (m)	Base (m)	Coordinates
Rotary Drilling	Beretta T44	0.00	19.00	247888.40 E 417996.80 N

Final Depth: 19.00 m	**Start Date:** 31/01/2022	**Driller:** PJ	Sheet 1 of 3 Scale: 1:40
Elevation: 19.69 mOD	**End Date:** 31/01/2022	**Logger:**	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: as per BH649.		
					13.69	6.00	▨	MADE GROUND: Black and brown slightly gravelly sandy SILT with medium cobble content and high volume of was including plastics, timber, metal, glass, wire, concrete, red brick, polystyrene, textiles. *6.00m to 11.0m: Oily odour*		

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details

To (m)	Diam (mm)
19.00	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Core Barrel	Flush Type	Termination Reason	Last Updated
		Terminated on engineers instruction	28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** **BH649B**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Rotary Drilling	Beretta T44	0.00	19.00	247888.40 E 417996.80 N

Final Depth: 19.00 m	**Start Date:** 31/01/2022	**Driller:** PJ	Sheet 2 of 3 Scale: 1:40
Elevation: 19.69 mOD	**End Date:** 31/01/2022	**Logger:**	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Black and brown slightly gravelly sandy SILT with medium cobble content and high volume of was including plastics, timber, metal, glass, wire, concrete, red brick, polystyrene, textiles.		
					8.69	11.00	▨	MADE GROUND: WASTE- sandy GRAVEL with timber, plastic and black bags. (Driller's description)		

Water Strikes			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details		**Water Added**	
To (m)	Diam (mm)	From (m)	To (m)
19.00	200		

Core Barrel	**Flush Type**	**Termination Reason**	**Last Updated**
		Terminated on engineers instruction	28/06/2022

AGS

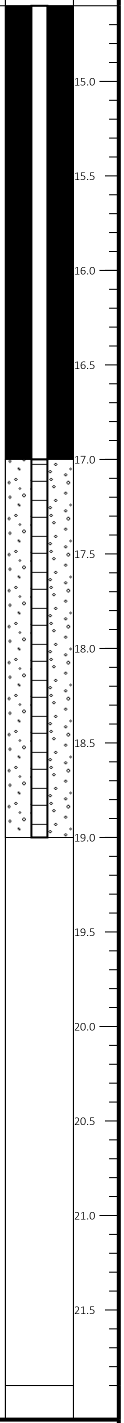
Project No.	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
22-0242	**Client:** DAERA/NIEA	**BH649B**
	Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Rotary Drilling	Beretta T44	0.00	19.00	247888.40 E 417996.80 N

Final Depth: 19.00 m	**Start Date:** 31/01/2022	**Driller:** PJ	Sheet 3 of 3	Scale: 1:40
Elevation: 19.69 mOD	**End Date:** 31/01/2022	**Logger:**	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water
					3.19	16.50	▩	MADE GROUND: WASTE- sandy GRAVEL with timber, plastic and black bags. (Driller's description)	
					0.69	19.00	░	Sandy GRAVEL. (Driller's description)	
								End of Borehole at 19.00m	

Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details		**Water Added**	
To (m)	Diam (mm)	From (m)	To (m)
19.00	200		

Core Barrel	**Flush Type**	**Termination Reason**	**Last Updated**
		Terminated on engineers instruction	28/06/2022

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** BH650

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Dynamic Sampling	Dando Terrier	0.00	3.00	247791.51 E 417908.85 N

Final Depth: 3.00 m	**Start Date:** 19/11/2021	**Driller:** JS	Sheet 1 of 1 Scale: 1:50
Elevation: 16.22 mOD	**End Date:** 19/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					16.12	0.10	▨	GRASS and TOPSOIL		
0.30 - 0.50	ES1						▨	MADE GROUND: Soft brown sandy gravelly CLAY with fragments of rubber. Sand is fine to coarse. Gravel is subangular fine to coarse.		
0.60 - 0.90	ES2									
					15.32	0.90	▨	MADE GROUND: Very loose dark greyish black silty fine to coarse SAND with fragments of tin glass, timber, rubber, plastic bags and crisp bags. *0.90m to 3.00m: Rotten eggs odour*		
1.00 - 1.20	ES3									
1.20 - 1.65	SPT (C)	N=2 (1,1/1,0,1,0) Hammer SN = 0491	0.00	Dry						
2.00 - 2.45	SPT (C)	N=4 (1,1/1,1,1,1) Hammer SN = 0491	0.00	Dry						
2.40 - 2.60	ES4									
3.00		19-11-2021	0.00	Dry	13.22	3.00		End of Borehole at 3.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details

To (m)	Diameter
3.00	150

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated on refusal

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH651**

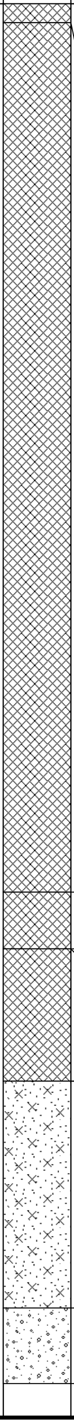
Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247762.24 E 418041.37 N

Final Depth: 8.00 m	**Start Date:** 17/12/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 8.77 mOD	**End Date:** 17/12/2021	**Logger:** SF	FINAL

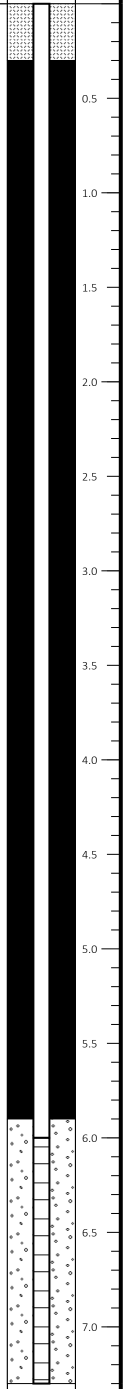
Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.00	B8			
0.50	ES1			
1.00	B9			
1.00	ES2			
2.00	B10			
2.00	ES3			
2.00 - 2.45	SPT (S)	N=8 (1,1/2,1,3,2) Hammer SN = 1368	2.00	Dry
2.50	D11			
3.00	B12			
4.00	B13			
4.00	ES4			
4.70	B14			
4.90	ES5			
5.00	B15			
5.00 - 5.38	SPT (S)	N=50 (3,6/50 for 225mm) Hammer SN = 1368	5.00	Dry
5.50	B16			
5.50	D17			
5.50	ES6			
5.70	B18			
		Water Strike at 5.7m		
6.50	ES7			
7.00	B19			
7.00 - 7.45	SPT (C)	N=32 (2,3/5,7,9,11) Hammer SN = 1368	7.00	3.20

Level mOD	Depth (m)	Description	Water
8.67	0.10	MADE GROUND: Brown slightly gravelly sandy CLAY with rootlets, brick and concrete. Sand is fine to coarse. Gravel is subangular fine to medium.	
		MADE GROUND: Firm dark grey sandy gravelly silty CLAY with high volume of waste including shredded plastics, metal, hard plastics, glass, ceramics, concrete, red brick and rope. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse.	
4.07	4.70	MADE GROUND: Grey sandy gravelly SILT with fragments of brick, concrete timber and hard plastics. Sand is fine to coarse. Gravel is angular to rounded fine to coarse.	
3.77	5.00	MADE GROUND: Grey and black sandy gravelly SILT with fragments of timber and plastic. Sand is fine to coarse. Gravel is subangular fine to medium. *5.00m to 5.70m: Slight putrid odour*	▼
3.07	5.70	Grey silty fine to medium SAND.	
1.87	6.90	Dense grey sandy subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse.	

Legend



Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
5.70			

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
5.70	8.00

Remarks

Hand dug inspection pit excavated to 1.20m unable to take ES sample at 3.0m as not enough fines .

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH651**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247762.24 E 418041.37 N

Final Depth: 8.00 m	**Start Date:** 17/12/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 8.77 mOD	**End Date:** 17/12/2021	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
					0.77	8.00	▨	Dense grey sandy subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse.		▨
								End of Borehole at 8.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
5.70			

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m unable to take ES sample at 3.0m as not enough fines .

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
5.70	8.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH652**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Dynamic Sampling	Dando Terrier	0.00	6.00	247752.24 E 417965.09 N

Final Depth:	6.00 m	**Start Date:**	19/11/2021	**Driller:**	JC	Sheet 1 of 1 Scale: 1:50
Elevation:	14.54 mOD	**End Date:**	19/11/2021	**Logger:**	SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.10	ES1				14.44	0.10	▨	TOPSOIL: Brown clayey sandy angular to subangular fine to coarse GRAVEL of mixed lithologies including quartz with roots and rootlets. Sand is fine to medium.		
0.50 - 1.10	ES2						▨	MADE GROUND: Greyish brown very gravelly sandy CLAY. Sand is fine to medium. Gravel is angular to subangular fine to coarse of brick, slate concrete and schist.		
					13.54	1.00	▨	MADE GROUND: DOMESTIC WASTE- Black waste in a silty matrix- shredded plastic.		
1.20 - 1.65	SPT (C)	N=4 (1,1/1,1,1,1) Hammer SN = 0491			13.34	1.20	▨	MADE GROUND: Light brown sandy SILT. Sand is fine to medium.		
2.00 - 3.00 2.00 - 2.45	ES3 SPT (C)	N=2 (1,1/1,0,1,0) Hammer SN = 0491 Water strike at 2.20m			12.54	2.00	▨	Poor recovery.	▼	
3.00 - 3.45	SPT (C)	N=12 (2,2/3,3,3,3) Hammer SN = 0491					▨			
3.20 - 4.30	B5				11.34	3.20	▨	MADE GROUND: Soft to firm dark brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to coarse of concrete, slate, schist and rare plastic.		
4.00 - 5.00 4.00 - 4.45	ES4 SPT (C)	N=12 (1,2/2,3,3,4) Hammer SN = 0491					▨			
4.30 - 6.00	B6				10.24	4.30	⁙	Light brown and light greyish brown slightly gravelly fine to coarse SAND. Gravel is rounded to subrounded fine to coarse of schist.		
5.00 - 5.45	SPT (C)	N=11 (2,2/3,3,2,3) Hammer SN = 0491					⁙			
6.00 - 6.45	SPT (C)	N=16 (3,3/4,3,4,5) Hammer SN = 0491			8.54	6.00		End of Borehole at 6.00m		

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0

Water Strikes				**Casing Details**	
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	To (m)	Diameter
2.20	2.20	20	2.20	6.00	150

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated at scheduled depth	28/06/2022

AGS

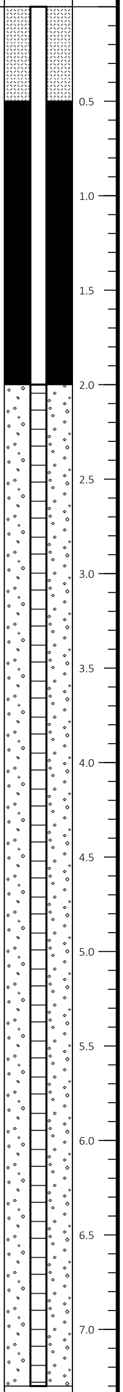
CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH653**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				
Cable Percussion	Dando 2000	0.00	8.00	247555.59 E 417254.77 N	**Final Depth:** 8.00 m	**Start Date:** 16/11/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
					Elevation: 5.80 mOD	**End Date:** 17/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records
0.00	B1	
0.50	B2	
0.50	ES1	
1.00	ES2	
1.20	B3	
1.40	D4	
1.40 - 1.85	SPT (S)	N=3 (0,0/1,0,1,1) Hammer SN = 1368
2.00	ES3	
2.40	B5	
2.40 - 2.85	SPT (S)	N=2 (0,0/0,1,0,1) Hammer SN = 1368
2.90	D6	
3.00	D12	
3.00	D7	
3.00	ES4	
3.00 - 3.45	SPT (S)	N=7 (1,2/1,2,2,2) Hammer SN = 1368
4.00	ES5	
4.50	D13	
4.50	D8	
4.50 - 4.95	SPT (S)	N=12 (2,3/3,3,3,3) Hammer SN = 1368
5.00	ES6	
5.50	D14	
5.50	D9	
5.50 - 5.95	SPT (S)	N=13 (2,3/3,4,3,3) Hammer SN = 1368
6.00	ES7	
6.50	D10	
6.50	D15	
6.50 - 6.95	SPT (S)	N=15 (2,2/4,3,4,4) Hammer SN = 1368

Level mOD	Depth (m)	Description
		MADE GROUND: Soft brown sandy SILT. Sand is fine to coarse.
5.50	0.30	MADE GROUND: Soft brown silty gravelly CLAY with fragments of red brick. Gravel is angular fine to coarse.
4.60	1.20	Grey sandy angular fine to coarse GRAVEL. Sand is fine to coarse.
4.40	1.40	Very loose grey fine SAND.
4.00	1.80	Very loose brown fine SAND.
2.80	3.00	Medium dense brown fine SAND.

Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
1.40	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH653**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	8.00	247555.59 E 417254.77 N

Final Depth: 8.00 m	**Start Date:** 16/11/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 5.80 mOD	**End Date:** 17/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
7.50 7.50 7.50 - 7.95	D11 D16 SPT (S)	N=14 (2,3/3,4,3,4) Hammer SN = 1368			-2.20	8.00		Medium dense brown fine SAND.		
								End of Borehole at 8.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200

Water Added

From (m)	To (m)
1.40	8.00

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

CAUSEWAY GEOTECH	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
	22-0242	Client: DAERA/NIEA	BH654
		Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	8.00	247559.40 E 417391.44 N

Final Depth: 8.00 m	**Start Date:** 19/11/2021	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 7.39 mOD	**End Date:** 22/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.00	B1							MADE GROUND: Soft to firm light brown slightly gravelly very sandy CLAY with roots and rootlets. Sand is fine to medium. Gravel is subangular fine to coarse of flint.		
0.50	ES1									
1.00	B2									
1.00	ES2									
1.00 - 1.45	SPT (S)	N=7 (1,1/2,1,2,2) Hammer SN = 1368								
					5.99	1.40		MADE GROUND: Firm brown slightly silty CLAY with rare rootlets. Gravel is subangular fine to medium of schist.		
1.50	B3									
1.50	D4									
2.00	ES3									
2.00 - 2.45	SPT (S)	N=11 (3,2/2,3,3,3) Hammer SN = 1368								
2.50	B5				4.89	2.50		MADE GROUND: Grey clayey sandy subangular fine to coarse GRAVEL of flint, schist and slate. Sand is fine to coarse.		
3.00	ES4									
					3.99	3.40		Medium dense light grey silty fine to medium SAND.		
3.50	B6									
3.50 - 3.95	SPT (S)	N=14 (1,2/3,3,4,4) Hammer SN = 1368								
4.00	D7				3.39	4.00		Medium dense brown fine SAND.		
4.00	ES5									
4.50	B8									
4.50 - 4.95	SPT (S)	N=10 (1,1/2,2,3,3) Hammer SN = 1368	4.50	4.70						
5.00	D9									
5.00	ES6									
					1.49	5.90		Medium dense brown fine SAND.		
6.00	D10									
6.00 - 6.45	SPT (S)	N=21 (2,5/5,5,5,6) Hammer SN = 1368	6.00	3.20						

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diameter
3.50	200

Water Added

From (m)	To (m)
1.50	8.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH654**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				
Cable Percussion	Dando 2000	0.00	8.00	247559.40 E 417391.44 N	**Final Depth:** 8.00 m	**Start Date:** 19/11/2021	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
					Elevation: 7.39 mOD	**End Date:** 22/11/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					-0.01	7.40		Medium dense brown fine SAND.		
7.50 - 7.95	SPT (S)	N=7 (1,1/1,2,2,2) Hammer SN = 1368	7.50	1.80				Loose brown fine SAND.		
8.00	D11				-0.61	8.00		End of Borehole at 8.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diameter
3.50	200

Water Added

From (m)	To (m)
1.50	8.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH655**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2500	0.00	12.40	248115.68 E 418063.91 N

Final Depth: 12.40 m	**Start Date:** 17/12/2021	**Driller:** RW	Sheet 1 of 2 Scale: 1:40
Elevation: 24.97 mOD	**End Date:** 20/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Dark brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		■
0.20 - 4.00	B8				24.77	0.20	▨	MADE GROUND: Black sandy gravelly CLAY with high volume of domestic waste including glass, plastics, concrete, timber, suspected ACMs and metal. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		■
0.50	ES1									
1.00	ES2									
2.00	ES3									
3.00	ES4									
3.00 - 3.45	SPT (C)	N=13 (2,2/3,3,4,3) Hammer SN = 0894	3.00	Dry						
4.00	ES5									
4.00 - 6.00	B9									
5.00	ES6									
6.00	ES7									
6.00 - 11.30	B15									
7.00	ES10									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
12.30	200

Water Added

From (m)	To (m)

Remarks

Hand dug inspection pit excavated to 1.20m

Termination Reason	**Last Updated**
Terminated on blowing sands and gravels	28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH655
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2500	0.00	12.40	248115.68 E 418063.91 N

Final Depth: 12.40 m	**Start Date:** 17/12/2021	**Driller:** RW	Sheet 2 of 2 Scale: 1:40
Elevation: 24.97 mOD	**End Date:** 20/12/2021	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Black sandy gravelly CLAY with high volume of domestic waste including glass, plastics, concrete, timber, suspected ACMs and metal. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
8.00	ES11									
9.00	ES12									
10.00	ES13									
11.00	ES14									
11.30 - 12.40	B16				13.67	11.30		Brown fine to coarse SAND and angular fine to coarse GRAVEL. (Blowing)		
					12.57	12.40		End of Borehole at 12.40m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Hand dug inspection pit excavated to 1.20m

Casing Details

To (m)	Diameter
12.30	200

Water Added

From (m)	To (m)

Termination Reason

Terminated on blowing sands and gravels

Last Updated

28/06/2022

CAUSEWAY GEOTECH

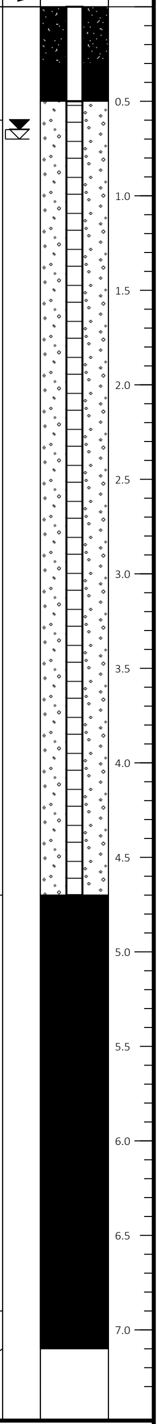
Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH601R
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	7.10	247926.44 E 418127.78 N

Final Depth:	7.10 m	**Start Date:**	22/04/2022	**Driller:**	CC	Sheet 1 of 1 Scale: 1:40
Elevation:	13.97 mOD	**End Date:**	22/04/2022	**Logger:**	SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
0.50	ES1				13.37	0.60	MADE GROUND: Soft greyish brown slightly sandy gravelly CLAY with fragments of wood and fragments of plastic. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
		Moderate seepage at 0.70m					
1.00	ES2						
2.00	ES3						
3.00	ES4						
4.00	ES5				9.27	4.70	MADE GROUND: Black decomposing organic waste with plastic bags, sheeting, textiles, tin cans, batteries, wire, fragments of red brick, concrete, glass and wood
5.00	ES6						
					7.07	6.90	Firm becoming stiff grey slightly sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounded.
					6.87	7.10	Large BOULDER/Possible BEDROCK recovered as subangular fine to coarse GRAVEL

End of Borehole at 7.10m



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
0.70	0.70	20	0.65

Chiselling Details

From (m)	To (m)	Time (hh:mm)
6.90	7.10	01:00

Casing Details

To (m)	Diameter
6.90	200

Water Added

From (m)	To (m)
4.00	6.90

Remarks

Termination Reason

Terminated on suspected bedrock/large boulder

Last Updated

28/06/2022

AGS

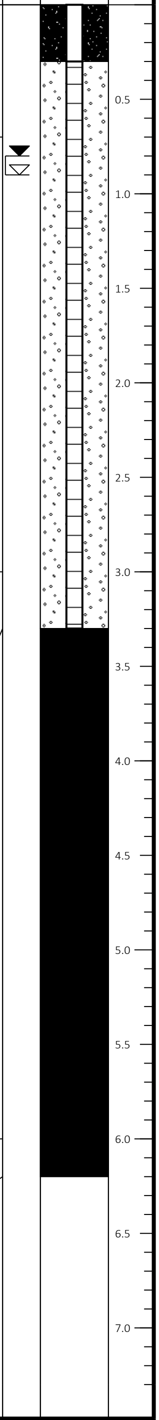
Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** **BH602R**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	6.20	247967.30 E 418166.86 N

Final Depth: 6.20 m	**Start Date:** 21/04/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:40
Elevation: 14.83 mOD	**End Date:** 21/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description
								MADE GROUND: Soft brown slightly sandy slightly gravelly CLAY with fragments of plastic, rags, fragments of glass and wood. Sand is fine to coarse. Gravel is subangular fine to coarse. *0.0m to 0.7m: Putrid odour*
0.50	ES1							
					14.13	0.70		MADE GROUND: Black decomposing organic waste with plastic bags, textiles, sponge, wire, food wrapping, ceramics, rubber, glass and wood. *0.7m to 3.0m: Strong putrid odour*
		Moderate seepage at 0.90m						
1.00	ES2							
2.00	ES3							
3.00	ES4				11.83	3.00		MADE GROUND: Soft light brown slightly gravelly sandy CLAY with some shredded plastic and fragments of wood. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. *3.0m to 3.3m: Mild putrid odour*
					11.53	3.30		Firm becoming stiff grey slightly sandy slightly gravelly silty CLAY with low cobble and boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
4.00	ES5							
					8.83	6.00		Large BOULDER/Possible BEDROCK: Recovered as subangular fine to coarse GRAVEL
					8.63	6.20		End of Borehole at 6.20m

Water **Backfill**



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
0.90	0.90	20	0.80

Chiselling Details

From (m)	To (m)	Time (hh:mm)
6.00	6.20	01:00

Remarks

Casing Details

To (m)	Diameter
6.20	200

Water Added

From (m)	To (m)

Termination Reason

Terminated on boulder/possible bedrock

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH603**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	3.80	247910.24 E 418223.37 N

Final Depth: 3.80 m	**Start Date:** 25/03/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:40
Elevation: 14.30 mOD	**End Date:** 25/03/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
					14.20	0.10	▨	MADE GROUND: Soft brown SILT		■
							▨	MADE GROUND: Black DOMESTIC WASTE predominantly plastic, chargers, tablet packs, black bin bags, crisp packets etc.		■
0.50	ES1									
1.00	ES2									
2.00	ES3									
3.00	ES4									
					10.50	3.80		End of Borehole at 3.80m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

DTB 2.10m

Casing Details

To (m)	Diameter
3.80	200

Water Added

From (m)	To (m)

Termination Reason

Terminated due to significant gassing from base of borehole.

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
	22-0242	Client: DAERA/NIEA	BH603R
		Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates			
Cable Percussion	Dando 3000	0.00	7.00	247983.25 E 418197.86 N	Final Depth: 7.00 m	Start Date: 21/04/2022	Driller: CC
					Elevation: 15.07 mOD	End Date: 21/04/2022	Logger: SF

Sheet 1 of 1

Scale: 1:40

FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Greyish black clayey sandy subangular fine to coarse GRAVEL with plastic bags, sheeting, food wrapping, bottle tops, tin cans, wire, foam, polystyrene, fragments of glass and wood. Sand is fine to coarse. *0.0m to 5.3m: Putrid odour*		
		Moderate seepage at 0.40m							▼	
0.50	ES1									
1.00	ES2									
2.00	ES3									
3.00	ES4									
4.00	ES5									
5.00	ES6									
					9.76	5.30		Stiff grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
6.00	ES7									
					8.26	6.80		Possible BEDROCK: recovered as subangular fine to coarse GRAVEL		
					8.06	7.00		End of Borehole at 7.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
0.40	0.40	20	0.40

Chiselling Details

From (m)	To (m)	Time (hh:mm)
6.80	7.00	01:00

Casing Details

To (m)	Diameter
6.50	200

Water Added

From (m)	To (m)

Remarks

Termination Reason

Terminated on possible bedrock

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH607
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Danod 3000	0.00	0.80	248014.10 E 418170.40 N

Final Depth: 0.80 m	**Start Date:** 24/03/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:40
Elevation: 3.70 mOD	**End Date:** 24/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.20	ES1				3.50	0.20		Brown gravelly fine to coarse SAND with low cobble content. Gravel is subangular to angular fine to coarse. Cobbles are subangular to angular.		
0.50	ES2				2.90	0.80		Grey angular fine to coarse GRAVEL with medium angular cobble content.		
								End of Borehole at 0.80m		

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0

Water Strikes				Chiselling Details		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Casing Details		Water Added	
To (m)	Diameter	From (m)	To (m)
0.80	200		

Remarks

DTB 3.70m

Termination Reason	Last Updated
Terminated on suspected bedrock.	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH608**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	0.45	248028.10 E 418120.30 N

Final Depth: 0.45 m	**Start Date:** 24/03/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:40
Elevation: 14.29 mOD	**End Date:** 24/03/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
0.20	ES1							Brown sandy subangular to angular fine to coarse GRAVEL of schist with medium cobble content.		
					13.89	0.40				
					13.84	0.45		Suspected BEDROCK		
								End of Borehole at 0.45m		

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)
0.40	0.45	01:00

Casing Details

To (m)	Diameter
0.45	200

Water Added

From (m)	To (m)

Remarks

DTB 4.00m

Termination Reason

Terminated on suspected bedrock.

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH609**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	0.40	248060.80 E 418136.20 N

Final Depth: 0.40 m	**Start Date:** 24/03/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:40
Elevation: 14.31 mOD	**End Date:** 24/03/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
0.20	ES1				13.91	0.40	▨	Brown sandy subangular to angular GRAVEL of schist with low cobble content. Sand is fine to coarse.		■
								End of Borehole at 0.40m		

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
0.40	200

Water Added

From (m)	To (m)

Remarks

DTB 4.90m

Termination Reason

Terminated on suspected bedrock.

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH639**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	7.20	247686.10 E 418407.20 N

Final Depth: 7.20 m	**Start Date:** 23/03/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:40
Elevation: 4.38 mOD	**End Date:** 23/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Very soft brownish grey SILT with rubble.		
0.50	ES1									
					3.78	0.60		Soft greyish brown slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular fine to medium.		
1.00	ES2				3.38	1.00		Brown sandy angular to subangular fine to coarse GRAVEL with low cobble content. Sand is fine to coasre. Cobbles are subangular to subrounded.		
2.00	ES3									
					-2.82	7.20		End of Borehole at 7.20m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

DTB 3.50m

Casing Details

To (m)	Diameter
7.20	200

Water Added

From (m)	To (m)

Termination Reason

Terminated on refusal.

Last Updated

28/06/2022

	Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH640**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	10.00	247609.16 E 418437.70 N

Final Depth: 10.00 m	**Start Date:** 22/03/2022	**Driller:** CB	Sheet 1 of 2 Scale: 1:40
Elevation: 4.42 mOD	**End Date:** 22/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Soft grey slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of quartz and schist.		
0.50	ES1									
1.00	ES2									
2.00	ES3									
					-1.58	6.00		Firm to stiff light grey gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to angular fine to coarse of schist.		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.00	200

Water Added

From (m)	To (m)

Remarks

DTB 1.80m

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

CAUSEWAY GEOTECH

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH640**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	10.00	247609.16 E 418437.70 N

Final Depth: 10.00 m	**Start Date:** 22/03/2022	**Driller:** CB	Sheet 2 of 2 Scale: 1:40
Elevation: 4.42 mOD	**End Date:** 22/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	Firm to stiff light grey gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to angular fine to coarse of schist.		■
					-5.58	10.00		End of Borehole at 10.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.00	200

Water Added

From (m)	To (m)

Remarks

DTB 1.80m

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH641**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	10.00	247611.80 E 418522.12 N

Final Depth: 10.00 m	**Start Date:** 23/03/2022	**Driller:** CB	Sheet 1 of 2 Scale: 1:40
Elevation: 4.38 mOD	**End Date:** 23/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Soft dark brown SILT with rootlets		
0.50	ES1				3.88	0.50		Soft dark grey slightly gravelly SILT. Gravel is subrounded fine to medium.		
					3.58	0.80		Dark grey slightly silty sandy subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse.		
1.00	ES2									
2.00	ES3									
					1.98	2.40		Firm grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
					-2.52	6.90		Firm to stiff slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse.		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.00	200

Water Added

From (m)	To (m)

Remarks

DTB 2.50m

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** BH641

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	10.00	247611.80 E 418522.12 N

Final Depth: 10.00 m	**Start Date:** 23/03/2022	**Driller:** CB	Sheet 2 of 2 Scale: 1:40
Elevation: 4.38 mOD	**End Date:** 23/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Firm to stiff slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse.		
					-3.52	7.90		Grey angular to subangular fine to coarse GRAVEL (possible weathered bedrock)		
					-5.62	10.00		End of Borehole at 10.00m		

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.00	200

Water Added

From (m)	To (m)

Remarks

DTB 2.50m

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH642**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	10.00	247672.12 E 418604.02 N

Final Depth: 10.00 m	**Start Date:** 22/03/2022	**Driller:** CB	Sheet 1 of 2 Scale: 1:40
Elevation: 4.47 mOD	**End Date:** 22/03/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
							▨	MADE GROUND: Grey slightly sandy angular to subangular fine to medium GARVEL with roots. Sand is fine to coarse.		■
0.50	ES1									
1.00	ES2				3.47	1.00	▨	MADE GROUND: Grey slightly sandy slightly silty angular to subangular fine to coarse GRAVEL with low cobble content, fragments of concrete and plastic. Sand is fine to coarse.		
2.00	ES3									
3.00	ES4									
4.00	ES5									
5.00	ES6									
					-1.03	5.50	⁘	Brown fine to coarse SAND and rounded fine to coarse GRAVEL with low cobble content.		
6.00	ES7									
					-2.03	6.50	▤	Firm to stiff grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular fine to medium.		
7.00	ES8									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.00	200

Water Added

From (m)	To (m)

Remarks

DTB 3.0m

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH642**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	10.00	247672.12 E 418604.02 N

Final Depth: 10.00 m	**Start Date:** 22/03/2022	**Driller:** CB	Sheet 2 of 2 Scale: 1:40
Elevation: 4.47 mOD	**End Date:** 22/03/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
								Firm to stiff grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular fine to medium.		
					-5.53	10.00		End of Borehole at 10.00m		

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

DTB 3.0m

Casing Details

To (m)	Diameter
10.00	200

Water Added

From (m)	To (m)

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH643
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	7.30	247717.70 E 418651.50 N

Final Depth: 7.30 m	**Start Date:** 22/03/2022	**Driller:** CC	Sheet 1 of 1
			Scale: 1:40
Elevation: 4.41 mOD	**End Date:** 22/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▩	MADE GROUND: Firm brown slightly sandy slightly gravelly clayey SILT. Sand is fine to coarse. Gravel is subangular fine to medium.		■
0.50	ES1				3.90	0.50	▩	MADE GROUND: Firm dark grey slightly sandy slightly gravelly clayey SILT with 1 pieces of visqueen plastic, 20cm x 10cm x 10xm, pieces of timber 5cm x 10cm x 5cm square cut. Sand is fine to coarse. Gravel is subangular fine to coarse.		■
1.00	ES2									
2.00	ES3									
					1.90	2.50	⊠	Firm light orangish brown slightly sandy slightly gravelly SILT with pockets of grey silt. Sand is fine to coarse. Gravel is subrounded fine.		■
3.00	ES4									
4.00	ES5									
					0.10	4.30	⁘	Brown slightly gravelly fine to coarse SAND. Gravel is subrounded fine to medium.		■
					-2.90	7.30		End of Borehole at 7.30m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
7.30	200

Water Added

From (m)	To (m)

Remarks

DTB 2.20m

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH656**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	10.00	247771.32 E 418633.80 N

Final Depth: 10.00 m	**Start Date:** 30/03/2022	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 9.61 mOD	**End Date:** 30/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water
							▨	MADE GROUND: Soft to firm brown sandy gravelly SILT with rare fragments of timber, concrete, slate and plastic. Sand is fine to coarse. Gravel is subrounded fine to medium.	
0.50	ES1								
1.00	ES2								
					8.41	1.20	▨	MADE GROUND: Soft black mottled dark grey and brown sandy gravelly silty CLAY with pockets of sand and gravel, fragments of brick, concrete, slate and asphalt. Sand is fine to coarse. Gravel is angular to subangular fine to coarse.	
1.90	ES3								
								2.00m to 2.90m: Black domestic waste comprise of shredded plastic, hard plastic, timber, fabric, glass and ceramics. (Putrid odour)	
2.50	ES4								
					6.71	2.90	▨	MADE GROUND: Soft brown sandy silty CLAY. Sand is fine to medium.	
3.00	ES5								
					5.91	3.70	▨	MADE GROUND: Black DOMESTIC WASTE comprised of shredded plastic, hard plastic, timber, fabric, glass, concrete, brick, slate and ceramics in a sandy silty gravel matrix. Sand is fine to coarse. Gravel is angular to subangular fine to medium. *3.70m to 4.60m: Putrid odour*	
4.00	ES6								
					5.01	4.60	▨	MADE GROUND: Soft grey sandy gravelly SILT with fragments of shredded plastic, timber, concrete, slate, glass, fabric. Sand is fine to coarse. Gravel is subrounded fine to medium.	
5.00	ES7								
					4.11	5.50	▨	MADE GROUND: Soft grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded fine to medium.	
5.90	ES8								
		Water strike at 6.00m			3.61	6.00	⁘	Grey sandy subrounded fine to medium GRAVEL. Sand is fine to coarse.	▼
7.00	ES9								

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
6.00	6.00		

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.00	200

Water Added

From (m)	To (m)

Remarks

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH656**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	10.00	247771.32 E 418633.80 N

Final Depth:	10.00 m	**Start Date:**	30/03/2022	**Driller:**	DE	Sheet 2 of 2 Scale: 1:40
Elevation:	9.61 mOD	**End Date:**	30/03/2022	**Logger:**	SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
							⁘	Grey sandy subrounded fine to medium GRAVEL. Sand is fine to coarse.		■
					1.71	7.90	▨	Soft brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium.		■
9.00	ES10									
					-0.39	10.00		End of Borehole at 10.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
6.00	6.00		

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
10.00	200

Water Added

From (m)	To (m)

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

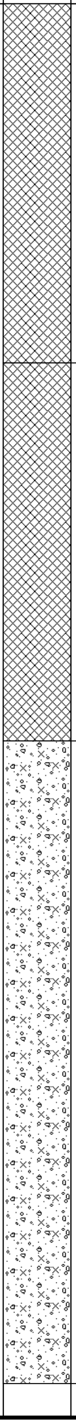
AGS

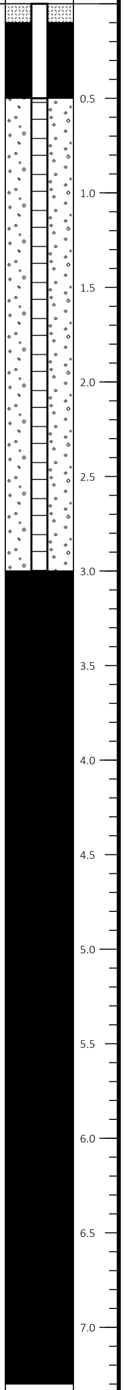
CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** **BH657**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando Terrier	0.00	10.00	247741.21 E 418531.50 N

Final Depth: 10.00 m	**Start Date:** 31/03/2022	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 7.76 mOD	**End Date:** 31/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Dense grey sandy silty subrounded fine to medium GRAVEL. Sand is fine to coarse.		
0.50	ES1									
1.00	ES2									
					5.86	1.90		MADE GROUND: Soft dark brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse.		
2.00	ES3									
3.00	ES4									
		Water strike at 3.90m			3.86	3.90		Brown slightly silty very sandy subrounded to rounded fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded	▼	
4.00	ES5									
5.00	ES6									





Water Strikes			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
3.90	3.90		

Chiselling Details		
From (m)	To (m)	Time (hh:mm)

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
10.00	200		

Remarks

Termination Reason	**Last Updated**
Terminated at scheduled depth	28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH657
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando Terrier	0.00	10.00	247741.21 E 418531.50 N

Final Depth: 10.00 m	**Start Date:** 31/03/2022	**Driller:** DE	Sheet 2 of 2 Scale: 1:40
Elevation: 7.76 mOD	**End Date:** 31/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Brown slightly silty very sandy subrounded to rounded fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded		
					0.06	7.70		Soft light brown sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded fine to medium		
					-2.24	10.00		End of Borehole at 10.00m		

Water Strikes			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
3.90	3.90		

Chiselling Details		
From (m)	To (m)	Time (hh:mm)

Casing Details		Water Added	
To (m)	Diameter	From (m)	To (m)
10.00	200		

Remarks

Termination Reason	Last Updated
Terminated at scheduled depth	28/06/2022

AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH658
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 2000	0.00	10.00	247729.84 E 418152.91 N

Final Depth: 10.00 m	**Start Date:** 29/03/2022	**Driller:** DE	Sheet 1 of 2	Scale: 1:40
Elevation: 7.39 mOD	**End Date:** 29/03/2022	**Logger:** SF	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water
							▨	MADE GROUND: Greyish brown silty sandy angular to subangular fine to coarse GRAVEL with high cobble content and fragments of bitmac, plastic, fabric, red brick and slate. Sand is fine to coarse.	
0.50	ES1								
1.00	ES2								
2.00	ES3								
		Water strike at 2.20m							▼
					4.89	2.50	▨	MADE GROUND: Greyish brown silty sandy angular to subangular fine to coarse GRAVEL with high cobble content and fragments of plastic bin bags, concrete, metal and fabric (domestic waste). sand is fine to coarse. Cobbles are subangular to concrete	
3.00	ES4								
					3.49	3.90	▨	MADE GROUND: Dark greyish black sandy subangular to subrounded GRAVEL with rare fragments of plastic and fabric. Sand is fine to coarse.	
4.00	ES5								
5.00	ES6								
					1.99	5.40		Soft grey with striations of dark grey/black slightly gravelly sandy organic SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
					1.09	6.30		Dark grey sandy subrounded fine to coarse GRAVEL. Sand is fine to coarse	
6.40	ES7								

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.20	2.20		

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.00	200

Water Added

From (m)	To (m)

Remarks

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** **BH658**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				Sheet 2 of 2 Scale: 1:40
Cable Percussion	Dando 2000	0.00	10.00	247729.84 E 418152.91 N	**Final Depth:** 10.00 m	**Start Date:** 29/03/2022	**Driller:** DE	
					Elevation: 7.39 mOD	**End Date:** 29/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Dark grey sandy subrounded fine to coarse GRAVEL. Sand is fine to coarse		
					-0.11	7.50		Soft grey with striations of dark grey and black slightly sandy gravelly organic SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
					-2.11	9.50		Grey sandy subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse.		
					-2.61	10.00		End of Borehole at 10.00m		

Water Strikes				**Chiselling Details**		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)
2.20	2.20					

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
10.00	200		

Remarks

Termination Reason	**Last Updated**
Terminated at scheduled depth.	28/06/2022

AGS

CAUSEWAY GEOTECH	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
	22-0242	Client: DAERA/NIEA	BH659
		Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	16.00	247844.37 E 417953.18 N

Final Depth: 16.00 m	**Start Date:** 31/03/2022	**Driller:** CC	Sheet 1 of 3 Scale: 1:40
Elevation: 18.30 mOD	**End Date:** 01/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Soft brownish grey slightly sandy slightly gravelly CLAY with low cobble and boulder content and fragments of plastic bags, springs, rags, aluminum, paper, red brick, glass bottles and wire. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles and boulders are subangular to subrounded.		
0.50	ES1									
1.00	ES2									
2.00	ES3									
					16.10	2.20	▨	MADE GROUND: Dark greyish black sandy very clayey fine to coarse GRAVEL with low cobble and boulder content and fragments of plastic bags, sheets, wire springs, tin cans, aluminium. Sand is fine to coarse. *2.2m to 7.7m: Black oily staining and strong hydrocarbon odour*		
3.00	ES4									
4.00	ES5									
5.00	ES6									
6.00	ES7									
7.00	ES8									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
12.00	200
16.00	150

Water Added

From (m)	To (m)
12.00	16.00

Remarks

Termination Reason

Terminated at scheduled depth

Last Updated

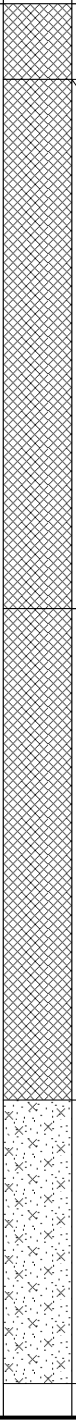
28/06/2022

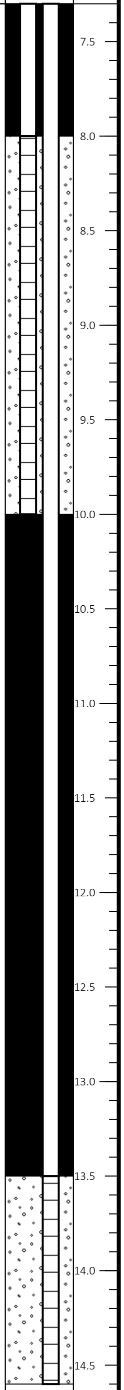
AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH659**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				Sheet 2 of 3
Cable Percussion	Dando 3000	0.00	16.00	247844.37 E 417953.18 N	**Final Depth:** 16.00 m	**Start Date:** 31/03/2022	**Driller:** CC	Scale: 1:40
					Elevation: 18.30 mOD	**End Date:** 01/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					10.60	7.70		MADE GROUND: Dark greyish black sandy very clayey fine to coarse GRAVEL with low cobble and boulder content and fragments of plastic bags, sheets, wire springs, tin cans, aluminium. Sand is fine to coarse.		
8.00	ES9							MADE GROUND: Black sandy clayey subangular fine to coarse GRAVEL with low cobble and boulder content with plastic bags, rubber, tile, fragments of wood, crisp packets (dated january 1998), wire and glass bottled. Sand is fine to coarse. Cobbles are subangular. *7.7m to 10.5m: Viscous black hydrocarbon liquid with strong hydrocarbon odour.*		
9.00	ES10									
10.00	ES11									
					7.80	10.50		MADE GROUND: Soft greyish black mottled brown slightly sandy slightly gravelly CLAY with low cobble and boulder content, fragments of wood, tile, metal wire, tin cans, plastic sheeting. *10.5m to 13.1m: Strong hydrocarbon odour*		
11.00	ES12									
12.00	ES13									
13.00	ES14									
					5.20	13.10		Brown silty fine to medium SAND		
14.00	ES15									





Water Strikes				**Chiselling Details**		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
12.00	200	12.00	16.00
16.00	150		

Remarks

Termination Reason	**Last Updated**
Terminated at scheduled depth	28/06/2022

AGS

	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
CAUSEWAY GEOTECH	22-0242	Client: DAERA/NIEA	BH659
		Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	16.00	247844.37 E 417953.18 N

Final Depth: 16.00 m	**Start Date:** 31/03/2022	**Driller:** CC	Sheet 3 of 3 Scale: 1:40
Elevation: 18.30 mOD	**End Date:** 01/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					2.30	16.00		Brown silty fine to medium SAND		
								End of Borehole at 16.00m		

15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
20.5
21.0
21.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
12.00	200
16.00	150

Water Added

From (m)	To (m)
12.00	16.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH660**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				Sheet 1 of 2 Scale: 1:40
Cable Percussion	Dando 3000	0.00	9.50	247865.10 E 417936.12 N	**Final Depth:** 9.50 m	**Start Date:** 29/03/2022	**Driller:** CC	
					Elevation: 17.48 mOD	**End Date:** 29/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
0.50	ES1				16.98	0.50	▨	MADE GROUND: Soft brown mottled grey slightly sandy slightly gravelly CLAY with low cobble and boulder content and fragments of wood, yellow plastic tape, rubber and aluminum. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		■
1.00	ES2				16.48	1.00	▨	MADE GROUND: Soft grey sandy gravelly CLAY with low cobble and boulder content and fragments of wood, yellow plastic tape, sweet wrappers, glass of lipstick casing. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		■
2.00	ES3	Small seepage at 2.00m			15.48	2.00	▨	MADE GROUND: Soft grey mottled dark grey slightly sandy gravelly CLAY with fragments of glass bottles, metal spoons, plastic bags, wood, metal cans and sweet wrappers. Sand is fine to coarse, Gravel is subangular to subrounded fine to coarse.	▼	■
							▨	MADE GROUND: Soft dark greyish black slightly sandy slightly gravelly CLAY with plastic bags and sheeting, garden waste, paper, occasional tiles, wire, glass, fragments of concrete, metal (tins, cutlery, cans) and rubber flooring. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. *2.00m to 7.00m: Hydrocarbon odour and presence of tar had stained most materials dark greyish black*		■
3.00	ES4						▨			■
4.00	ES5						▨			■
5.00	ES6						▨			■
6.00	ES7						▨			■
7.00	ES8				10.48	7.00	▨	MADE GROUND: Soft dark greyish black slightly sandy slightly gravelly CLAY with fragments of wood, concrete, red brick, plastic crisp wrappers, bags of tin with clumps bitmac (100mm). Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		■

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00	20	1.95

Chiselling Details

From (m)	To (m)	Time (hh:mm)
9.50	9.70	01:15

Casing Details

To (m)	Diameter
9.50	200

Water Added

From (m)	To (m)

Remarks

Termination Reason	**Last Updated**
Termiantied on refusal	28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH660**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	9.50	247865.10 E 417936.12 N

Final Depth: 9.50 m	**Start Date:** 29/03/2022	**Driller:** CC	Sheet 2 of 2 Scale: 1:40
Elevation: 17.48 mOD	**End Date:** 29/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					8.28	9.20	▨	MADE GROUND: Soft dark greyish black slightly sandy slightly gravelly CLAY with fragments of wood, concrete, red brick, plastic crisp wrappers, bags of tin with clumps bitmac (100mm). Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		■
8.00	ES9									
9.00	ES10									
					7.98	9.50	○	Pushing BOULDER		■
								End of Borehole at 9.50m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00	20	1.95

Chiselling Details

From (m)	To (m)	Time (hh:mm)
9.50	9.70	01:15

Casing Details

To (m)	Diameter
9.50	200

Water Added

From (m)	To (m)

Remarks

Termination Reason

Termianted on refusal

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH660A**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				
Cable Percussion	Dando 3000	0.00	16.00	247861.35 E 417938.71 N	**Final Depth:** 16.00 m	**Start Date:** 30/03/2022	**Driller:** CC	Sheet 1 of 3 Scale: 1:40
					Elevation: 17.74 mOD	**End Date:** 04/04/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
							▨	MADE GROUND: Soft brownish grey slightly sandy slightly gravelly CLAY with low cobble content, fragments of wood, plastic bags, rags, aluminum foil and red brick. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
		Small seepage at 2.00m			15.74	2.00	▨	MADE GROUND: Soft dark greyish black slightly sandy slightly gravelly CLAY. Comprising plastic bags and sheeting, garden refuse, paper and occasional tiles, wire, glass and fragments of concrete, metal cans, rubber basket ball. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. *2.00m to 9.00m: Hydrocarbon odour and presence of tar has stained most materials dark greyish black*	▽	

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00	20	1.97

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
12.00	200
16.00	150

Water Added

From (m)	To (m)
11.00	16.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
CAUSEWAY GEOTECH	22-0242	**Client:** DAERA/NIEA	**BH660A**
		Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	16.00	247861.35 E 417938.71 N

Final Depth: 16.00 m	**Start Date:** 30/03/2022	**Driller:** CC	Sheet 2 of 3 Scale: 1:40
Elevation: 17.74 mOD	**End Date:** 04/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Soft dark greyish black slightly sandy slightly gravelly CLAY. Comprising plastic bags and sheeting, garden refuse, paper and occasional tiles, wire, glass and fragments of concrete, metal cans, rubber basket ball. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
9.00	ES1				8.74	9.00		MADE GROUND: Black clayey sandy subangular fine to coarse GRAVEL with plastic bags, rope and fragments of metal pipe *9.00m to 10.80m: Strong hydrocarbon odour, all materials submerged in a viscous black liquid. Mild solvent odour, possible acetone - nail varnish/thinners*		
10.00	ES2									
					6.94	10.80		Greyish black silty gravelly fine to coarse SAND. Gravel is subrounded fine to coarse. Gravel is subrounded fine to coarse. *10.80m to 12.40m: Strong hydrocarbon odour and oily sheen*		
					5.34	12.40		Greyish brown slightly silty fine to medium SAND. *12.40m to 16.00m: Mild hydrocarbon odour*		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00	20	1.97

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
12.00	200
16.00	150

Water Added

From (m)	To (m)
11.00	16.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2		**Borehole ID**
22-0242	**Client:** DAERA/NIEA		**BH660A**
	Client's Rep: Tetra Tech		

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247861.35 E 417938.71 N

Final Depth: 16.00 m	**Start Date:** 30/03/2022	**Driller:** CC	Sheet 3 of 3 Scale: 1:40
Elevation: 17.74 mOD	**End Date:** 04/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					1.74	16.00	⊠	Greyish brown slightly silty fine to medium SAND.		▨
								End of Borehole at 16.00m		

15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
20.5
21.0
21.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00	20	1.97

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
12.00	200
16.00	150

Water Added

From (m)	To (m)
11.00	16.00

Remarks

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH661**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	10.00	247870.58 E 417598.15 N

Final Depth: 10.00 m	**Start Date:** 28/03/2022	**Driller:** DE	Sheet 1 of 2 Scale: 1:40
Elevation: 7.01 mOD	**End Date:** 28/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.50	ES1			
1.00	ES2			
2.00	ES3			
3.00	ES4			
5.00	ES5			

Level mOD	Depth (m)	Description
		MADE GROUND: Grey slightly sandy angular to subangular fine to coarse GRAVEL with low cobble content and fragments of concrete, plastic, red brick, rope and fabric. Sand is fine to coarse. Cobbles are angular.
5.81	1.20	MADE GROUND: Soft grey sandy gravelly SILT with rare fragments of plastic and metal. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
3.11	3.90	MADE GROUND: Light greyish brown sandy subangular to rounded GRAVEL with occasional pockets of slightly sandy organic silt. Sand is fine to coarse.
2.41	4.60	Soft brown fibrous PEAT
0.71	6.30	Soft light grey sandy organic SILT. Sand is fine to coarse.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.00	200

Water Added

From (m)	To (m)

Remarks

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH661**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 2000	0.00	10.00	247870.58 E 417598.15 N

Final Depth:	10.00 m	**Start Date:**	28/03/2022	**Driller:**	DE	Sheet 2 of 2	Scale: 1:40
Elevation:	7.01 mOD	**End Date:**	28/03/2022	**Logger:**	SF	FINAL	

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
					-0.39	7.40	☒	Soft light grey sandy organic SILT. Sand is fine to coarse.		
							▨	Light brown silty fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL with medium cobble content.		
					-1.19	8.20	▨	Brown sandy subrounded fine to coarse GRAVEL. Sand is fine to coarse.		
					-2.99	10.00		End of Borehole at 10.00m		

Water Strikes			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details		
From (m)	To (m)	Time (hh:mm)

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
10.00	200		

Remarks

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

AGS

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** **BH662**

Method	Plant Used	Top (m)	Base (m)	Coordinates
Dynamic Sampling	Dando Terrier	0.00	5.00	247463.18 E 417450.70 N

Final Depth: 5.00 m	**Start Date:** 29/03/2022	**Driller:** LW	Sheet 1 of 1 Scale: 1:50
Elevation: 6.52 mOD	**End Date:** 29/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)
0.50	D3			
0.70 - 1.00	B1			
1.00	D4			
1.20	D7			
1.20 - 1.65	SPT (S)	N=5 (1,1/2,1,1,1)		
1.70 - 2.00	B2			
2.00	D5			
2.00	D8			
2.00 - 2.45	SPT (S)	N=0 (1,0/0,0,0,0)		
3.00	D6			

Level mOD	Depth (m)	Description
6.32	0.20	TOPSOIL: Dark brown slightly sandy slightly gravelly CLAY.
5.72	0.80	Light brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is rounded fine to coarse.
4.22	2.30	Soft brownish grey gravelly silty CLAY with low cobble content. Gravel is rounded fine to coarse.
2.92	3.60	Very soft dark grey SILT
1.52	5.00	Dark brown silty PEAT

End of Borehole at 5.00m

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details

To (m)	Diameter
5.00	150

Remarks

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH663
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates				
Dynamic Sampling	Dando Terrier	0.00	4.00	247512.96 E 417451.87 N	**Final Depth:** 4.00 m	**Start Date:** 29/03/2022	**Driller:** LW	Sheet 1 of 1 Scale: 1:50
					Elevation: 5.57 mOD	**End Date:** 29/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Soft light brown CLAY		■
					5.17	0.40	▨	MADE GROUND: Soft to firm dark grey silty CLAY with fragments of red brick and rubble.		■
0.50	ES1									
1.00	ES2									
					4.47	1.10		Dark greenish grey slightly gravelly fine to coarse SAND. Gravel is rounded fine.		■
2.00	ES3									
					3.17	2.40		Light brown fine SAND		■
					1.57	4.00		End of Borehole at 4.00m		

Water Strikes				Casing Details	
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	To (m)	Diameter
				4.00	150

Remarks

Termination Reason	Last Updated
Terminated due to blowing sands.	28/06/2022

CAUSEWAY GEOTECH

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
22-0242	**Client:** DAERA/NIEA	**BH663A**
	Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Dynamic Sampling	Dando Terrier	0.00	2.70	247513.82 E 417451.38 N

Final Depth: 3.00 m	**Start Date:** 07/04/2022	**Driller:** LW	Sheet 1 of 1 Scale: 1:50
Elevation: 5.58 mOD	**End Date:** 07/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					5.08	0.50	▩	MADE GROUND: Very soft brown slightly sandy slightly gravelly CLAY with fragments of red brick and bitmac. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		■
					2.88	2.70	░	Dark green fine to coarse SAND		■
					2.58	3.00	░	Light brown fine to coarse SAND		■
								End of Borehole at 3.00m		

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0

Water Strikes				**Casing Details**	
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	To (m)	Diameter
				3.00	150

Remarks

Termination Reason

Terminated on running sands

Last Updated

28/06/2022

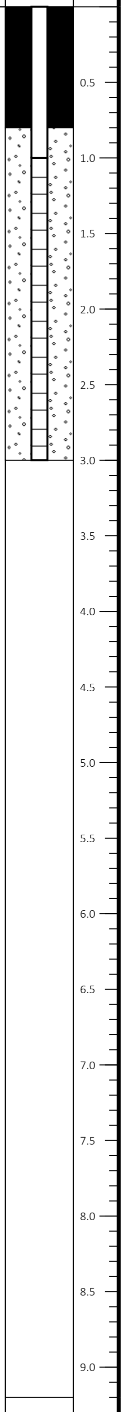
AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH663B**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Dynamic Sampling	Dando Terrier	0.00	3.00	247518.29 E 417446.06 N

Final Depth: 3.00 m	**Start Date:** 07/04/2022	**Driller:** LW	Sheet 1 of 1 Scale: 1:50
Elevation: 5.70 mOD	**End Date:** 07/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					4.30	1.40	▩	MADE GROUND: Soft dark brown slightly sandy slightly gravelly CLAY with fragments of red brick and bitmac. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
					2.70	3.00	⁘	Dark green fine to coarse SAND		
								End of Borehole at 3.00m		



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details

To (m)	Diameter
3.00	150

Remarks

Termination Reason

Terminated due to running sands

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH664**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	6.00	247552.26 E 417466.95 N

Final Depth: 6.00 m	**Start Date:** 28/03/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:40
Elevation: 5.81 mOD	**End Date:** 28/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Very soft brown mottled greyish brown slightly sandy CLAY. Sand is fine.		
0.50	ES1									
1.00	ES2									
									▼	
					4.21	1.60		Brown very silty fine SAND		
		Large seepage at 1.90m							▽	
					-0.19	6.00		End of Borehole at 6.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.90	1.90	20	1.20

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
6.00	200

Water Added

From (m)	To (m)

Termination Reason

Terminated due to blowing sands.

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH664A**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				
Cable Percussion	Dando 3000	0.00	6.00	247552.26 E 417466.95 N	**Final Depth:** 6.00 m	**Start Date:** 29/03/2022	**Driller:** CC	Sheet 1 of 1 Scale: 1:40
					Elevation: 5.81 mOD	**End Date:** 29/03/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					4.21	1.60		Very soft brown slightly sandy CLAY. Sand is fine.		
		Large seepage at 2.00m			-0.19	6.00		Brown very silty fine SAND		
								End of Borehole at 6.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00	20	1.30

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
6.00	200

Water Added

From (m)	To (m)

Termination Reason

Terminated at scheduled depth.

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH665
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	16.00	247853.62 E 417922.43 N

Final Depth:	16.00 m	**Start Date:**	04/04/2022	**Driller:**	CC	Sheet 1 of 3 Scale: 1:40
Elevation:	17.21 mOD	**End Date:**	05/04/2022	**Logger:**	SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Soft greyish brown slightly sandy gravelly CLAY with low cobble content and fragments of metal, glass, ceramic tile, rubber tyres, plastic bag, crisp wrappers, paper and pieces of wood. Sand is fine to coarse. Gravel is subrounded fine to coarse. Cobbles and boulders are subrounded.		
0.50	ES1									
1.00	ES2				16.21	1.00		MADE GROUND: Soft grey mottled black slightly sandy gravelly CLAY with low cobble and boulder content and fragments of glass, ceramic tile, plastic bags, polystyrene, crisp wrappers, metal pipe, garden refuse, wood and tin can. Poor recovery and pushing something large infront of casing. (Possible car tyre) *1.00m to 4.00m: Strong hydrocarbon odour*		
2.00	ES3	Seepage at 2.00m							▽	
3.00	ES4									
4.00	ES5				13.21	4.00		MADE GROUND: Soft greyish black sandy gravelly CLAY with low cobble and boulder content, fragments of glass, wood, plastic bags, and crisp wrappers. Sand is fine to coarse. Cobbles are subrounded.		
5.00	ES6									
6.00	ES7									
7.00	ES8									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00	20	1.95

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
12.00	200
16.00	150

Water Added

From (m)	To (m)
11.00	16.00

Termination Reason	Last Updated
Terminated at scheduled depth	28/06/2022

AGS

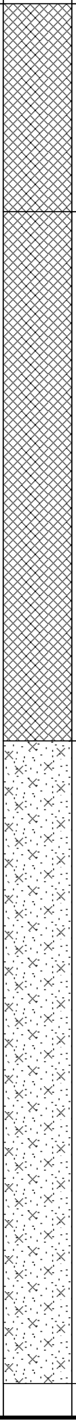
CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH665**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247853.62 E 417922.43 N

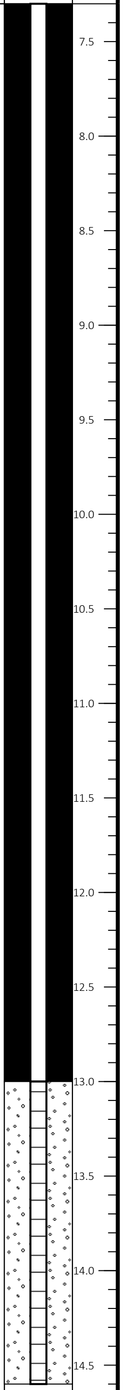
Final Depth: 16.00 m	**Start Date:** 04/04/2022	**Driller:** CC	Sheet 2 of 3 Scale: 1:40
Elevation: 17.21 mOD	**End Date:** 05/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
							MADE GROUND: Soft greyish black sandy gravelly CLAY with low cobble and boulder content, fragments of glass, wood, plastic bags, and crisp wrappers. Sand is fine to coarse. Cobbles are subrounded.
					8.81	8.40	MADE GROUND: Black clayey sandy subangular fine to coarse GRAVEL with plastic bags, rope, fragments of glass and pieces of wood. *8.4m to 11.2m: Black hydrocarbon liquid with strong hydrocarbon odour*
9.00	ES9						
10.00	ES10						
11.00	ES11						
					6.01	11.20	Brownish grey slightly silty fine to coarse SAND. *11.2m to 16.0m: Lenses of black staining with strong hydrocarbon odour*
12.00	ES12						

Legend



Backfill



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00	20	1.95

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
12.00	200
16.00	150

Water Added

From (m)	To (m)
11.00	16.00

Remarks

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

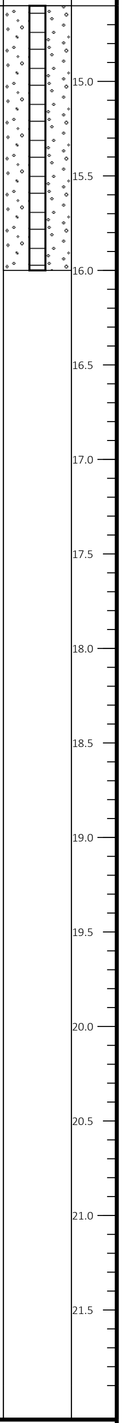
AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH665**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247853.62 E 417922.43 N

Final Depth: 16.00 m	**Start Date:** 04/04/2022	**Driller:** CC	Sheet 3 of 3 Scale: 1:40
Elevation: 17.21 mOD	**End Date:** 05/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	Brownish grey slightly silty fine to coarse SAND.		
					1.21	16.00		End of Borehole at 16.00m		



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
2.00	2.00	20	1.95

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
12.00	200
16.00	150

Water Added

From (m)	To (m)
11.00	16.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH666**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247824.79 E 417962.59 N

Final Depth: 16.00 m	**Start Date:** 06/04/2022	**Driller:** CC	Sheet 1 of 3 Scale: 1:40
Elevation: 18.26 mOD	**End Date:** 06/04/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**
0.50	ES1			
1.00	ES2			
2.00	ES3			
3.00	ES4			
4.00	ES5			
5.00	ES6			
6.00	ES7			
7.00	ES8			

Level mOD	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
		▨	MADE GROUND: Soft brown mottled grey slightly sandy gravelly CLAY with low cobble and boulder content and fragments of plastic and wood throughout. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subrounded.		
17.36	0.90	▨	MADE GROUND: Soft greyish black slightly sandy gravelly CLAY with low cobble and boulder content, fragments of red brick, concrete, tile, glass, metal pipe, wire, plastic bags, shirt sleeve and wood. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subrounded. *0.9m to 4.0m: Strong hydrocarbon odour*		
14.26	4.00	▨	MADE GROUND: Soft greyish black slightly sandy slightly gravelly CLAY with roots (2 to 30mm thick) garden refuse, fragments of glass, concrete and plastic. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. *4.0m to 5.0m: Hydrocarbon and putrid odour*		
13.26	5.00	▨	MADE GROUND: Soft greyish black mottled grey slightly sandy slightly gravelly CLAY with roots (2 to 50mm thick) with 170mm long fragments of glass, tile, plastic pipe, rope and crisp wrappers. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.50	200
16.00	150

Water Added

From (m)	To (m)
13.00	16.00

Remarks

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

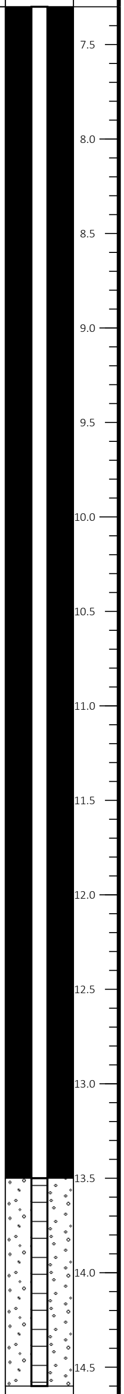
AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH666**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247824.79 E 417962.59 N

Final Depth:	16.00 m	**Start Date:**	06/04/2022	**Driller:**	CC	Sheet 2 of 3	Scale: 1:40
Elevation:	18.26 mOD	**End Date:**	06/04/2022	**Logger:**	SF	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
							MADE GROUND: Soft greyish black mottled grey slightly sandy slightly gravelly CLAY with roots (2 to 50mm thick) with 170mm long fragments of glass, tile, plastic pipe, rope and crisp wrappers. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.
8.00	ES9						
9.00	ES10				9.26	9.00	MADE GROUND: Brown slightly sandy slightly gravelly CLAY with broken ceramic tiles (2mm 150 x 100mm), plastic bags and broken glass. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. *9.0m to 10.0m: Hydrocarbon odour*
10.00	ES11				8.26	10.00	MADE GROUND: Soft greyish black slightly sandy slightly gravelly CLAY with low cobble content and fragments of wood (2 to 20mm) fragments of glass, tiles, plastic, metal wire and polystyrene. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. *10.0m to 12.8m: Hydrocarbon odour*
11.00	ES12						
12.00	ES13						
					5.46	12.80	MADE GROUND: Greyish black slightly gravelly very clayey fine to coarse SAND with fragments of plastic bags. *12.8m to 13.2m: Hydrocarbon odour*
					5.06	13.20	Brown silty fine to coarse SAND. *13.2m to 16.0m: Mild hydrocarbon odour*
14.00	ES14						



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.50	200
16.00	150

Water Added

From (m)	To (m)
13.00	16.00

Remarks

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH666**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247824.79 E 417962.59 N

Final Depth:	16.00 m	**Start Date:** 06/04/2022	**Driller:** CC	Sheet 3 of 3
				Scale: 1:40
Elevation:	18.26 mOD	**End Date:** 06/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Brown silty fine to coarse SAND.		
					2.26	16.00		End of Borehole at 16.00m		

15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
20.5
21.0
21.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.50	200
16.00	150

Water Added

From (m)	To (m)
13.00	16.00

Remarks

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** **BH667**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247861.54 E 417992.46 N

Final Depth: 16.00 m	**Start Date:** 14/04/2022	**Driller:** CC	Sheet 1 of 3 Scale: 1:40
Elevation: 19.36 mOD	**End Date:** 14/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Soft grey slightly gravelly sandy CLAY with fragments of glass, plastic and wood. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
0.50	ES1									
1.00	ES2				18.36	1.00	▨	MADE GROUND: Soft grey slightly gravelly sandy CLAY with low cobble content and plastic bags, rags, food wrapping, glass, wood and garden refuse. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. *1.0m to 3.0m: Putrid odour*		
2.00	ES3									
3.00	ES4				16.36	3.00	▨	MADE GROUND: Soft grey slightly gravelly sandy CLAY with plastic bags, food wrapping, glass, garden refuse and tiles. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. *3.0m to 4.0m: Putrid odour, mild hydrocarbon odour*		
4.00	ES5				15.36	4.00	▨	MADE GROUND: Grey very clayey sandy subangular to subrounded fine to coarse GRAVEL with low cobble content and fragments of glass, metal wire, red brick, wood and plastic. Sand is fine to coarse.		
5.00	ES6				14.36	5.00	▨	MADE GROUND: Grey mottled black slightly sandy slightly gravelly CLAY with low cobble content and plastic bags, rags, pipe, wood, food wrapping, metal sheet, wire, cans, glass, tile and garden refuse. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles and boulders are subrounded. *5.0m to 7.0m: Putrid odour*		
6.00	ES7									
7.00	ES8				12.36	7.00	▨	MADE GROUND: Greyish black mottled grey very clayey sandy subangular to subrounded fine to coarse GRAVEL with low cobble and boulder content and fragments of red brick, concrete, metal pipe, wire, wood, plastic bag aluminium foil and tile. Sand is fine to coarse. Cobbles and boulders are subangular to subrounded.		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
16.00	200	13.00	16.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

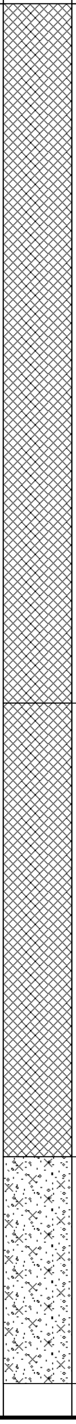
AGS

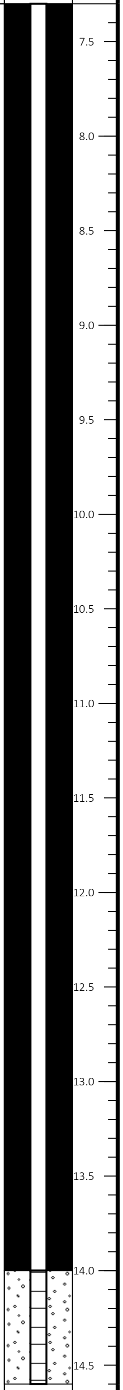
Project No.	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
22-0242	**Client:** DAERA/NIEA	**BH667**
	Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247861.54 E 417992.46 N

Final Depth: 16.00 m	**Start Date:** 14/04/2022	**Driller:** CC	Sheet 2 of 3 Scale: 1:40
Elevation: 19.36 mOD	**End Date:** 14/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Greyish black mottled grey very clayey sandy subangular to subrounded fine to coarse GRAVEL with low cobble and boulder content and fragments of red brick, concrete, metal pipe, wire, wood, plastic bag aluminium foil and tile. Sand is fine to coarse. Cobbles and boulders are subangular to subrounded.		
8.00	ES9									
9.00	ES10									
10.00	ES11									
11.00	ES12				8.36	11.00		MADE GROUND: Soft greyish brown sandy gravelly CLAY with fragments of wood, plastic bags, of garden refuse. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
12.00	ES13									
13.00	ES14									
					5.96	13.40		Brownish grey slightly silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of various lithologies.		





Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
16.00	200

Water Added

From (m)	To (m)
13.00	16.00

Remarks

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH667
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	16.00	247861.54 E 417992.46 N

Final Depth: 16.00 m **Start Date:** 14/04/2022 **Driller:** CC

Elevation: 19.36 mOD **End Date:** 14/04/2022 **Logger:** SF

Sheet 3 of 3

Scale: 1:40

FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					3.36	16.00		Brownish grey slightly silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of various lithologies.		
								End of Borehole at 16.00m		

15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
20.5
21.0
21.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
16.00	200

Water Added

From (m)	To (m)
13.00	16.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

CAUSEWAY GEOTECH	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
	22-0242	**Client:** DAERA/NIEA	**BH668**
		Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	16.00	247892.95 E 417958.06 N

Final Depth: 16.00 m	**Start Date:** 11/04/2022	**Driller:** CC	Sheet 1 of 3 Scale: 1:40
Elevation: 18.06 mOD	**End Date:** 11/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Greyish brown sandy gravelly CLAY with low cobble and boulder content and plastic bags, textiles, wood, food wrapping and glass. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles and boulders are subangular to subrounded *0.0m to 4.0m: Hydrocarbon odour*		
0.50	ES1									
1.00	ES2									
2.00	ES3									
3.00	ES4									
4.00	ES5				14.06	4.00	▨	MADE GROUND: Brown sandy very clayey subangular to subrounded fine to coarse GRAVEL with low cobble and boulder content and plastic bags, bottles, rags and food wrapping. Sand is fine to coarse. Cobbles and boulders are subangular to subrounded. *4.0m to 6.0m: Hydrocarbon odour*		
5.00	ES6									
6.00	ES7				12.06	6.00	▨	MADE GROUND: Soft greyish black sandy gravelly CLAY with low cobble content and plastic bags, rags, tape, glass, tile, wood, garden refuse of decomposed appear. Sand is fine to coarse. Gravel is subangular to subroudned fine to coarse. Cobbles are subangular. *6.0m to 8.0m: Hydrocarbon odour*		
7.00	ES8									

Depth scale: 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)
3.60	4.20	01:00

Casing Details

To (m)	Diameter
10.50	200
16.00	150

Water Added

From (m)	To (m)

Remarks

No ES sample at 16.0m due to sand washing out

Termination Reason	Last Updated
Terminated at scheduled depth	28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH668**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247892.95 E 417958.06 N

Final Depth: 16.00 m	**Start Date:** 11/04/2022	**Driller:** CC	Sheet 2 of 3 Scale: 1:40
Elevation: 18.06 mOD	**End Date:** 11/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: Soft greyish black sandy gravelly CLAY with low cobble content and plastic bags, rags, tape, glass, tile, wood, garden refuse of decomposed appear. Sand is fine to coarse. Gravel is subangular to subroudned fine to coarse. Cobbles are subangular.		
8.00	ES9				10.06	8.00	▨	MADE GROUND: Dark brown slightly sandy gravelly CLAY with low cobble content and plastic bags, clothing, metal, rope, glass, brick and timber. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse. Cobbles are subrounded. *8.0m to 13.5m: Weak hydrocarbon odour*		
9.00	ES10									
10.00	ES11									
11.00	ES12									
12.00	ES13									
13.00	ES14									
					4.56	13.50	▨	MADE GROUND: Greenish brown mottled black slightly gravelly silty fine to coarse SAND with occasional fragments of metal and rubber. Gravel is subangular fine to medium. *13.5m to 15.0m: Strong hydrocarbon odour*		
14.00	ES15									

Water Strikes			
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details		
From (m)	To (m)	Time (hh:mm)
3.60	4.20	01:00

Casing Details	
To (m)	Diameter
10.50	200
16.00	150

Water Added	
From (m)	To (m)

Remarks

No ES sample at 16.0m due to sand washing out

Termination Reason

Terminated at scheduled depth

Last Updated

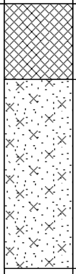
28/06/2022

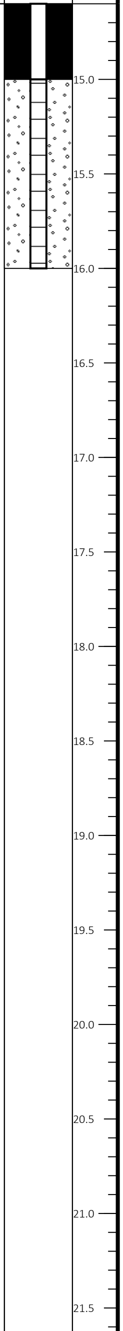
Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH668**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247892.95 E 417958.06 N

Final Depth: 16.00 m	**Start Date:** 11/04/2022	**Driller:** CC	Sheet 3 of 3 Scale: 1:40
Elevation: 18.06 mOD	**End Date:** 11/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Greenish brown mottled black slightly gravelly silty fine to coarse SAND with occasional fragments of metal and rubber. Gravel is subangular fine to medium.		
15.00	ES16				3.06	15.00		Dark greenish grey silty fine SAND		
					2.06	16.00		End of Borehole at 16.00m		





Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)
3.60	4.20	01:00

Casing Details

To (m)	Diameter
10.50	200
16.00	150

Water Added

From (m)	To (m)

Remarks

No ES sample at 16.0m due to sand washing out

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2		**Borehole ID**
22-0242	**Client:** DAERA/NIEA		**BH669**
	Client's Rep: Tetra Tech		

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	16.00	247828.89 E 417933.66 N

Final Depth: 16.00 m	**Start Date:** 07/04/2022	**Driller:** CC	Sheet 1 of 3 Scale: 1:40
Elevation: 17.32 mOD	**End Date:** 07/04/2047	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Soft greyish brown sandy gravelly CLAY with plastic bags, wood, garden refuse-roots (2 to 20mm x 200mm) tile, glass and metal wire. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
0.50	ES1									
1.00	ES2				16.32	1.00		MADE GROUND: Greyish black sandy gravelly CLAY with plastic bags, rags, rope, string, food wrapping, wood, tile and metal wire. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. *1.0m to 3.0m: Hydrocarbon odour*		
2.00	ES3									
3.00	ES4				14.32	3.00		MADE GROUND: Soft grey sandy gravelly CLAY with low cobble and boulder content and carpet, tiles, rubber tyre, plastic bags, rags, string, garden refuse, roots (2 to 25mm x 150mm) and glass. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles and boulders are subangular to subrounded. *3.0m to 5.0m: Hydrocarbon odour*		
4.00	ES5									
5.00	ES6				12.32	5.00		MADE GROUND: Soft greyish black slightly gravelly sandy CLAY with low cobble and boulder content and carpet tiles, carpet, rubber, tyres, tiles, plastic bags, rags, glass, metal sheet, wire, garden refuse, textiles and polystyrene. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles and boulders are subangular to subrounded. *5.0m to 12.6m: Strong hydrocarbon odour*		
6.00	ES7									
7.00	ES8									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)
3.50	5.00	02:00

Remarks

Casing Details

To (m)	Diameter
10.50	200
16.00	150

Water Added

From (m)	To (m)
12.60	16.00

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH669**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247828.89 E 417933.66 N

Final Depth: 16.00 m	**Start Date:** 07/04/2022	**Driller:** CC	Sheet 2 of 3 Scale: 1:40
Elevation: 17.32 mOD	**End Date:** 07/04/2047	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
8.00	ES9							MADE GROUND: Soft greyish black slightly gravelly sandy CLAY with low cobble and boulder content and carpet tiles, carpet, rubber, tyres, tiles, plastic bags, rags, glass, metal sheet, wire, garden refuse, textiles and polystyrene. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles and boulders are subangular to subrounded.		
9.00	ES10									
10.00	ES11									
11.00	ES12									
12.00	ES13									
					4.72	12.60		Brown mottled greyish black slightly silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium. *12.6m to 13.3m: Hydrocarbon odour*		
					4.02	13.30		Brownish grey slightly silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium.		
13.50	ES14									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)
3.50	5.00	02:00

Casing Details

To (m)	Diameter
10.50	200
16.00	150

Water Added

From (m)	To (m)
12.60	16.00

Remarks

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** **BH669**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	16.00	247828.89 E 417933.66 N

Final Depth: 16.00 m	**Start Date:** 07/04/2022	**Driller:** CC	Sheet 3 of 3 Scale: 1:40
Elevation: 17.32 mOD	**End Date:** 07/04/2047	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
					1.32	16.00		Brownish grey slightly silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium.		
								End of Borehole at 16.00m		

15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
20.5
21.0
21.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)
3.50	5.00	02:00

Casing Details

To (m)	Diameter
10.50	200
16.00	150

Water Added

From (m)	To (m)
12.60	16.00

Remarks

Termination Reason

Terminated at scheduled depth

Last Updated

28/06/2022

AGS

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** **BH670**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	15.00	247794.81 E 417913.33 N

Final Depth: 15.00 m	**Start Date:** 12/04/2022	**Driller:** CC	Sheet 1 of 3 Scale: 1:40
Elevation: 16.00 mOD	**End Date:** 12/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					15.50	0.50	▨	MADE GROUND: Brown gravelly sandy CLAY with fragment of brick, concrete and plastic. Sand is fine to coarse. Gravel is angular to subangular fine to coarse.		▮
0.50	ES1						▨	MADE GROUND: Dark greyish brownish black clayey sandy angular to subangular fine to coarse GRAVEL with domestic waste, shredded plastic, timber, glass and ceramic. Sand is fine to coarse		▮
1.00	ES2									
2.00	ES3									
3.00	ES4									
								4.00m: Crisp packet dated 2002 *4.00m to 5.00m: Increased volume of shredded plastic*		
5.00	ES5									
					10.30	5.70	▨	MADE GROUND: Greyish brown sandy gravelly silty CLAY with fragments of concrete and schist. Sand is fine to coarse. Gravel is angular to subangular fine to coarse.		▮
6.00	ES6									
7.00	ES7									
					8.70	7.30				

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
7.50	200
10.50	150

Water Added

From (m)	To (m)

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

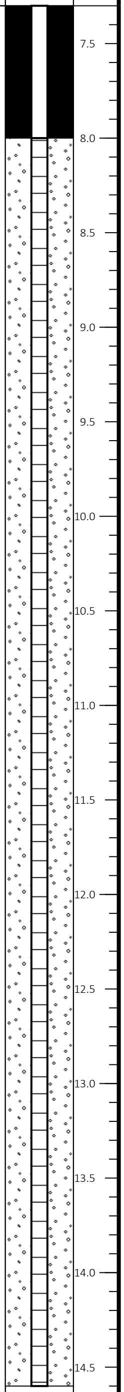
28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH670**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	15.00	247794.81 E 417913.33 N

Final Depth: 15.00 m	**Start Date:** 12/04/2022	**Driller:** CC	Sheet 2 of 3 Scale: 1:40
Elevation: 16.00 mOD	**End Date:** 12/04/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
								Grey silty gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse.		
8.00	ES8									
10.00	ES9									



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
7.50	200
10.50	150

Water Added

From (m)	To (m)

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH670**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	15.00	247794.81 E 417913.33 N

Final Depth: 15.00 m	**Start Date:** 12/04/2022	**Driller:** CC	Sheet 3 of 3 Scale: 1:40
Elevation: 16.00 mOD	**End Date:** 12/04/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
					1.00	15.00		Grey silty gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse.		
								End of Borehole at 15.00m		

15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
20.5
21.0
21.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
7.50	200
10.50	150

Water Added

From (m)	To (m)

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH671**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				Sheet 1 of 2
Cable Percussion	Dando 3000	0.00	10.50	247852.84 E 417899.54 N	**Final Depth:** 10.50 m	**Start Date:** 11/04/2022	**Driller:** CC	Scale: 1:40
					Elevation: 9.91 mOD	**End Date:** 12/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					9.66	0.25		MADE GROUND: Reinforced CONCRETE		
0.50	ES1				8.51	1.40		MADE GROUND: Light brown silty very gravelly fine to coarse SAND with high cobble and boulder content. Gravel is subangular to subrounded fine to coarse. Cobbles and boulders are rounded (Hardcore fill)		
1.00	ES2									
2.00	ES3				6.91	3.00		MADE GROUND: Black occasionally mottled brown sandy gravelly CLAY with plastic, timber and organic material. Sand is fine to coarse. Gravel is subrounded fine to coarse. *1.4m to 3.0m: Hydrocarbon odour*		
3.00	ES4				6.61	3.30		MADE GROUND: Black slightly sandy gravelly silty CLAY with occasional fragments of wire, timber, plastic piping. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse. *3.0m to 3.3m: Strong hydrocarbon odour*		
4.00	ES5							Dark greenish brown silty fine to coarse SAND. *3.3m to 10.5m: Hydrocarbon odour*		
5.00	ES6									

Water Strikes				**Chiselling Details**		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
5.00	200	1.00	10.00
10.50	150		

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH671**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	10.50	247852.84 E 417899.54 N

Final Depth: 10.50 m	**Start Date:** 11/04/2022	**Driller:** CC	Sheet 2 of 2 Scale: 1:40
Elevation: 9.91 mOD	**End Date:** 12/04/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
					-0.59	10.50		Dark greenish brown silty fine to coarse SAND.		
								End of Borehole at 10.50m		

Depth scale: 7.5, 8.0, 8.5, 9.0, 9.5, 10.0, 10.5, 11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
5.00	200
10.50	150

Water Added

From (m)	To (m)
1.00	10.00

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH672**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	11.00	247862.48 E 417877.70 N

Final Depth: 11.00 m	**Start Date:** 13/04/2022	**Driller:** CC	Sheet 1 of 2 Scale: 1:40
Elevation: 9.27 mOD	**End Date:** 14/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Reinforced CONCRETE		
					8.97	0.30		MADE GROUND: Brown silty sandy angular to subangular fine to coarse GRAVEL with fragments of brick and concrete. Sand is fine to coarse.		
0.50	ES1									
					8.57	0.70		MADE GROUND: Grey clayey very sandy angular to subrounded fine to coarse GRAVEL with low cobble content, fragments of ceramic, metal and plastic. Sand is fine to coarse.		
1.00	ES2									
2.00	ES3									
					6.57	2.70		Brown silty gravelly fine to medium SAND. Gravel is subangular to subrounded fine to coarse.		
3.00	ES4									
4.00	ES5									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
3.00	200
11.00	150

Water Added

From (m)	To (m)

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.**	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
	22-0242	**Client:** DAERA/NIEA	**BH672**
		Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				Sheet 2 of 2 Scale: 1:40
Cable Percussion	Dando 3000	0.00	11.00	247862.48 E 417877.70 N	**Final Depth:** 11.00 m	**Start Date:** 13/04/2022	**Driller:** CC	
					Elevation: 9.27 mOD	**End Date:** 14/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Brown silty gravelly fine to medium SAND. Gravel is subangular to subrounded fine to coarse.		
					-1.73	11.00		End of Borehole at 11.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes				**Chiselling Details**		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Casing Details		**Water Added**	
To (m)	Diameter	From (m)	To (m)
3.00	200		
11.00	150		

Remarks

Termination Reason	**Last Updated**
Terminated on engineers instruction	28/06/2022

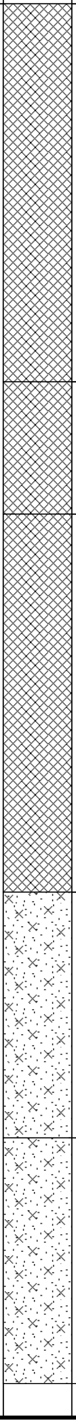
AGS

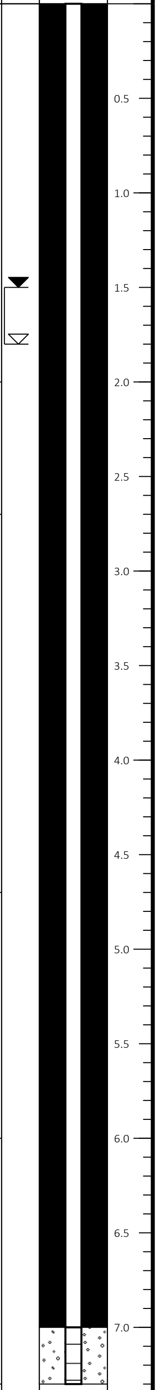
CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH673**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	10.00	247834.91 E 417899.32 N

Final Depth:	10.00 m	**Start Date:**	20/04/2022	**Driller:**	CC	Sheet 1 of 2 Scale: 1:40
Elevation:	10.37 mOD	**End Date:**	20/04/2022	**Logger:**	SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Greyish brown clayey sandy subangular to subrounded fine to coarse GRAVEL with low cobble content and fragments of wood, red brick and concrete. Sand is fine to coarse. Cobbles are subangular to subrounded. *0.0m to 2.0m: Mild hydrocarbon odour*		
0.50	ES1									
1.00	ES2									
		Water strike at 1.80m								
2.00	ES3				8.37	2.00		MADE GROUND: Greyish black slightly gravelly sandy CLAY with garden refuse, textiles, fragments of red brick, concrete and wood. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. *2.0m to 2.7m: Strong hydrocarbon odour*		
					7.67	2.70		MADE GROUND: Black clayey gravelly fine to coarse SAND with garden refuse and fragments of wood. Gravel is subangular to subrounded fine to coarse *2.7m to 4.7m: Viscous hydrocarbon liquid with strong hydrocarbon odour*		
3.00	ES4									
					5.67	4.70		Brown slightly silty fine to coarse SAND with lenses of black slightly silty fine to coarse SAND. *2.7m to 6.0m: Hydrocarbon odour*		
5.00	ES5									
6.00	ES6				4.37	6.00		Brown slightly silty fine to coarse SAND		





Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.80	1.80	20	1.50

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
6.00	200
10.00	150

Water Added

From (m)	To (m)
5.00	9.00

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

AGS

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**
22-0242	**Client:** DAERA/NIEA	**BH673**
	Client's Rep: Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	10.00	247834.91 E 417899.32 N

Final Depth: 10.00 m	**Start Date:** 20/04/2022	**Driller:** CC	Sheet 2 of 2 Scale: 1:40
Elevation: 10.37 mOD	**End Date:** 20/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								Brown slightly silty fine to coarse SAND		
					0.37	10.00		End of Borehole at 10.00m		

7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12.0
12.5
13.0
13.5
14.0
14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.80	1.80	20	1.50

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
6.00	200
10.00	150

Water Added

From (m)	To (m)
5.00	9.00

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2	**Borehole ID**	
22-0242	**Client:** DAERA/NIEA	**BH674**	
	Client's Rep: Tetra Tech		

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	12.00	247881.94 E 417911.74 N

Final Depth: 12.00 m	**Start Date:** 15/04/2022	**Driller:** CC	Sheet 1 of 2 Scale: 1:40
Elevation: 11.47 mOD	**End Date:** 15/04/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Soft grey slightly sandy gravelly CLAY with plastic bags, textiles, refuse, fragments of tile, glass and wood. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
0.50	ES1									
1.00	ES2				10.47	1.00		MADE GROUND: Soft greyish black slightly sandy slightly gravelly CLAY with textiles, carpet, rubber tyres, plastic bags, food wrapping, fragments of wood, glass, garden refuse. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium. *1.0m to 3.4m: Putrid odour*		
2.00	ES3									
3.00	ES4									
3.40	ES5				8.07	3.40		MADE GROUND: Black DOMESTIC WASTE comprising textiles, plastic bags, food wrapping, fragments of wood, glass and red brick. *3.4m to 4.0m: Black hydrocarbon liquid with strong hydrocarbon odour*		
4.00	ES6				7.47	4.00		Dark greyish black slightly silty sandy subangular to subrounded fine to coarse GRAVEL with low cobble and boulder content. Sand is fine to coarse. Cobbles and boulders are subrounded. *4.0m to 6.3m: Strong hydrocarbon odour*		
5.00	ES7									
					5.17	6.30		Greyish brown slightly silty fine to coarse SAND. *6.3m to 12.0m: Mild hydrocarbon odour*		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
6.00	200
12.00	150

Water Added

From (m)	To (m)
6.00	12.00

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

Project No.	**Project Name:** Mobuoy Remediation Project Phase 2		**Borehole ID**
22-0242	**Client:**	DAERA/NIEA	**BH674**
	Client's Rep:	Tetra Tech	

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	12.00	247881.94 E 417911.74 N

Final Depth: 12.00 m	**Start Date:**	15/04/2022	**Driller:**	CC	Sheet 2 of 2	Scale: 1:40
Elevation: 11.47 mOD	**End Date:**	15/04/2022	**Logger:**	SF	FINAL	

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
								Greyish brown slightly silty fine to coarse SAND.		
					-0.53	12.00		End of Borehole at 12.00m		

7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
6.00	200
12.00	150

Water Added

From (m)	To (m)
6.00	12.00

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH675**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**				
Cable Percussion	Dando 3000	0.00	13.00	247897.24 E 417900.97 N	**Final Depth:** 13.00 m	**Start Date:** 12/05/2022	**Driller:** CC	Sheet 1 of 2 Scale: 1:40
					Elevation: 13.20 mOD	**End Date:** 12/05/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					13.00	0.20	▨	MADE GROUND: Grey silty sandy angular fine to coarse GRAVEL with high cobble content. Sand is fine to coarse.		
0.50	ES1				11.60	1.60	▨	MADE GROUND: Black DOMESTIC WASTE of plastics, clothing, carpet, rubber, metal and timber.		
1.00	ES2									
					11.20	2.00	▨	MADE GROUND: Dark brown clayey sandy subangular to subrounded fine to coarse GRAVEL with occasional plastics. Sand is fine to coarse.		
2.00	ES3						▨	MADE GROUND: Black slightly sandy gravelly SILT with high volume of timber, plastics, carpet metal and textiles. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
3.00	ES4									
4.00	ES5							*4.00m to 9.00m: Yellow powder encountered, very strong smell of rotten cheese. Bicycle tyres, electrical wire and glass.*		
5.00	ES6									
6.00	ES7									
7.00	ES8									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
10.00	200
13.00	150

Water Added

From (m)	To (m)

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

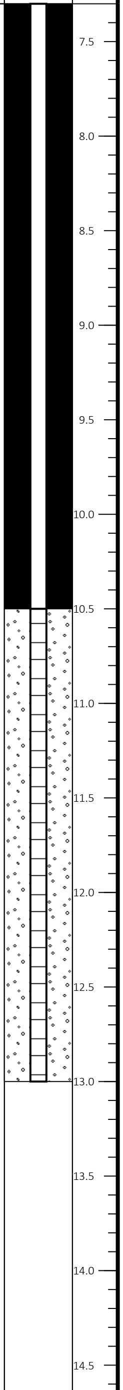
AGS

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH675
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	13.00	247897.24 E 417900.97 N

Final Depth: 13.00 m	**Start Date:** 12/05/2022	**Driller:** CC	Sheet 2 of 2 Scale: 1:40
Elevation: 13.20 mOD	**End Date:** 12/05/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▩	MADE GROUND: Black slightly sandy gravelly SILT with high volume of timber, plastics, carpet metal and textiles. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
8.00	ES9									
9.00	ES10									
					3.40	9.80	⁙	Brown silty fine SAND		
10.00	ES11									
13.00	ES12				0.20	13.00		End of Borehole at 13.00m		



Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
10.00	200
13.00	150

Water Added

From (m)	To (m)

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

CAUSEWAY GEOTECH	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
	22-0242	Client: DAERA/NIEA	BH676
		Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	12.00	247813.48 E 417882.03 N

Final Depth: 12.00 m	**Start Date:** 09/05/2022	**Driller:** CC	Sheet 1 of 2	Scale: 1:40
Elevation: 11.31 mOD	**End Date:** 10/05/2022	**Logger:** SF	FINAL	

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Grey slightly sandy angular to subangular fine to coarse GRAVEL with low cobble content, fragments of brick and concrete. Sand is fine to coarse. Cobbles are angular.		
0.50	ES1				10.81	0.50		MADE GROUND: Brown very clayey sandy subangular to subrounded fine to coarse GRAVEL with fragments of plastic, rubber, polystyrene, glass and timber. Sand is fine to coarse.		
1.00	ES2				10.31	1.00		MADE GROUND: Black sandy gravelly SILT with fragments of timber, glass, plastic, carpet, lino flooring and textiles. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
2.00	ES3									
3.00	ES4									
4.00	ES5									
5.00	ES6				6.31	5.00		Dark brown and black silty fine to coarse SAND. *5.0m to 12.0m: Strong hydrocarbon odour*		
6.00	ES7									
7.00	ES8									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
5.00	200
12.00	150

Water Added

From (m)	To (m)
8.00	12.00

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

AGS

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech		**Borehole ID** **BH676**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	12.00	247813.48 E 417882.03 N

Final Depth: 12.00 m	**Start Date:** 09/05/2022	**Driller:** CC	Sheet 2 of 2 Scale: 1:40
Elevation: 11.31 mOD	**End Date:** 10/05/2022	**Logger:** SF	FINAL

Depth (m)	**Sample / Tests**	**Field Records**	**Casing Depth (m)**	**Water Depth (m)**	**Level mOD**	**Depth (m)**	**Legend**	**Description**	**Water**	**Backfill**
								Dark brown and black silty fine to coarse SAND.		
8.00	ES9									
12.00	ES10				-0.69	12.00				
								End of Borehole at 12.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
5.00	200
12.00	150

Water Added

From (m)	To (m)
8.00	12.00

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH677**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	12.00	247826.12 E 417873.35 N

Final Depth:	12.00 m	**Start Date:**	11/05/2022	**Driller:**	CC	Sheet 1 of 2 Scale: 1:40
Elevation:	11.43 mOD	**End Date:**	11/05/2022	**Logger:**	SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							▨	MADE GROUND: CONCRETE		
					11.18	0.25	▨	MADE GROUND: Grey very clayey sandy angular to subangular fine to coarse GRAVEL with low cobble content and occasional timber and glass. Sand is fine to coarse.		
0.50	ES1									
1.00	ES2									
					9.83	1.60	▨	MADE GROUND: Black occasional mottled dark brown slightly gravelly sandy SILT with low cobble content and fragments of timber, glass, textiles, red brick, concrete and metal wire. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
2.00	ES3									
3.00	ES4									
4.00	ES5									
5.00	ES6									
					5.63	5.80	▨	MADE GROUND: Black slightly sandy subangular fine to coarse GRAVEL with high volume of timber, metal, glass, plastic, rubber. *5.8m to 9.3m: Hydrocarbon odour*		
6.00	ES7									
7.00	ES8									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
9.00	200
12.00	150

Water Added

From (m)	To (m)

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

AGS

Project No. **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH677**

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	12.00	247826.12 E 417873.35 N

Final Depth: 12.00 m	**Start Date:** 11/05/2022	**Driller:** CC	Sheet 2 of 2 Scale: 1:40
Elevation: 11.43 mOD	**End Date:** 11/05/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Black slightly sandy subangular fine to coarse GRAVEL with high volume of timber, metal, glass, plastic, rubber.		
8.00	ES9									
9.00	ES10									
					2.13	9.30		Dark brown silty fine to coarse SAND. *9.3m to 12.0m: Slight hydrocarbon odour*		
12.00	ES11				-0.57	12.00		End of Borehole at 12.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
9.00	200
12.00	150

Water Added

From (m)	To (m)

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

CAUSEWAY GEOTECH	**Project No.** **22-0242**	**Project Name:** Mobuoy Remediation Project Phase 2 **Client:** DAERA/NIEA **Client's Rep:** Tetra Tech	**Borehole ID** **BH678**

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	12.00	247814.44 E 417852.90 N

Final Depth: 12.00 m	**Start Date:** 10/05/2022	**Driller:** CC	Sheet 1 of 2 Scale: 1:40
Elevation: 12.48 mOD	**End Date:** 11/05/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
					12.18	0.30	▨	MADE GROUND: CONCRETE		
0.50	ES1				10.58	1.90	▨	MADE GROUND: Grey sandy very silty angular to subangular fine to coarse GRAVEL with medium cobble content and occasional plastic (crisp packet dated 2001) timber (chipboard and MDF), red brick and textiles.		
1.00	ES2									
2.00	ES3						▨	MADE GROUND: Black slightly sandy gravelly SILT with pockets of brown silty sand and fragments of timber, glass, plastic, beer bottle tops and textiles.		
3.00	ES4									
4.00	ES5									
5.00	ES6									
6.00	ES7									
7.00	ES8									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
8.00	200
12.00	150

Water Added

From (m)	To (m)
7.70	12.00

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH	Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
	22-0242	Client: DAERA/NIEA	BH678
		Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	12.00	247814.44 E 417852.90 N

Final Depth:	12.00 m	**Start Date:**	10/05/2022	**Driller:**	CC	Sheet 2 of 2 Scale: 1:40
Elevation:	12.48 mOD	**End Date:**	11/05/2022	**Logger:**	SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
								MADE GROUND: Black slightly sandy gravelly SILT with pockets of brown silty sand and fragments of timber, glass, plastic, beer bottle tops and textiles.		
7.70	ES9				4.78	7.70		Dark brown silty fine to coarse SAND		
12.00	ES10				0.48	12.00		End of Borehole at 12.00m		

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
8.00	200
12.00	150

Water Added

From (m)	To (m)
7.70	12.00

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

AGS

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Borehole ID** BH679
	Client: DAERA/NIEA		
	Client's Rep: Tetra Tech		

Method	**Plant Used**	**Top (m)**	**Base (m)**	**Coordinates**
Cable Percussion	Dando 3000	0.00	12.00	247834.40 E 417855.68 N

Final Depth: 12.00 m	**Start Date:** 16/05/2022	**Driller:** CC	Sheet 1 of 2 Scale: 1:40
Elevation: 12.34 mOD	**End Date:** 16/05/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							░	MADE GROUND: CONCRETE		
					12.04	0.30	▨	MADE GROUND: Dark grey and brown sandy gravelly SILT with high cobble content, fragments of plastic, glass, timber and red brick. Gravel is subangular fine to coarse. Cobbles are subangular.		
0.50	ES1				11.84	0.50	▨	MADE GROUND: Brown slightly sandy slightly gravelly SILT with fragments of plastic and timber. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
1.00	ES2									
2.00	ES3									
					9.94	2.40	▨	MADE GROUND: Brown slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
3.00	ES4									
					8.64	3.70	▨	MADE GROUND: Black silty very gravelly fine to coarse SAND with low cobble content and fragments of metal. Gravel is subangular to subrounded fine to medium. Cobbles are subangular.		
4.00	ES5									
5.00	ES6									
					6.54	5.80	▨	MADE GROUND: Dark grey and brown slightly sandy slightly gravelly silty CLAY with fragments of plastic, glass and metal with pockets of black sandy subangular to subrounded GRAVEL with high volume timber, metal and glass.		
6.00	ES7									
7.00	ES8									

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
8.00	8.00	20	7.60

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Remarks

Casing Details

To (m)	Diameter
9.00	200
13.00	150

Water Added

From (m)	To (m)
8.00	12.00

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

CAUSEWAY GEOTECH

Project No.	Project Name: Mobuoy Remediation Project Phase 2	Borehole ID
22-0242	Client: DAERA/NIEA	BH679
	Client's Rep: Tetra Tech	

Method	Plant Used	Top (m)	Base (m)	Coordinates
Cable Percussion	Dando 3000	0.00	12.00	247834.40 E 417855.68 N

Final Depth: 12.00 m	**Start Date:** 16/05/2022	**Driller:** CC	Sheet 2 of 2 Scale: 1:40
Elevation: 12.34 mOD	**End Date:** 16/05/2022	**Logger:** SF	FINAL

Depth (m)	Sample / Tests	Field Records	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Description
							MADE GROUND: Dark grey and brown slightly sandy slightly gravelly silty CLAY with fragments of plastic, glass and metal with pockets of black sandy subangular to subrounded GRAVEL with high volume timber, metal and glass.
8.00	ES9	Water strike at 8.00m					
					3.44	8.90	Brown silty fine to coarse SAND
					0.34	12.00	End of Borehole at 12.00m

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
8.00	8.00	20	7.60

Chiselling Details

From (m)	To (m)	Time (hh:mm)

Casing Details

To (m)	Diameter
9.00	200
13.00	150

Water Added

From (m)	To (m)
8.00	12.00

Remarks

Termination Reason

Terminated on engineers instruction

Last Updated

28/06/2022

AGS

CAUSEWAY GEOTECH

Method: Trial Pitting	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP601**
	Coordinates 248050.49 E 418223.35 N	**Client:** DAERA/NIEA	
		Client's Representative: Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 13.48 mOD	**Date:** 23/11/2021	**Logger:** LN
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	Bluish grey silty sandy angular fine to coarse GRAVEL with high cobble and boulder content. Sand is fine to coarse. Cobbles are and boulders are angular. (Weathered rock) DCLY	
1.00 1.00	B2 ES1		12.48	1.00		End of trial pit at 1.00m	

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

Water Strikes	
Struck at (m)	Remarks

Depth: 1.00
Width: 1.50
Length: 4.00

Remarks:
No groundwater encountered

Stability:
Stable

Termination Reason
Terminated on possible bedrock

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

	Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP602**
	Coordinates 248049.03 E 418212.67 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 13.58 mOD	**Date:** 29/11/2021 — **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
						Grey and bluish grey slightly sandy silty angular fine to coarse GRAVEL with high cobble and boulder content. Sand is fine to coarse. Cobbles and boulders are angular. (Weathered bedrock) DCLY	
0.50 0.50	B2 ES1						
			12.58	1.00			
						End of trial pit at 1.00m	

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

Water Strikes	
Struck at (m)	Remarks

Depth: 1.00
Width: 1.50
Length: 4.10

Remarks:
No groundwater encountered

Stability:
Stable

Termination Reason
Terminated on refusal

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID**
	Coordinates 248113.55 E 418072.48 N	**Client:** DAERA/NIEA	**TP603**
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 25.09 mOD	**Date:** 23/11/2021 **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft to firm brown slightly sandy slightly gravelly CLAY with fragments of brick and clay pipe. Sand is fine to coarse. Gravel is angular to subangular fine to coarse.	
0.50	ES1						
			24.39	0.70	▨	MADE GROUND: Black DOMESTIC WASTE of plastic, household waste, metal, glass, and timber. *0.70m to 1.30m: Strong putrid odour*	
1.00	ES2						
			23.79	1.30	▨	MADE GROUND: Soft to firm black and dark grey slightly sandy gravelly SILT with plastic. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
2.00	ES3						
			22.19	2.90	▨	MADE GROUND: Multicoloured DOMESTIC WASTE of plastic, carpet, clothing and household items.	
3.00	ES4						
			21.59	3.50		End of trial pit at 3.50m	

Water Strikes	
Struck at (m)	Remarks

Depth: 3.50
Width: 1.20
Length: 6.00

Remarks:
No groundwater encountered

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP604**
	Coordinates 248091.16 E 418047.33 N	**Client:** DAERA/NIEA		
Method: Trial Pitting		**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 23.66 mOD	**Date:** 22/11/2021	**Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Dark blackish grey silty very sandy angular to subrounded fine to coarse GRAVEL with low cobble and boulder content, domestic waste, plastics, bricks, timber, crockery, root and rootlets. Pockets of decaying organic matter. Sand is fine to coarse.	
0.50	ES1						
			22.66	1.00	▨	MADE GROUND: Black DOMESTIC WASTE in a clay matrix. Plastics, glass, timber, cobbles and brick. *1.00m to 1.50m: Putrid odour*	
1.10	ES2						
			22.16	1.50	▨	MADE GROUND: Firm black and grey slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
1.70	ES3						
			21.76	1.90	▨	MADE GROUND: Brownish grey very silty very sandy angular to subrounded fine to coarse GRAVEL. Sand is fine to coarse.	
2.00	B5						
			20.86	2.80	▨	MADE GROUND: Multicoloured DOMESTIC WASTE predominantly plastics, metal, clothes and timber. *2.80m to 3.50m: Putrid odour*	
3.00	ES4						
			20.16	3.50		End of trial pit at 3.50m	

Water Strikes	
Struck at (m)	Remarks

Depth: 3.50
Width: 1.10
Length: 6.00

Remarks:
No groundwater encountered

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

AGS

	Project No.	**Project Name:**	**Trial Pit ID**
CAUSEWAY GEOTECH	22-0242	Mobuoy Remediation Project Phase 2	**TP605**
	Coordinates	**Client:**	
	247954.23 E 417915.85 N	DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 12.41 mOD	**Date:** 22/11/2021	**Logger:** LN
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft to firm brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of mixed lithologies.	
0.50	ES1						
			11.61	0.80	▨	MADE GROUND: Firm to stiff black mottled blackish grey slightly sandy slightly gravelly silty CLAY with fragments of brick, timber, glass and crockery. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
1.00	B5						
1.00	ES2						
2.00	ES3						
			9.61	2.80	⁙	Brownish grey silty fine to coarse SAND with medium cobble and boulder content. Sand is fine to coarse. Cobbles and boulders are rounded. GFSD	
3.00	B6						
3.00	ES4						
			9.21	3.20		End of trial pit at 3.20m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Water Strikes	
Struck at (m)	Remarks

Depth: 3.20
Width: 0.70
Length: 4.00

Remarks:
No groundwater encountered

Stability:
Unstable

Termination Reason
Terminated due to pit walls collapsing

Last Updated
28/06/2022

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP606**
Coordinates 247996.85 E 417930.11 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 13.08 mOD	**Date:** 22/11/2021	**Logger:** LN
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft to firm brown slightly sandy slightly gravelly silty CLAY with fragments of red brick and boulder sized fragments of red brick wall. Sand is fine to coarse. Gravel is subrounded fine to coarse.	
0.50 0.50	B5 ES1						
			11.78	1.30	▨	MADE GROUND: Firm to stiff dark brown and black grey slightly sandy slightly gravelly silty CLAY with fragments of red brick, plastic, metal, timber and roots. Boulders of red brick, waste and concrete. Sand is fine to coarse.	
1.50	ES2						
2.50	ES3						
			10.08	3.00	⁙	Light brown very silty very gravelly fine to coarse SAND with low cobble content. Gravel is subrounded fine to coarse. Cobbles are rounded. GFSD	
3.60 3.60	B6 ES4		9.48	3.60		End of trial pit at 3.60m	

Water Strikes		
Struck at (m)	Remarks	
		Depth: 3.60 **Width:** 0.80 **Length:** 0.40

Remarks:
No groundwater encountered

Stability:	**Termination Reason**	**Last Updated**
Unstable	Terminate due to pit walls collapsing	28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP607**
Coordinates 247940.87 E 417856.68 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 10.62 mOD	**Date:** 22/11/2021	**Logger:** LN
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft to firm brown slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse.	
0.50	ES1						
			10.02	0.60	░	Light brown slightly gravelly fine to coarse SAND. Gravel is subrounded to rounded fine. GFSD	
1.00	ES2						
2.00	ES3						
2.60	B4						
			7.52	3.10		End of trial pit at 3.10m	

Water Strikes

Struck at (m)	Remarks

Depth: 3.10
Width: 0.80
Length: 4.00

Remarks:
No groundwater encountered

Stability:
Stable

Termination Reason
Scheduled depth

Last Updated
28/06/2022

AGS

	Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP608**
	Coordinates 247901.74 E 417801.56 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 7.40 mOD	**Date:** 25/11/2021 **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					░	MADE GROUND: Reinforced CONCRETE.	
			7.15	0.25	▩	MADE GROUND: Greyish brown very gravelly fine to coarse SAND with low cobble content. Gravel is subrounded to rounded fine to coarse. Cobbles are subrounded to rounded. With plastics.	
0.50	ES1						
1.00	ES2		6.40	1.00	▨	Firm to stiff lightly brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to coarse. Cobbles are rounded. GFSD	
1.20	B4						
			5.60	1.80	▨	Grey slightly silty slightly gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to medium. GFSD	
2.00	ES3						
2.10	B5	Seepage at 2.1m					▼
			4.80	2.60	▨	Light brown silty fine SAND. GFSD	
3.00	B6						
			3.90	3.50		End of trial pit at 3.50m	

Water Strikes	
Struck at (m)	Remarks
2.10	Seepage at 2.1m

Depth: 3.50
Width: 1.00
Length: 3.00

Remarks:

Stability: Unstable

Termination Reason Collapse

Last Updated 28/06/2022

AGS

CAUSEWAY GEOTECH

Method: Trial Pitting	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP609**
Plant: 13T Tracked Excavator	**Coordinates** 247921.89 E 417690.37 N	**Client:** DAERA/NIEA	Sheet 1 of 1 Scale: 1:25
	Elevation 8.06 mOD	**Client's Representative:** Tetra Tech	FINAL
		Date: 25/11/2021	**Logger:** LN

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					░	MADE GROUND: Reinforced CONCRETE.	
			7.86	0.20	▨	MADE GROUND: Grey angular fine to coarse GRAVEL.	
			7.66	0.40	▨	MADE GROUND: Black and grey very silty sandy subangular to angular fine to coarse GRAVEL with medium cobble and boulder content and boulders of bitmac, fragments of brick, plastics, timber, carpet and glass. Sand is fine to coarse.	
0.50	ES1						
1.00	ES2	Water strike at 1.00m					▼
			6.96	1.10	▨	MADE GROUND: Dark brown and grey very clayey very sandy fine to coarse GRAVEL with medium cobble and boulder content, fragments of red brick, glass, breeze blocks, plastic, metal, rope and textiles. Sand is fine to coarse.	
2.00	ES3						
			5.56	2.50	▨	MADE GROUND: Black WASTE of plastic, glass, metal and timber.	
2.60	B4						
			5.36	2.70	░	Light brown and grey silty gravelly fine to coarse SAND wit low cobble content. Gravel is subrounded to rounded fie to coarse. Cobbles are subrounded to rounded. GFSD	
3.00	ES4						
		Water strike at 3.10					▼
3.60	B5		4.46	3.60		End of trial pit at 3.60m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Water Strikes

Struck at (m)	Remarks
1.00	Water strike at 1.00m
3.10	Water strike at 3.10

Depth: 3.60
Width: 2.00
Length: 4.00

Remarks:
No groundwater encountered

Stability:
Unstable

Termination Reason
Terminated due to pit walls collapsing

Last Updated
28/06/2022

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP610**
	Coordinates 247889.62 E 417664.87 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 8.66 mOD	**Date:** 25/11/2021 **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records
0.50	ES1	
0.80	ES2	
2.00	ES3	
3.00	ES4	
3.00	ES5	

Level (mOD)	Depth (m)	Legend	Description	Water
		▨	MADE GROUND: Reinforced CONCRETE.	
8.41	0.25	▨	MADE GROUND: Firm brown mottled grey sandy very gravelly SILT with low cobble and boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse. Cobbles and boulders are subrounded to rounded.	
7.96	0.70	▨	MADE GROUND: Black BITMAC with layers of rounded fine to coarse GRAVEL.	
7.66	1.00	▨	MADE GROUND: brown silty very sandy subrounded to rounded fine to coarse GRAVEL with high cobble and boulder content. Sand is fine to coarse. Cobbles and boulders are subrounded to rounded.	
6.46	2.20	▨	Brown gravelly very silty fine to coarse SAND with medium cobble content. Gravel ia subrounded to rounded fine to coarse. Cobbles are subrounded to rounded. GFSD	
6.16	2.50	▨	Brown mottled orange and dark brown silty slightly gravelly fine to coarse SAND with low cobble content. Gravel is subrounded to rounded fine to coarse. Cobbles are subrounded to rounded. GFSD	
5.16	3.50		End of trial pit at 3.50m	

Water Strikes	
Struck at (m)	Remarks

Depth: 3.50
Width: 1.20
Length: 4.00

Remarks:
No ground water encountered

Stability:
Stable

Termination Reason
Scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP611**
	Coordinates 247982.78 E 417694.45 N	**Client:** DAERA/NIEA		
Method: Trial Pitting		**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 8.37 mOD	**Date:** 24/12/2021	**Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Bluish grey and brown sandy silty angular fine to coarse GRAVEL with low cobble and boulder content, fragments of plastic, pottery, wire, brick and timber. Sand is fine to coarse.	
0.50	ES1						
1.00	ES2		7.37	1.00	▨	MADE GROUND: Black very silty sandy subangular to subrounded fine to coarse GRAVEL with medium cobble and boulder content, with fragments of plastic, pottery and glass. *1.00m to 1.40m: Oily odour*	
			6.97	1.40	▨	MADE GROUND: Black WASTE of predominantly plastics with fragments of timber, wire, glass, and textiles, vehicle battery, bottle, engine oil and chemical drums.	
		Water strike at 3.60m					▼
			4.57	3.80		End of trial pit at 3.80m	

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

Water Strikes	
Struck at (m)	Remarks
3.60	Water strike at 3.60m

Depth: 3.80
Width: 1.50
Length: 4.00

Remarks:

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP612**
Coordinates 247977.48 E 417651.30 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Trackd Excavator	**Elevation** 7.87 mOD	**Date:** 24/11/2021	**Logger:** LN
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
			7.47	0.40	▨	MADE GROUND: Brown and grey silty sandy angular to subangular fine to coarse GRAVEL with medium cobble and boulder content, fragments of brick and timber. Sand is fine to coarse. Cobbles and boulders are subrounded.	
0.50	ES1	Seepage at 0.50m			▨	MADE GROUND: Black sandy gravelly SILT with low cobble and boulder content, fragments of plastic, red brick, rubber, chain, rope, crockery, plastic, concrete, rebar. Cobbles and boulders are rounded.	▼
1.00	ES2						
2.00	ES3						
			5.47	2.40	▨	Possible MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY with roots and rootlets. Sand is fine to coarse. Gravel is subrounded fine to medium.	
3.00	ES4						
			3.87	4.00		End of trial pit at 4.00m	

Water Strikes

Struck at (m)	Remarks
0.50	Seepage at 0.50m

Depth: 4.00
Width: 1.50
Length: 4.00

Remarks:
Hand dug inspection pit excavated to 1.20m

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP613**
Coordinates 247959.57 E 417610.67 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 6.56 mOD	**Date:** 24/11/2021	**Logger:** LN
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Bluish grey and brown sandy silty angular fine to coarse GRAVEL with low cobble and boulder content, fragments of plastic, pottery, wire, brick and timber. Sand is fine to coarse.	
0.50	ES1						
1.00	ES2		5.56	1.00	▨	MADE GROUND: Black very silty sandy subangular to subrounded fine to coarse GRAVEL with medium cobble and boulder content, fragments of plastic, pottery and glass. Sand is fine to coarse.	
			5.16	1.40	▨	MADE GROUND: Black DOMESTIC waste predominantly plastics with timber, wire, glass, textiles, vehicle battery, engine oil and bottles.	
		Water strike at 3.60					▼
			2.76	3.80		End of trial pit at 3.80m	

Water Strikes	
Struck at (m)	Remarks
3.60	Water strike at 3.60

Depth: 3.80
Width: 1.50
Length: 4.00

Remarks:

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP614**
Coordinates 247936.74 E 417595.59 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 7.14 mOD	**Date:** 25/11/2021	**Logger:** LN
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
0.50	ES1					MADE GROUND: Soft to firm brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse. Cobbles are subrounded to rounded.	
			6.54	0.60			
1.00	ES2					MADE GROUND: Black WASTE of shredded plastic intersected with sandy gravelly silt on one side of pit. *0.60m to 1.60m: Putird odour*	
			5.54	1.60			
2.00	ES3					Firm brown pseudo fibrous PEAT.	
			4.94	2.20			
		Water strike at 2.7m				Bluish grey and brown very sandy silty subrounded to rounded fine to coarse GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded. RTD	▼
2.80 2.80	B5 ES4		4.34	2.80		End of trial pit at 2.80m	

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

Water Strikes

Struck at (m)	Remarks
2.70	Water strike at 2.7m

Depth: 2.80
Width: 1.50
Length: 4.00

Remarks:
Hit water pipe at original location, move and redig, pipe fixed

Stability: Unstable

Termination Reason: Collapse

Last Updated: 28/06/2022

AGS

CAUSEWAY GEOTECH

Method: Trial Pitting	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP615**
	Coordinates 247869.54 E 417599.80 N	**Client:** DAERA/NIEA	
		Client's Representative: Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 6.98 mOD	**Date:** 30/12/2021 **Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft brown sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
0.50	ES1		6.48	0.50	▨	MADE GROUND: Grey silty angular fine to coarse GRAVEL with pieces of concrete, plastic silage bags, brick, timber, paving slabs, reinforcing bar and large subrounded boulders. Sand is fine to coarse.	
1.00	ES2						
		Water inflow at 1.20					▼
2.00	ES3						
3.00	ES4						
			3.38	3.60		End of trial pit at 3.60m	

Water Strikes	
Struck at (m)	Remarks
1.20	Water inflow at 1.20

Depth: 3.60
Width: 1.50
Length: 4.50

Remarks:

Stability: Unstable

Termination Reason: Terminated due to water ingress

Last Updated: 28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.: 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID:** TP616
Coordinates: 247867.26 E 417562.39 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator **Elevation:** 7.18 mOD	**Date:** 29/11/2021	**Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Firm to stiff light brown sandy gravelly silty CLAY with low cobble content, plastic sheeting, timber, red brick and fragments of concrete and tarmac. Sand is fine to coarse.	
0.50	ES1						
1.00	ES2						
			5.68	1.50	▨	MADE GROUND: Grey sandy slightly silty angular fine to coarse GRAVEL with fragments of timber, brick and rubble. Sand is fine to coarse.	
2.00	ES3						
3.00	ES4						
			3.88	3.30		End of trial pit at 3.30m	

Water Strikes

Struck at (m)	Remarks

Depth: 3.30
Width: 1.40
Length: 4.20

Remarks:
No groundwater encountered

Stability:
Unstable

Termination Reason
Terminated due to pit walls collapsing

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID**
	Coordinates 247831.35 E 417662.43 N	**Client:** DAERA/NIEA		**TP617**
Method: Trial Pitting		**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 7.40 mOD	**Date:** 29/11/2021	**Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
		Water strike from surface			▨	MADE GROUND: Firm to stiff light brown sandy silty gravelly CLAY with low cobble content, fragments of tarmac and concrete.		
0.50	ES1							0.5
1.00	ES2							1.0
								1.5
2.00	ES3							2.0
			5.00	2.40	⁘	Greyish brown sandy fine to coarse GRAVEL with high cobble content. Cobbles are rounded. RTD		
		Water strike at 2.50m					▼	2.5
3.00	ES4							3.0
3.30	B5							
								3.5
			3.80	3.60		End of trial pit at 3.60m		
								4.0
								4.5

Water Strikes

Struck at (m)	Remarks
2.50	Water strike at 2.50m
0.00	Water strike from surface

Depth: 3.60
Width: 1.40
Length: 4.30

Remarks:

Stability:	**Termination Reason**	**Last Updated**
Unstable	Terminated due to pit walls collapsing	28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP618**
Coordinates 247818.16 E 417712.45 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T tracked Excavator	**Elevation** 7.92 mOD	**Date:** 26/11/2021	**Logger:** LN
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Grey slightly silty angular fine to coarse GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are angular.	
0.50	ES1						
1.00	ES2						
			6.72	1.20	▨	MADE GROUND: Dark brown clayey sandy subangular to subrounded fine to coarse GRAVEL with fabric, plastic pipe, concrete blocks and straps. Sand is fine to coarse.	
2.00	ES3						
			5.82	2.10	▨	MADE GROUND: Grey slightly gravelly fine to coarse SAND with timber, fabric, metal pipes, rebar, bin bags of domestic waste and masonry. Gravel is subangular to subrounded fine to coarse	
3.00	ES4						
		Seepage at 3.8m					▼
			4.02	3.90	⁘	Light brown fine to coarse SAND. GFSD	
4.00	ES5						
			3.72	4.20		End of trial pit at 4.20m	

Water Strikes	
Struck at (m)	Remarks
3.80	Seepage at 3.8m

Depth: 4.20
Width: 1.20
Length: 4.20

Remarks:

Stability:
Stable

Termination Reason
Scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242

Project Name: Mobuoy Remediation Project Phase 2

Trial Pit ID

TP619

Coordinates
247771.62 E
417783.81 N

Client: DAERA/NIEA

Method: Trial Pitting

Client's Representative: Tetra Tech

Sheet 1 of 1
Scale: 1:25

Plant: 13T Tracked Excavator

Elevation 10.03 mOD

Date: 29/12/2021

Logger: SC

FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Medium dense light brown sandy silty angular fine to coarse GRAVEL with high cobble content. Sand is fine to coarse. Cobbles are angular.	
			9.53	0.50	▨	MADE GROUND: Grey sandy subangular to subrounded fine to coarse GRAVEL with waste including timber, plastics, plastic bag, bin bags, metal, bags of rotting food, polystyrene and large boulders. Sand is fine to coarse.	
			5.93	4.10		End of trial pit at 4.10m	

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

Water Strikes

Struck at (m)	Remarks

Depth: 4.10
Width: 1.20
Length: 4.10

Remarks:

Stability: Unstable

Termination Reason Terminated at scheduled depth

Last Updated 28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP620**
Coordinates 247759.47 E 417783.02 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 9.84 mOD	**Date:** 29/11/2021	**Logger:** SC
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Light brown sandy gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
0.50	ES1						
			8.94	0.90	▨	MADE GROUND: Black WASTE containing timber, plastic, christmas trees, peat compost, concrete and nylon string. (Acrid smell)	
1.00	ES2						
2.00	ES3						
3.00	ES4						
		Water strike at 3.30m					▼
			6.44	3.40		End of trial pit at 3.40m	

Water Strikes		
Struck at (m)	Remarks	
3.30	Water strike at 3.30m	

Depth: 3.40
Width: 1.40
Length: 9.30

Remarks:

Stability: Unstable

Termination Reason
Terminated on concrete

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP621**
Coordinates 247751.61 E 417932.15 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 10.32 mOD	**Date:** 01/12/2021	**Logger:** SC
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
			9.62	0.70	▨	MADE GROUND: Firm brown sandy gravelly CLAY with medium cobble content, fragments of wire and some plastic. Sand is fine to coarse.	
			6.72	3.60	▨	MADE GROUND: Grey sandy rounded fine to coarse GRAVEL with peat, large fragments of concrete and red brick. Sand is fine to coarse.	
			6.22	4.10	░	Light brown sandy fine to coarse GRAVEL. Sand is fine to coarse. RTD	
						End of trial pit at 4.10m	

Water Strikes

Struck at (m)	Remarks

Depth: 4.10

Width: 1.60

Length: 4.30

Remarks:
No groundwater encountered

Stability:
Unstable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

CAUSEWAY GEOTECH

Project No.: 22-0242

Project Name: Mobuoy Remediation Project Phase 2

Trial Pit ID: TP622

Coordinates: 247722.35 E 417892.55 N

Client: DAERA/NIEA

Method: Trial Pitting

Client's Representative: Tetra Tech

Sheet 1 of 1

Scale: 1:25

Plant: 13T Tracked Excavator

Elevation: 7.47 mOD

Date: 03/12/2021

Logger:

FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
			7.27	0.20		MADE GROUND: Soft brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
0.50	ES1						
1.00	ES2						
			5.67	1.80		Grey slightly silty fine to coarse SAND. GFSD	
2.00	ES3						
			5.07	2.40		Grey slightly silty sandy subrounded fine to coarse GRAVEL wit low cobble content. Sand is fine to coarse. Cobbles are subrounded. RTD	
3.00	ES4						
			3.37	4.10		Brown slightly silty fine to coarse SAND. GFSD	

End of trial pit at 4.10m

Water Strikes

Struck at (m)	Remarks

Depth: 4.10

Width: 1.60

Length: 4.30

Remarks:
No groundwater encountered

Stability:
Unstable

Termination Reason
Scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

	Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP624**
	Coordinates 247684.48 E 417946.04 N	**Client:** DAERA/NIEA	
Method: Trail Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 7.79 mOD	**Date:** 02/12/2021 **Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft to firm greyish brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular.	
0.50	ES1						
1.00	ES2						
2.00	ES3						
3.00	ES4						
			4.49	3.30	▨	MADE GROUND: Black WASTE of predominantly plasitcs.	
4.00	ES5		3.79	4.00		End of trial pit at 4.00m	

Water Strikes	
Struck at (m)	Remarks

Depth: 4.00
Width: 1.60
Length: 4.30

Remarks:
No groundwater encountered

Stability:
Unstable

Termination Reason
Scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.	22-0242
Project Name:	Mobuoy Remediation Project Phase 2
Trial Pit ID	**TP626**
Coordinates	247802.28 E 417997.58 N
Client:	DAERA/NIEA
Method:	Trial Pitting
Client's Representative:	Tetra Tech
	Sheet 1 of 1 Scale: 1:25
Plant:	13T Tracked Excavator
Elevation	17.25 mOD
Date:	23/11/2021
Logger:	LN
	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
			16.85	0.40	▨	MADE GROUND: Firm brown sandy gravelly SILT with fragments of glass and crockery. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
0.50	ES1						
1.00	ES2						
			15.35	1.90	▨	MADE GROUND: Firm black and brown sandy gravelly SILT with domestic waste including timber, glass, organic material, laminate flooring, mattress, plastic bucket, cobbles and boulder. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
2.00	ES3						
3.00	ES4						
			13.75	3.50	▨	MADE GROUND; Firm to stiff brown sandy gravelly SILT with fragments of timber, plastic, blocks, boulders and cobble. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse.	
						End of trial pit at 3.50m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Water Strikes

Struck at (m)	Remarks

Depth: 3.50
Width: 1.50
Length: 5.00

Remarks:
No groundwater encountered

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP628**
	Coordinates 247820.28 E 418062.25 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 15.71 mOD	**Date:** 23/11/2021 **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
0.50	ES1		15.11	0.60	▨	MADE GROUND: Firm brown slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
1.00	ES2		14.41	1.30	▨	MADE GROUND: Firm dark grey and brown slightly slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse.	
2.00 3.00	ES3 ES4		12.21	3.50	▨	MADE GROUND: Black and dark brownish grey gravelly SILT with domestic waste including plastic, timber, metal, carpet, brick, wire fencing, textiles. Gravel is subangular to subrounded fine to coarse.	
						End of trial pit at 3.50m	

Water Strikes	
Struck at (m)	Remarks

Depth: 3.50
Width: 1.50
Length: 4.00

Remarks:
No groundwater encountered

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP629**
	Coordinates 247768.96 E 418041.80 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 8.85 mOD	**Date:** 06/12/2021 **Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
0.50	ES1				▨	MADE GROUND: Stiff brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
			7.95	0.90	▨	MADE GROUND: Waste- Black bin bags with household waste. Hydrocarbon visible. *0.90m to 4.10m: Putrid odour*	
1.00	ES2						
		Inflow at 1.40m					▼
2.00	ES3						
3.00	ES4						
			4.75	4.10		End of trial pit at 4.10m	

Water Strikes	
Struck at (m)	Remarks
1.40	Inflow at 1.40m

Depth: 4.10
Width: 1.60
Length: 1.50

Remarks:

Stability: Unstable

Termination Reason
Terminated due to collapse

Last Updated
28/06/2022

AGS

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP630**
Coordinates 247822.44 E 418193.45 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator **Elevation** 14.52 mOD	**Date:** 23/11/2021	**Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft to firm bluish grey slightly sandy slightly gravelly SILT with domestic waste, wipes, plastic, glass, textiles, timber and cans. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
0.50	ES1		14.02	0.50	▨	MADE GROUND: Multicoloured DOMESTIC WASTE of plastics, timber, metal, glass and pockets of shredded plastic, pockets of sandy gravelly SILT. *0.50m to 3.00m: Putrid odour*	
1.00	ES2						
2.00	ES3						
3.00	ES4		11.52	3.00		End of trial pit at 3.00m	

Scale: 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5

Water Strikes	
Struck at (m)	Remarks

Depth: 3.00
Width: 2.00
Length: 5.00

Remarks:
No groundwater encountered

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

	Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID**
	Coordinates 247776.24 E 418318.06 N	**Client:** DAERA/NIEA	**TP631**
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 4.93 mOD	**Date:** 02/12/2021 **Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
		Water from surface	4.83	0.10		MADE GROUND: Soft brown slightly sandy slightly silty CLAY. Sand is fine to coarse.	
0.50	ES1		4.33	0.60		Grey sandy slightly silty subangular fine to coarse GRAVEL with high cobble content. Sand is fine to coarse. RTD	
1.00	B2		3.23	1.70		Light brown slightly silty gravelly fine to coarse SAND with high cobble content. Gravel is subangular to subrounded fine to coarse. GFSD	
						End of trial pit at 1.70m	

Water Strikes

Struck at (m)	Remarks
0.00	Water from surface

Depth: 1.70
Width: 1.80
Length: 4.10

Remarks:

Stability: Stable

Termination Reason: Terminated due surface water

Last Updated: 28/06/2022

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP632**
Coordinates 247716.34 E 418529.56 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 7.34 mOD	**Date:** 06/12/2021	**Logger:** SC
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
			7.04	0.30	▨	MADE GROUND: Stiff brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
0.50	ES1				▨	MADE GROUND: Waste material- Soft greyish black sandy gravelly CLAY with fragments of timber, concrete, brick, plastic and large fragments of concrete slab. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
1.00	ES2						
2.00	ES3						
		Water inflow at 2.90m					▼
3.00	ES4		4.14	3.20			
						End of trial pit at 3.20m	

Water Strikes

Struck at (m)	Remarks
2.90	Water inflow at 2.90m

Depth: 3.20
Width: 1.60
Length: 4.50

Remarks:

Stability: Unstable

Termination Reason: Terminated on concrete

Last Updated: 28/06/2022

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP633**
Coordinates 247691.83 E 418529.33 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 7.78 mOD	**Date:** 02/12/2021	**Logger:** SC
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Firm brown sandy gravelly CLAY. Sand is fine to coarse.	
1.00	ES1						
2.00	ES2						
			5.68	2.10	▨	MADE GROUND: Grey waste- ash, plastic, and brick in a matrix of grey gravelly fine to coarse SAND. *2.10m to 3.40m: Hydrocarbon*	
3.00	ES3						
			4.38	3.40		Soft brown PEAT.	
			4.18	3.60		Grey silty fine to medium SAND. GFSD	
4.00	ES4						
			3.58	4.20		End of trial pit at 4.20m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Water Strikes	
Struck at (m)	Remarks

Depth: 4.20
Width: 1.60
Length: 4.30

Remarks:
No groundwater encountered

Stability:
Stable

Termination Reason
Scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242

Project Name: Mobuoy Remediation Project Phase 2

Trial Pit ID **TP634**

Coordinates 247754.14 E 418530.93 N

Client: DAERA/NIEA

Method: Trial Pitting

Client's Representative: Tetra Tech

Sheet 1 of 1

Scale: 1:25

Plant: 13T Tracked Excavator

Elevation 7.49 mOD

Date: 02/12/2021

Logger: SC

FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Grey sandy slightly silty fine to coarse GRAVEL with fragments of brick, timber, plastic and packaging straps. Sand is fine to coarse.	
0.50	ES1						
1.00	ES2						
2.00	ES3						
3.00	ES4						
		Major influx of water at 3.40m	4.09	3.40	▨	MADE GROUND: Black WASTE including timber, brick, rubber, timber, sheeting material. *3.40m to 4.00m: Hydrocarbon odour*	▼
4.00	ES5		3.49	4.00		End of trial pit at 4.00m	

Water Strikes

Struck at (m)	Remarks
3.40	Major influx of water at 3.40m

Depth: 4.00

Width: 1.60

Length: 4.30

Remarks:

Stability: Unstable

Termination Reason scheduled depth

Last Updated 28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP635**
Coordinates 247767.80 E 418638.67 N	**Client:** DAERA/NIEA		
	Client's Representative: Tetra Tech		Sheet 1 of 1 Scale: 1:25
Elevation 9.28 mOD	**Date:** 03/12/2021	**Logger:** SC	FINAL

Method:
Trial Pitting

Plant:
13T Tracked Excavator

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft light brown silty CLAY.	
			8.88	0.40	▨	MADE GROUND: Black shredded WASTE of plastics, tin, timber, glass and some fibrous textiles. (Very strong putrid smell)	
0.50	ES1						
1.00	ES2						
2.00	ES3						
3.00	ES4						
4.00	ES5						
			5.18	4.10		End of trial pit at 4.10m	

Water Strikes

Struck at (m)	Remarks

Depth: 4.10
Width: 1.60
Length: 4.20

Remarks:
No groundwater encountered

Stability:
Stable

Termination Reason
Scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP636**
	Coordinates 247672.62 E 418069.16 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 7.11 mOD	**Date:** 30/11/2021 **Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft brown CLAY.	
0.50	ES1						
			6.51	0.60	▨	MADE GROUND: Black SHREDDED WASTE of predominantly plastic.	
1.00	ES2						
		Water inflow at 1.80m					▼
2.00	ES3						
			4.21	2.90	▨	Grey sandy slightly silty subrounded to subrounded fine to coarse GRAVEL with high cobble content. Sand is fine to coarse. Cobbles are subrounded. RTD	
3.00	ES4						
			3.51	3.60		End of trial pit at 3.60m	

Water Strikes

Struck at (m)	Remarks
1.80	Water inflow at 1.80m

Depth: 3.60
Width: 1.40
Length: 4.50

Remarks:

Stability: Unstable

Termination Reason
Terminated due to pit walls collapsing

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP637**
	Coordinates 247640.97 E 417436.03 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 7.95 mOD	**Date:** 30/11/2021 — **Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
					▨	MADE GROUND: Firm brown sandy gravelly CLAY with fragments of red brick and plastic. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
0.50	ES1							0.5
			7.05	0.90	▨	MADE GROUND: Grey sandy silty fine to coarse GRAVEL with many angular cobbles, fragments of concrete plastic pipe, concrete pipe. Sand is fine to coarse. *0.90m to 3.70m: Strong hydrocarbon odour*		
1.00	ES2							1.0
								1.5
		Strong inflow at 1.80m					▼	
2.00	ES3							2.0
								2.5
3.00	ES4							3.0
								3.5
			4.25	3.70	⁘	Grey slightly silty sandy rounded fine to coarse GRAVEL with high cobble content. Sand is fine to coarse. RTD		
			4.05	3.90		End of trial pit at 3.90m		
								4.0
								4.5

Water Strikes

Struck at (m)	Remarks
1.89	Strong inflow at 1.80m

Depth: 3.90
Width: 1.50
Length: 4.60

Remarks:

Stability:
Unstable

Termination Reason
Terminated due to pit walls collapsing

Last Updated
28/06/2022

AGS

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP638**
Coordinates 247410.43 E 417438.07 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator **Elevation** 5.33 mOD	**Date:** 01/12/2021	**Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
		Water entering from surface			▨	Soft brown sandy silty CLAY. Sand is fine to coarse. ALV	
0.50	ES1						
			4.43	0.90	▨	Soft grey silty fine to coarse SAND with rootlets. GFSD	
1.00	ES2						
			3.83	1.50		End of trial pit at 1.50m	

Water Strikes

Struck at (m)	Remarks
0.00	Water entering from surface

Depth: 1.50
Width: 3.90
Length: 4.10

Remarks:

Stability:
Unstable

Termination Reason
Terminated due to pit walls collapsing

Last Updated
28/06/2022

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP639**
Coordinates 247538.50 E 417392.18 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 6.71 mOD	**Date:** 01/12/2021	**Logger:** SC
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
						MADE GROUND: Stiff light brown sandy silty CLAY with low cobble content. Sand is fine to coarse. Cobbles are subrounded.	
0.50	ES1						
1.00	ES2						
2.00	ES3						
		Groundwater encountered at 2.40m	4.31	2.40		Grey slightly silty fine to coarse SAND. GFSD *2.40m to 4.00m: Strong pungent odour*	▼
3.00	ES4						
4.00	ES5		2.71	4.00		End of trial pit at 4.00m	

Water Strikes

Struck at (m)	Remarks
2.40	Groundwater encountered at 2.40m

Depth: 4.00
Width: 1.60
Length: 4.50

Remarks:

Stability: Unstable

Termination Reason
Terminated at scheduled depth/pit walls collapsing

Last Updated
28/06/2022

AGS

Project No.
22-0242

Project Name:
Mobuoy Remediation Project Phase 2

Trial Pit ID
TP640

Coordinates
247593.78 E
417334.12 N

Client:
DAERA/NIEA

Method:
Trial Pitting

Client's Representative:
Tetra Tech

Sheet 1 of 1
Scale: 1:25

Plant:
13T Tracked Excavator

Elevation
7.67 mOD

Date:
30/11/2021

Logger:
JC

FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft to firm brown sandy gravelly CLAY with high cobble content, fragments of red brick and concrete. Sand is fine to coarse. Gravel is subangular to subrounded. Cobbles are angular.	
0.50	ES1						
			6.97	0.70	▨	MADE GROUND: Black shredded WASTE including plastic bags, concrete, large tabular boulders, plastic pipe, copper pipe. *0.70m to 2.80m: Pungent odour, oily appearance*	
1.00	ES2	Seepage at 1.00m					▼
2.00	ES3						
			4.87	2.80	░	Greyish brown slightly silty fine to coarse SAND. GFSD	
3.00	ES4						
			3.97	3.70		End of trial pit at 3.70m	

Water Strikes

Struck at (m)	Remarks
1.00	Seepage at 1.00m

Depth: 3.70
Width: 1.50
Length: 4.60

Remarks:

Stability:
Unstable

Termination Reason
Terminated due to pit walls collapsing

Last Updated
28/06/2022

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP641**
	Coordinates 247473.64 E 417307.41 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 6.45 mOD	**Date:** 01/12/2021 **Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
			6.05	0.40	▩	MADE GROUND: Soft brown slightly sandy CLAY with low cobble content. Sand is fine to coarse.	
			3.85	2.60	▩	MADE GROUND: Black shredded WASTE containing plastic, tin, shoe and foam belts. *0.40m to 2.60m: Strong pungent odour*	
			2.85	3.60	⁙	Greyish brown slightly silty fine to coarse SAND. GFSD	
						End of trial pit at 3.60m	

Water Strikes			
Struck at (m)	Remarks	**Depth:** 3.60 **Width:** 1.60 **Length:** 4.50	**Remarks:**
		Stability: Unstable	**Termination Reason** Terminated due to running sands

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Method: Trial Pitting	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP642**
	Coordinates 247610.09 E 417273.89 N	**Client:** DAERA/NIEA	
		Client's Representative: Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 6.30 mOD	**Date:** 01/12/2021 · **Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
						Possible MADE GROUND: Stiff brown sandy CLAY. Sand is fine to coarse.	
0.50	ES1						
		Inflow from 0.80m	5.50	0.80		Brown sandy clayey rounded fine to coarse GRAVEL with low cobble content. RTD	▼
1.00	ES2						
			5.10	1.20		Grey silty fine to coarse SAND. GFSD	
			4.50	1.80		Brown silty fine to coarse SAND. GFSD	
2.00	ES3						
			2.90	3.40		End of trial pit at 3.40m	

Water Strikes

Struck at (m)	Remarks
0.80	Inflow from 0.80m

Depth: 3.40
Width: 3.00
Length: 4.80

Remarks:

Stability: Unstable

Termination Reason
Terminated due to pit walls collapsing

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP643**
	Coordinates 247496.80 E 417184.08 N	**Client:** DAERA/NIEA		
Method: Trial Pitting		**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 7.34 mOD	**Date:** 26/11/2021	**Logger:** SA	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
					▨	MADE GROUND: Sandy slightly gravelly CAY with roots and rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		
			6.94	0.40	▨	MADE GROUND: Shredded DOMESTIC WASTE recovered as black sandy fine to coarse GRAVEL with plastic bags, plastic bottled, metal, ceramic, glass, pipe and timber. Sand is fine to coarse.		
0.50	ES1							0.5
1.00	ES2							1.0
								1.5
2.00	ES3							2.0
			5.04	2.30	⁘	Grey slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium. GFSD		
								2.5
3.00	ES4		4.34	3.00		End of trial pit at 3.00m		3.0
								3.5
								4.0
								4.5

Water Strikes					
Struck at (m)	Remarks	**Depth:** 3.00 **Width:** 1.90 **Length:** 4.70	**Remarks:**		
		Stability: Unstable	**Termination Reason** Terminated due to pit walls collapsing	**Last Updated** 28/06/2022	AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP644**
Coordinates 247558.56 E 417157.78 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 6.02 mOD	**Date:** 26/12/2021	**Logger:** SA
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Description	Water
					Greyish brown slightly gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded. GFSD	
0.50	ES1					
1.00	ES2					
		Seepage at 1.80m				▼
2.00	ES3					
			3.92	2.10	Light greyish brown slightly silty fine to coarse SAND. GFSD	
2.50	ES4					
			3.32	2.70	End of trial pit at 2.70m	

Water Strikes	
Struck at (m)	Remarks
1.80	Seepage at 1.80m

Depth: 2.70
Width: 1.80
Length: 4.50

Remarks:

Stability:
Unstable

Termination Reason
Terminated due to pit walls collapsing

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242

Project Name: Mobuoy Remediation Project Phase 2

Trial Pit ID

TP645

Coordinates
247755.04 E
418998.23 N

Client: DAERA/NIEA

Method: Trial Pitting

Client's Representative: Tetra Tech

Sheet 1 of 1
Scale: 1:25

Plant: 13T Tracked Excavator

Elevation 5.28 mOD

Date: 03/12/2021

Logger: SC

FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft to firm brown silty sandy CLAY with fragments of red brick and plastic. Sand is fine to coarse.	
0.50	ES1						
1.00	ES2						
			3.88	1.40	⁙	Light brown silty gravelly fine to coarse SAND. Gravel is subangular ton subrounded fine to coasrse. GFSD	
			3.48	1.80	⁘	Grey silty slightly sandy angular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular. RTD	
2.00	ES3						
3.00	ES4						
			2.08	3.20		End of trial pit at 3.20m	

Water Strikes	
Struck at (m)	Remarks

Depth: 3.20
Width: 1.60
Length: 4.10

Remarks:

Stability: Unstable

Termination Reason Terminated due to pit walls collapsing

Last Updated 28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP646**
	Coordinates 247774.76 E 418924.32 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 4.93 mOD	**Date:** 03/12/2021 **Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Stiff light brown sandy gravelly silty CLAY with fragments of red brick, plastic bags and timber. Sand is fine to coarse. Gravel is suabngular to subrounded fine to coarse.	
0.50	ES1						
1.00	ES2						
		Surface water inflow at 1.80m	3.13	1.80	⁘	Light brown silty sandy subrounded fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. RTD	▼
2.00	ES3						
			2.53	2.40	⁙	Light grey slightly silty fine to coarse SAND. GFSD	
3.00	ES4						
			0.93	4.00		End of trial pit at 4.00m	

Water Strikes			
Struck at (m)	Remarks	**Depth:** 4.00 **Width:** 1.60 **Length:** 4.10	**Remarks:**
1.80	Surface water inflow at 1.80m	**Stability:** Unstable	**Termination Reason** scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP647**
	Coordinates 247789.55 E 419027.08 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 5.42 mOD	**Date:** 03/12/2021 **Logger:** SC	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft to firm brown sandy gravelly CLAY with fragments of brick and plastic. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
0.50	ES1						
1.00	ES2						
			3.92	1.50	▨	MADE GROUND: Grey sandy subrounded fine to coarse GRAVEL with fragments of brick, timber and plastic. *1.50m to 3.80m: Hydrocarbon odour*	
2.00	ES3						
3.00	ES4						
			1.62	3.80	░	Light brown silty fine to coarse SAND. GFSD	
4.00	ES5						
			1.32	4.10		End of trial pit at 4.10m	

Water Strikes

Struck at (m)	Remarks

Depth: 4.10
Width: 1.60
Length: 4.10

Remarks:

Stability: Unstable

Termination Reason
scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP648**
	Coordinates 247599.33 E 417561.73 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 6.02 mOD	**Date:** 20/04/2022 — **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Description	Water
					MADE GROUND: Firm brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse.	
			5.82	0.20	MADE GROUND: Brown sandy very clayey subrounded fine to coarse GRAVEL with low cobble content, plastic pipes, wire, glass bottles, tin, rope, crockery, pockets of black organic waste and tree stumps. Sand is fine to coarse.	
			4.12	1.90	Dark greenish grey mottled black very silty fine to coarse SAND GFSD	
		Heavy water strike at 3.90	2.12	3.90	Brown sandy subrounded to rounded fine to coarse GRAVEL. Sand is fine to coarse. RTD	▼
			2.02	4.00	End of trial pit at 4.00m	

Scale: 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5

Water Strikes

Struck at (m)	Remarks
3.90	Heavy water strike at 3.90

Depth: 4.00
Width: 2.50
Length: 6.00

Remarks:

Stability: Unstable

Termination Reason: Terminated due to pit walls collapsing

Last Updated: 28/06/2022

AGS

CAUSEWAY GEOTECH

Method: Trial Pitting	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP649**
	Coordinates 247637.68 E 417536.67 N	**Client:** DAERA/NIEA		
		Client's Representative: Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 6.64 mOD	**Date:** 20/04/2022	**Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Firm light brown slightly sandy slightly gravelly CLAY with medium cobble and boulder content. Sand is fine to coarse. Gravel is subangular fine to coarse with fragments of red brick, plastic, timber, metal wire, breeze blocks, rope, tin, wire fencing, fabric ground cover, carpet, polystyrene. Cobbles and boulders are angular to subangular.	
			4.84	1.80	▒	Light brown mottled orange very silty slightly gravelly fine to coarse SAND. Gravel is subangular fine. GFSD	
		Water strike at 3.00m					▼
			3.24	3.40		End of trial pit at 3.40m	

Water Strikes	
Struck at (m)	Remarks
3.00	Water strike at 3.00m

Depth: 3.40
Width: 1.50
Length: 5.00

Remarks:

Stability:
Unstable

Termination Reason
Terminated on running sands

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP650**
	Coordinates 247599.20 E 417523.22 N	**Client:** DAERA/NIEA		
Method: Trial Pitting		**Client's Representative:** Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 6.98 mOD	**Date:** 20/04/2022	**Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Soft to firm light brown slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subrounded fine to coarse.	
			5.48	1.50	▨	MADE GROUND: Firm greyish brown mottled black slightly sandy slightly gravelly SILT with pockets of shredded plastic, red brick fragments, tin, boulder sized fragments of concrete.	
			5.28	1.70	▨	MADE GROUND: Multi-coloured shredded plastic with boulder sized fragments of concrete. *1.7m to 3.0m: Putrid odour*	
			3.98	3.00	⁙	Light brown mottled orange very silty fine to coarse SAND. GFSD	
			2.98	4.00		End of trial pit at 4.00m	

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

Water Strikes			
Struck at (m)	Remarks		
		Depth: 4.00 **Width:** 2.00 **Length:** 5.00	**Remarks:** No groundwater encounetred
		Stability: Unstable	**Termination Reason** Terminated due to pit walls collapsing

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP651**
Method: Trial Pitting	**Coordinates** 247520.82 E 417495.46 N	**Client:** DAERA/NIEA		
		Client's Representative: Tetra Tech		Sheet 1 of 1 Scale: 1:25
Plant: 13T Tracked Excavator	**Elevation** 5.82 mOD	**Date:** 20/04/2022	**Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Firm light brown slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse.	
		Seepage at 0.60m	5.22	0.60	▨	MADE GROUND: Firm light brown mottled black sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse. Cobbles are rounded and angular of bitmac fragments. *0.6m to 2.1m: Slight hydrocarbon odour*	▼
			3.72	2.10	⁙	Brown slightly silty fine to coarse SAND. GFSD	
		Water strike at 2.90m	2.92	2.90		End of trial pit at 2.90m	▼

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

Water Strikes	
Struck at (m)	Remarks
2.90	Water strike at 2.90m
0.60	Seepage at 0.60m

Depth: 2.90
Width: 1.50
Length: 5.00

Remarks:

Stability:
Unstable

Termination Reason
Terminated due to pit walls collapsing

Last Updated
28/06/2022

AGS

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP652**
Coordinates 248005.14 E 417686.14 N	**Client:** DAERA/NIEA		
	Client's Representative: Tetra Tech		Sheet 1 of 2 Scale: 1:25
Elevation 10.16 mOD	**Date:** 23/05/2022	**Logger:** LN	FINAL

Method:
Trial Pitting

Plant:
22T Tracked Excavator

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Light brown sandy gravelly SILT with low cobble and boulder content and fragments of plastic. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles and boulders are angular of brick and concrete.	
0.50	ES1						
			9.46	0.70	▨	MADE GROUND: Black and dark brown sandy gravelly SILT with high volume of shredded plastic, timber, ceramics, glass, domestic waste, brick, concrete, plastic oil drum, crisp packet dated 2012, carpet and pipes.	
1.00	ES2						
2.00	ES3						
3.00	ES4						
4.00	ES5						
5.00	ES6						

Water Strikes

Struck at (m)	Remarks
5.60	Water strike at 5.60m

Depth: 6.00
Width: 1.20
Length: 5.00

Remarks:

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP652**
	Coordinates 248005.14 E 417686.14 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 2 of 2 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 10.16 mOD	**Date:** 23/05/2022 — **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▩	MADE GROUND: Black and dark brown sandy gravelly SILT with high volume of shredded plastic, timber, ceramics, glass, domestic waste, brick, concrete, plastic oil drum, crisp packet dated 2012, carpet and pipes.	
		Water strike at 5.60m	4.56	5.60	▨	Bluish grey silty very gravelly fine to coarse SAND with medium cobble and boulder content. Gravel is subrounded fine to coarse. Cobbles and boulders are subrounded. GFSD	▼
6.00	ES7		4.16	6.00		End of trial pit at 6.00m	

Water Strikes	
Struck at (m)	Remarks
5.60	Water strike at 5.60m

Depth: 6.00
Width: 1.20
Length: 5.00

Remarks:

Stability: Stable

Termination Reason: Terminated at scheduled depth

Last Updated: 28/06/2022

AGS

Project No.
22-0242

Project Name:
Mobuoy Remediation Project Phase 2

Trial Pit ID
TP653

Coordinates
248013.83 E
417671.93 N

Client:
DAERA/NIEA

Method:
Trial Pitting

Client's Representative:
Tetra Tech

Sheet 1 of 2
Scale: 1:25

Plant:
22T Tracked Excavator

Elevation
10.35 mOD

Date:
24/05/2022

Logger:
LN

FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Brown sandy gravelly SILT with occasional shredded plastics and domestic waste, including plastic bottles, tin cans fragments of red brick, textiles, occasional cobbles and glass bottles. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
			8.75	1.60	▨	MADE GROUND: Black and brown sandy gravelly SILT with low cobble content, shredded plastic, textiles, household waste, ceramics, bedding, metal wires, glass, mattresses, timber, vehicle tyres and carpet. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular. *1.60m to 4.00m: Hydrocarbon odour*	
2.00	ES1						
3.00	ES2						
			6.35	4.00	▨	MADE GROUND: Brown sandy gravelly SILT with plastics, metal, glass and timber. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	

Water Strikes

Struck at (m)	Remarks
7.00	Seepage at 7.00m

Depth: 7.00
Width: 1.50
Length: 4.00

Remarks:

Stability:
Stable

Termination Reason
Terminated due to maximum reach of excavator

Last Updated
28/06/2022

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP653**
	Coordinates 248013.83 E 417671.93 N	**Client:** DAERA/NIEA		
Method: Trial Pitting		**Client's Representative:** Tetra Tech		Sheet 2 of 2 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 10.35 mOD	**Date:** 24/05/2022	**Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
			4.35	6.00	▨	MADE GROUND: Brown sandy gravelly SILT with plastics, metal, glass and timber. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		5.5 6.0
		Seepage at 7.00m	3.35	7.00	⺌	Brown pseudo-fibrous PEAT with decaying plant matter including tree branches, roots and rootlets.	▼	6.5 7.0
						End of trial pit at 7.00m		7.5 8.0 8.5 9.0 9.5

Water Strikes	
Struck at (m)	Remarks
7.00	Seepage at 7.00m

Depth: 7.00
Width: 1.50
Length: 4.00

Remarks:

Stability:	**Termination Reason**	**Last Updated**
Stable	Terminated due to maximum reach of excavator	28/06/2022

AGS

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP654**
Coordinates 247989.64 E 417662.45 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 1 of 2 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 9.49 mOD	**Date:** 23/05/2022	**Logger:** LN
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Light brown sandy gravelly SILT with medium cobble content and occasional plastics. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular	
			9.29	0.20	▨	MADE GROUND: Black, dark brown and grey sandy gravelly SILT with high volume of shredded plastic, shotgun shells (used), cutlery, timber and crockery. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse	
0.50	ES1						
1.00	ES2						
2.00	ES3						
						2.80m: Concrete slab	
3.00	ES4						
4.00	ES5						
5.00	ES6						

Water Strikes

Struck at (m)	Remarks
5.80	Seepage at 5.8m

Depth: 6.60

Width: 2.00

Length: 5.00

Remarks:

Stability:
Stable

Termination Reason
Terminated due to maximum reach of digger

Last Updated
28/06/2022

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP654**
	Coordinates 247989.64 E 417662.45 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 2 of 2 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 9.49 mOD	**Date:** 23/05/2022 — **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▩	MADE GROUND: Black, dark brown and grey sandy gravelly SILT with high volume of shredded plastic, shotgun shells (used), cutlery, timber and crockery. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse	
		Seepage at 5.8m	3.69	5.80	▨	Brown slightly sandy peaty SILT with decaying plant material. Sand is fine to coarse ALV	▼
6.00	ES7						
6.50	ES8		2.99	6.50	▒	Bluish grey silty fine to coarse SAND GFSD	
			2.89	6.60		End of trial pit at 6.60m	

5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

Water Strikes	
Struck at (m)	Remarks
5.80	Seepage at 5.8m

Depth: 6.60
Width: 2.00
Length: 5.00

Remarks:

Stability:
Stable

Termination Reason
Terminated due to maximum reach of digger

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

	Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP655**
	Coordinates 247997.73 E 417657.38 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 2 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 9.43 mOD	**Date:** 23/05/2022 — **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Light brown sandy gravelly SILT with medium cobble content and shredded plastics. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
0.50	ES1						
			8.83	0.60	▩	MADE GROUND: Brownish black fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL with high volume of plastic (shredded), red brick fragments, timber and metal. Cobbles are subrounded. Pockets of sandy gravelly CLAY throughout. *.0.6m to 5.4m: Hydrocarbon odour becoming stronger with depth*	
1.00	ES2						
2.00	ES3						
3.00	ES4						
4.00	ES5						
5.00	ES6						▼

Water Strikes

Struck at (m)	Remarks
5.00	Seepage at 5.00m

Depth: 6.00
Width: 1.50
Length: 4.00

Remarks:

Stability:	**Termination Reason**	**Last Updated**
Stable	Terminated at scheduled depth	28/06/2022

AGS

CAUSEWAY GEOTECH

Method: Trial Pitting	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP655**
	Coordinates 247997.73 E 417657.38 N	**Client:** DAERA/NIEA	
		Client's Representative: Tetra Tech	Sheet 2 of 2 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 9.43 mOD	**Date:** 23/05/2022 — **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
		Seepage at 5.00m	4.03	5.40	▨	MADE GROUND: Brownish black fine to coarse SAND and subangular to subrounded fine to coarse GRAVEL with high volume of plastic (shredded), red brick fragments, timber and metal. Cobbles are subrounded. Pockets of sandy gravelly CLAY throughout.	
6.00	ES7		3.43	6.00	▨	Possible MADE GROUND: Bluish grey sandy gravelly CLAY with low cobble content and pockets of coarse sand. Sand is fine to coarse. Gravel is subrounded fine to coarse. Cobbles are subrounded.	
						End of trial pit at 6.00m	

Water Strikes

Struck at (m)	Remarks
5.00	Seepage at 5.00m

Depth: 6.00
Width: 1.50
Length: 4.00

Remarks:

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP656**
	Coordinates 248009.67 E 417651.89 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 2 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 10.48 mOD	**Date:** 24/05/2022 **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Brown sandy gravelly SILT with low cobble and boulder content and shredded household waste predominantly of plastic. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles and boulders are angular.	
			9.38	1.10	▨	MADE GROUND: Blackish brown sandy gravelly SILT with household waste including plastics, textiles. rope, metal, glass, tin, vehicle tyres, and concrete boulders.	
2.00	ES1						
			6.38	4.10	▨	MADE GROUND: Tyres	
		Water strike at 4.50m					▼

Water Strikes	
Struck at (m)	Remarks
4.50	Water strike at 4.50m

Depth: 6.50
Width: 1.50
Length: 5.00

Remarks:

Stability:
Stable

Termination Reason
Terminated due to maximum reach of excavator

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP656**
	Coordinates 248009.67 E 417651.89 N	**Client:** DAERA/NIEA		
Method: Trial Pitting		**Client's Representative:** Tetra Tech		Sheet 2 of 2 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 10.48 mOD	**Date:** 24/05/2022	**Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Tyres	
6.50	ES2		4.08	6.40		Brown pseudo-fibrous PEAT with decaying tree branches with roots and rootlets.	
			3.98	6.50			
						End of trial pit at 6.50m	

5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5

Water Strikes

Struck at (m)	Remarks
4.50	Water strike at 4.50m

Depth: 6.50
Width: 1.50
Length: 5.00

Remarks:

Stability: Stable

Termination Reason
Terminated due to maximum reach of excavator

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP657**
	Coordinates 247985.89 E 417634.31 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 2 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 9.40 mOD	**Date:** 23/05/2022 **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
					▨	MADE GROUND: Light brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to subrounded		
0.50	ES1		8.90	0.50	▨	MADE GROUND: Black and brown sandy gravelly SILT with high volume of plastics, metal, timber, piping, cobbles, concrete boulders and vehicle tyres. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.		0.5
1.00	ES2				▨			1.0
					▨			1.5
2.00	ES3				▨			2.0
					▨	*2.2m: Volume of waste decreasing*		
		Seepage at 2.4m			▨		▼	
					▨			2.5
3.00	ES4				▨			3.0
					▨			3.5
4.00	ES5				▨			4.0
					▨			4.5
5.00	ES6							

Water Strikes

Struck at (m)	Remarks
2.40	Seepage at 2.4m

Depth: 6.50

Width: 2.00

Length: 6.00

Remarks:

Stability:
Stable

Termination Reason
Terminated due to maximum reach of digger

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Project No. 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2		**Trial Pit ID** **TP657**
Coordinates 247985.89 E 417634.31 N	**Client:** DAERA/NIEA		
Method: Trial Pitting	**Client's Representative:** Tetra Tech		Sheet 2 of 2 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 9.40 mOD	**Date:** 23/05/2022	**Logger:** LN
			FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
			4.30	5.10		MADE GROUND: Black and brown sandy gravelly SILT with high volume of plastics, metal, timber, piping, cobbles, concrete boulders and vehicle tyres. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
			3.40	6.00		Brown pseudo fibreous PEAT.	
6.40	ES7		2.90	6.50		Bluish grey silty gravelly fine to coarse SAND with low cobble content. Gravel is subangular to subrounded fine to coarse. Cobbles are subrounded GFSD	
						End of trial pit at 6.50m	

5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5

Water Strikes

Struck at (m)	Remarks
2.40	Seepage at 2.4m

Depth: 6.50
Width: 2.00
Length: 6.00

Remarks:

Stability:
Stable

Termination Reason
Terminated due to maximum reach of digger

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP658**
	Coordinates 247991.67 E 417627.60 N	**Client:** DAERA/NIEA	
Method: Trial Pitting		**Client's Representative:** Tetra Tech	Sheet 1 of 2 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 10.41 mOD	**Date:** 24/05/2022 — **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Brown sandy gravelly SILT with medium cobble content and domestic waste including plastic, metal, glass, textiles. concrete and red brick. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
			9.21	1.20	▨	MADE GROUND: Black and brown sandy gravelly SILT wit medium cobble content, fragments of plastic, textiles, electrical cables, bedding, glass and tyres. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to rounded. Boulders are of concrete. *1.2m to 5.4m: Hydrocarbon odour*	
2.00	ES1						
5.00	ES2						

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

Water Strikes

Struck at (m)	Remarks
5.40	Heavy water strike at 5.40m

Depth: 6.00
Width: 1.50
Length: 4.00

Remarks:

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Project No.
22-0242

Project Name:
Mobuoy Remediation Project Phase 2

Trial Pit ID
TP658

Coordinates
247991.67 E
417627.60 N

Client:
DAERA/NIEA

Method:
Trial Pitting

Client's Representative:
Tetra Tech

Sheet 2 of 2
Scale: 1:25

Plant:
22T Tracked Excavator

Elevation
10.41 mOD

Date:
24/05/2022

Logger:
LN

FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Black and brown sandy gravelly SILT wit medium cobble content, fragments of plastic, textiles, electrical cables, bedding, glass and tyres. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subangular to rounded. Boulders are of concrete.	
		Heavy water strike at 5.40m	5.01	5.40	▨	Possible MADE GROUND: Dark brown mottled black slightly sandy slightly gravelly SILT with roots and rootlets. Sand is fien to coarse. Gravel is subangular to subrounded fine to coarse.	▼
6.00	ES3		4.41	6.00		End of trial pit at 6.00m	

5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5

Water Strikes

Struck at (m)	Remarks
5.40	Heavy water strike at 5.40m

Depth: 6.00
Width: 1.50
Length: 4.00

Remarks:

Stability:
Stable

Termination Reason
Terminated at scheduled depth

Last Updated
28/06/2022

AGS

CAUSEWAY GEOTECH

Method: Trial Pitting	**Project No.** 22-0242	**Project Name:** Mobuoy Remediation Project Phase 2	**Trial Pit ID** **TP659**
	Coordinates 247970.75 E 417613.50 N	**Client:** DAERA/NIEA	
		Client's Representative: Tetra Tech	Sheet 1 of 1 Scale: 1:25
Plant: 22T Tracked Excavator	**Elevation** 6.89 mOD	**Date:** 23/05/2022 **Logger:** LN	FINAL

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water
					▨	MADE GROUND: Dark greyish brown sandy angular fine to coarse GRAVEL. Sand is fine to coarse.	
			6.59	0.30	▨	MADE GROUND: Black sandy dark brown sandy silty angular fine to coarse GRAVEL with medium cobble and boulder content and pockets of shredded plastic, fragments of brick, concrete and pockets of sandy silt. Sand is fine to coarse.	
0.50	ES1						
1.00	ES2						
2.00	ES3	Heavy water strike at 2.00m					▼
			4.59	2.30		End of trial pit at 2.30m	

Water Strikes

Struck at (m)	Remarks
2.00	Heavy water strike at 2.00m

Depth: 2.30
Width: 2.80
Length: 3.80

Remarks:

Stability:
Unstable

Termination Reason
Terminated due to ingress of water

Last Updated
28/06/2022

AGS

APPENDIX 3 -GROUNDWATER SAMPLING LOW FLOW REPORT (ROUND 1)

Low-Flow Test Report:

Test Date / Time: 12/01/2022 12:15:10
Project: Mobuoy
Operator Name: JC

Location Name: BHW1 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 10 m** **Top of Screen: 1 m** **Total Depth: 9.64 m** **Initial Depth to Water: 5.58 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 7.5 m** **Estimated Total Volume Pumped: 2000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 5.85 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
12/01/2022 12:15	00:00	6.91 pH	8.87 °C	1,391.2 µS/cm	3.76 mg/L		-42.1 mV	5.58 m	250.00 ml/min
12/01/2022 12:16	01:00	6.90 pH	8.79 °C	1,389.4 µS/cm	2.32 mg/L		-39.0 mV	5.58 m	250.00 ml/min
12/01/2022 12:17	02:00	6.91 pH	8.77 °C	1,389.2 µS/cm	1.39 mg/L		-38.2 mV	5.58 m	250.00 ml/min
12/01/2022 12:18	03:00	6.90 pH	8.74 °C	1,390.0 µS/cm	0.97 mg/L		-37.7 mV	5.58 m	250.00 ml/min
12/01/2022 12:19	04:00	6.89 pH	8.76 °C	1,389.5 µS/cm	0.78 mg/L		-37.8 mV	5.58 m	250.00 ml/min
12/01/2022 12:20	05:00	6.90 pH	8.82 °C	1,389.1 µS/cm	0.70 mg/L		-37.7 mV	5.58 m	250.00 ml/min
12/01/2022 12:21	06:00	6.89 pH	8.77 °C	1,387.8 µS/cm	0.67 mg/L		-37.8 mV	5.58 m	250.00 ml/min
12/01/2022 12:22	07:00	6.89 pH	8.77 °C	1,387.8 µS/cm	0.67 mg/L		-38.1 mV	5.58 m	250.00 ml/min
12/01/2022 12:23	08:00	6.89 pH	8.77 °C	1,389.3 µS/cm	0.65 mg/L		-38.2 mV	5.58 m	250.00 ml/min

Samples

Sample ID:	Description:
BHW1	

Low-Flow Test Report:

Test Date / Time: 14/01/2022 10:58:27
Project: Mobuoy
Operator Name: JC

Location Name: BH04
Well Diameter: 5 cm
Casing Type: Plastic
Screen Length: 2.5 m
Top of Screen: 5 m
Total Depth: 6.78 m
Initial Depth to Water: 4.25 m

Pump Type: Perastaltic
Tubing Type: HDPE
Pump Intake From TOC: 5.5 m
Estimated Total Volume Pumped: 2750 ml
Flow Cell Volume: 130 ml
Final Flow Rate: 250 ml/min
Final Draw Down: 4.26 m

Instrument Used: Aqua TROLL 500
Serial Number: 791283

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
14/01/2022 10:58	00:00	7.02 pH	10.45 °C	2,476.2 µS/cm	2.18 mg/L	-39.8 mV	4.25 m	250.00 ml/min
14/01/2022 10:59	01:00	7.04 pH	10.28 °C	2,687.4 µS/cm	1.72 mg/L	-38.6 mV	4.25 m	250.00 ml/min
14/01/2022 11:00	02:00	7.06 pH	10.00 °C	2,811.2 µS/cm	1.87 mg/L	-38.8 mV	4.25 m	250.00 ml/min
14/01/2022 11:01	03:00	7.06 pH	9.95 °C	2,868.5 µS/cm	2.14 mg/L	-40.0 mV	4.25 m	250.00 ml/min
14/01/2022 11:02	04:00	7.06 pH	9.90 °C	2,907.0 µS/cm	2.29 mg/L	-40.2 mV	4.25 m	250.00 ml/min
14/01/2022 11:03	05:00	7.07 pH	9.83 °C	2,964.6 µS/cm	2.45 mg/L	-40.9 mV	4.25 m	250.00 ml/min
14/01/2022 11:04	06:00	7.08 pH	9.82 °C	2,988.2 µS/cm	2.67 mg/L	-41.5 mV	4.25 m	250.00 ml/min
14/01/2022 11:05	07:00	7.07 pH	9.77 °C	2,983.5 µS/cm	2.79 mg/L	-41.7 mV	4.25 m	250.00 ml/min
14/01/2022 11:06	08:00	7.07 pH	9.71 °C	2,955.4 µS/cm	2.87 mg/L	-41.4 mV	4.25 m	250.00 ml/min
14/01/2022 11:07	09:00	7.08 pH	9.67 °C	2,950.5 µS/cm	2.93 mg/L	-41.2 mV	4.25 m	250.00 ml/min
14/01/2022 11:08	10:00	7.08 pH	9.58 °C	2,947.0 µS/cm	2.93 mg/L	-41.2 mV	4.25 m	250.00 ml/min
14/01/2022 11:09	11:00	7.08 pH	9.51 °C	2,943.6 µS/cm	2.98 mg/L	-41.2 mV	4.25 m	250.00 ml/min

Samples

Sample ID:	Description:
BH04	

Low-Flow Test Report:

Test Date / Time: 13/01/2022 10:41:59
Project: Mobuoy
Operator Name: JC

Location Name: BH05 **Well Diameter: 5 cm** **Casing Type: Plastic** **Total Depth: 6 m** **Initial Depth to Water: 2.38 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 4.2 m** **Estimated Total Volume Pumped: 1500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.94 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
13/01/2022 10:41	00:00	7.38 pH	8.91 °C	510.93 µS/cm	2.49 mg/L		-69.9 mV	2.38 m	250.00 ml/min
13/01/2022 10:42	01:00	7.39 pH	8.94 °C	510.40 µS/cm	1.94 mg/L		-77.5 mV	2.38 m	250.00 ml/min
13/01/2022 10:43	02:00	7.39 pH	8.96 °C	510.49 µS/cm	1.72 mg/L		-81.9 mV	2.38 m	250.00 ml/min
13/01/2022 10:44	03:00	7.40 pH	8.98 °C	510.13 µS/cm	1.59 mg/L		-85.7 mV	2.38 m	250.00 ml/min
13/01/2022 10:45	04:00	7.41 pH	8.97 °C	509.88 µS/cm	1.58 mg/L		-87.8 mV	2.38 m	250.00 ml/min
13/01/2022 10:46	05:00	7.40 pH	8.95 °C	509.70 µS/cm	1.54 mg/L		-89.4 mV	2.38 m	250.00 ml/min
13/01/2022 10:47	06:00	7.41 pH	8.95 °C	509.66 µS/cm	1.47 mg/L		-91.5 mV	2.38 m	250.00 ml/min

Samples

Sample ID:	Description:
BH05	

Low-Flow Test Report:

Test Date / Time: 12/01/2022 10:41:43
Project: Mobuoy
Operator Name: JB

Location Name: BH06 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 2 m** **Top of Screen: 4.2 m** **Total Depth: 7.43 m** **Initial Depth to Water: 4.21 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 5.9 m** **Estimated Total Volume Pumped: 1250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 4.27 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
12/01/2022 10:41	00:00	5.88 pH	10.11 °C	2,739.0 µS/cm	1.04 mg/L	288.02 NTU	44.2 mV	4.21 m	250.00 ml/min
12/01/2022 10:42	01:00	5.92 pH	10.13 °C	2,757.7 µS/cm	0.73 mg/L	236.46 NTU	43.8 mV	4.21 m	250.00 ml/min
12/01/2022 10:43	02:00	5.91 pH	10.13 °C	2,755.4 µS/cm	0.68 mg/L	215.29 NTU	44.7 mV	4.21 m	250.00 ml/min
12/01/2022 10:44	03:00	5.93 pH	10.14 °C	2,762.0 µS/cm	0.82 mg/L	165.35 NTU	44.6 mV	4.21 m	250.00 ml/min
12/01/2022 10:45	04:00	5.92 pH	10.13 °C	2,756.3 µS/cm	0.67 mg/L	155.29 NTU	44.9 mV	4.21 m	250.00 ml/min
12/01/2022 10:46	05:00	5.92 pH	10.11 °C	2,747.6 µS/cm	0.67 mg/L	147.91 NTU	44.6 mV	4.21 m	250.00 ml/min

Samples

Sample ID:	Description:
BH06	GW

Low-Flow Test Report:

Test Date / Time: 14/01/2022 09:55:14
Project: Mobuoy
Operator Name: JB

Location Name: BH07 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 2.5 m** **Top of Screen: 5 m** **Total Depth: 6.43 m** **Initial Depth to Water: 3.47 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 5 m** **Estimated Total Volume Pumped: 1750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.46 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
14/01/2022 09:55	00:00	6.90 pH	9.46 °C	2,941.1 µS/cm	0.52 mg/L	128.06 NTU	-119.5 mV	347.00 cm	250.00 ml/min
14/01/2022 09:56	01:00	6.91 pH	9.32 °C	2,951.7 µS/cm	0.46 mg/L	134.95 NTU	-119.9 mV	347.00 cm	250.00 ml/min
14/01/2022 09:57	02:00	6.91 pH	9.21 °C	2,958.5 µS/cm	0.42 mg/L	135.20 NTU	-121.0 mV	347.00 cm	250.00 ml/min
14/01/2022 09:58	03:00	6.91 pH	9.05 °C	2,967.1 µS/cm	0.45 mg/L	212.64 NTU	-121.0 mV	347.00 cm	250.00 ml/min
14/01/2022 09:59	04:00	6.90 pH	8.97 °C	2,974.8 µS/cm	0.52 mg/L	130.04 NTU	-120.8 mV	347.00 cm	250.00 ml/min
14/01/2022 10:00	05:00	6.90 pH	8.91 °C	2,977.6 µS/cm	0.43 mg/L	129.71 NTU	-119.8 mV	347.00 cm	250.00 ml/min
14/01/2022 10:01	06:00	6.90 pH	8.83 °C	2,980.1 µS/cm	0.38 mg/L	139.41 NTU	-119.9 mV	347.00 cm	250.00 ml/min
14/01/2022 10:02	07:00	6.90 pH	8.76 °C	2,983.6 µS/cm	0.36 mg/L	127.11 NTU	-120.3 mV	347.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH07	GW

Low-Flow Test Report:

Test Date / Time: 20/01/2022 12:25:31
Project: Mobuoy
Operator Name: JB

Location Name: BH101 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3.5 m** **Top of Screen: 5 m** **Total Depth: 8.59 m** **Initial Depth to Water: 2.44 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 5.2 m** **Estimated Total Volume Pumped: 1250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.45 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
20/01/2022 12:25	00:00	6.58 pH	9.98 °C	315.80 µS/cm	1.14 mg/L	109.64 NTU	58.2 mV	244.00 cm	250.00 ml/min
20/01/2022 12:26	01:00	6.44 pH	9.92 °C	315.12 µS/cm	0.81 mg/L	114.89 NTU	69.2 mV	244.00 cm	250.00 ml/min
20/01/2022 12:27	02:00	6.36 pH	9.88 °C	315.00 µS/cm	0.70 mg/L	108.00 NTU	75.4 mV	244.00 cm	250.00 ml/min
20/01/2022 12:28	03:00	6.32 pH	9.88 °C	315.21 µS/cm	0.63 mg/L	91.33 NTU	79.5 mV	244.00 cm	250.00 ml/min
20/01/2022 12:29	04:00	6.31 pH	9.88 °C	314.87 µS/cm	0.59 mg/L	110.07 NTU	82.0 mV	244.00 cm	250.00 ml/min
20/01/2022 12:30	05:00	6.30 pH	9.89 °C	315.36 µS/cm	0.54 mg/L	94.81 NTU	84.4 mV	244.00 cm	250.00 ml/min

Samples

Sample ID:	**Description:**
BH101	

Low-Flow Test Report:

Test Date / Time: 14/01/2022 14:02:39
Project: Mobuoy
Operator Name: JB

Location Name: BH102 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3.5 m** **Top of Screen: 4 m** **Total Depth: 7.94 m** **Initial Depth to Water: 2.24 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 5 m** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.24 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
14/01/2022 14:02	00:00	6.87 pH	8.85 °C	548.72 µS/cm	1.98 mg/L	62.11 NTU	86.3 mV	224.00 cm	250.00 ml/min
14/01/2022 14:03	01:00	6.77 pH	8.88 °C	547.38 µS/cm	1.25 mg/L	36.88 NTU	93.8 mV	224.00 cm	250.00 ml/min
14/01/2022 14:04	02:00	6.73 pH	8.86 °C	546.96 µS/cm	1.02 mg/L	45.45 NTU	99.1 mV	224.00 cm	250.00 ml/min
14/01/2022 14:05	03:00	6.73 pH	8.86 °C	546.47 µS/cm	1.07 mg/L	36.54 NTU	102.0 mV	224.00 cm	250.00 ml/min
14/01/2022 14:06	04:00	6.72 pH	8.90 °C	546.50 µS/cm	0.98 mg/L	38.60 NTU	104.7 mV	224.00 cm	250.00 ml/min
14/01/2022 14:07	05:00	6.72 pH	8.94 °C	546.23 µS/cm	0.90 mg/L	80.03 NTU	106.9 mV	224.00 cm	250.00 ml/min
14/01/2022 14:08	06:00	6.71 pH	8.94 °C	545.62 µS/cm	0.81 mg/L	30.71 NTU	108.5 mV	224.00 cm	250.00 ml/min
14/01/2022 14:09	07:00	6.71 pH	8.94 °C	545.49 µS/cm	0.84 mg/L	24.47 NTU	110.0 mV	224.00 cm	250.00 ml/min
14/01/2022 14:10	08:00	6.70 pH	8.92 °C	545.12 µS/cm	0.77 mg/L	23.02 NTU	111.3 mV	224.00 cm	250.00 ml/min
14/01/2022 14:11	09:00	6.71 pH	8.89 °C	545.28 µS/cm	0.68 mg/L	19.78 NTU	112.3 mV	224.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH102	GW

Low-Flow Test Report:

Test Date / Time: 14/01/2022 14:41:12
Project: Mobuoy
Operator Name: JB

Location Name: BH103 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3.5 m** **Top of Screen: 4 m** **Total Depth: 7 m** **Initial Depth to Water: 4.5 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 4.5 m** **Estimated Total Volume Pumped: 1770.833 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.15 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
14/01/2022 14:41	00:00	6.70 pH	9.37 °C	589.45 µS/cm	2.34 mg/L	56.65 NTU	-50.2 mV	450.00 cm	250.00 ml/min
14/01/2022 14:42	01:00	6.74 pH	9.55 °C	587.80 µS/cm	0.88 mg/L	31.66 NTU	-61.2 mV	450.00 cm	250.00 ml/min
14/01/2022 14:43	02:00	6.76 pH	9.56 °C	586.65 µS/cm	0.80 mg/L	24.80 NTU	-66.4 mV	450.00 cm	250.00 ml/min
14/01/2022 14:44	03:00	6.75 pH	9.55 °C	586.82 µS/cm	0.75 mg/L	31.23 NTU	-69.2 mV	450.00 cm	250.00 ml/min
14/01/2022 14:45	04:00	6.71 pH	9.53 °C	587.61 µS/cm	0.76 mg/L	25.18 NTU	-70.1 mV	450.00 cm	250.00 ml/min
14/01/2022 14:46	05:11	6.75 pH	9.48 °C	587.25 µS/cm	0.87 mg/L	28.24 NTU	-76.7 mV	450.00 cm	250.00 ml/min
14/01/2022 14:48	07:05	6.74 pH	9.50 °C	587.58 µS/cm	0.97 mg/L	28.71 NTU	-79.2 mV	450.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH103	GW

Low-Flow Test Report:

Test Date / Time: 14/01/2022 12:06:16
Project: Mobuoy
Operator Name: JC

Location Name: BH104 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3.3 m** **Top of Screen: 3 m** **Total Depth: 6.56 m** **Initial Depth to Water: 3.12 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 4.8 m** **Estimated Total Volume Pumped: 2750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.13 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
14/01/2022 12:06	00:00	7.57 pH	8.54 °C	558.15 µS/cm	9.80 mg/L	2.7 mV	3.12 m	250.00 ml/min
14/01/2022 12:07	01:00	7.18 pH	8.53 °C	573.80 µS/cm	6.49 mg/L	23.6 mV	3.12 m	250.00 ml/min
14/01/2022 12:08	02:00	7.00 pH	8.56 °C	569.77 µS/cm	5.69 mg/L	35.9 mV	3.12 m	250.00 ml/min
14/01/2022 12:09	03:00	6.92 pH	8.58 °C	561.97 µS/cm	5.92 mg/L	44.2 mV	3.12 m	250.00 ml/min
14/01/2022 12:10	04:00	6.88 pH	8.59 °C	556.11 µS/cm	6.37 mg/L	50.1 mV	3.12 m	250.00 ml/min
14/01/2022 12:11	05:00	6.86 pH	8.60 °C	552.50 µS/cm	6.70 mg/L	55.7 mV	3.12 m	250.00 ml/min
14/01/2022 12:12	06:00	6.83 pH	8.59 °C	553.03 µS/cm	6.84 mg/L	59.5 mV	3.12 m	250.00 ml/min
14/01/2022 12:13	07:00	6.82 pH	8.57 °C	553.53 µS/cm	6.95 mg/L	63.5 mV	3.12 m	250.00 ml/min
14/01/2022 12:14	08:00	6.82 pH	8.54 °C	554.70 µS/cm	7.02 mg/L	67.3 mV	3.12 m	250.00 ml/min
14/01/2022 12:15	09:00	6.82 pH	8.49 °C	553.70 µS/cm	7.10 mg/L	70.8 mV	3.12 m	250.00 ml/min
14/01/2022 12:16	10:00	6.82 pH	8.45 °C	552.50 µS/cm	7.16 mg/L	73.5 mV	3.12 m	250.00 ml/min
14/01/2022 12:17	11:00	6.82 pH	8.43 °C	553.04 µS/cm	7.20 mg/L	75.8 mV	3.12 m	250.00 ml/min

Samples

Sample ID:	Description:
BH104	

Low-Flow Test Report:

Test Date / Time: 11/01/2022 15:51:24
Project: Mobuoy
Operator Name: JB

Location Name: BH105 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 7 m** **Top of Screen: 1 m** **Total Depth: 9.24 m** **Initial Depth to Water: 4.57 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 6.8 m** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 4.53 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
11/01/2022 15:51	00:00	6.49 pH	9.99 °C	1,056.4 µS/cm	1.63 mg/L	7.38 NTU	-98.0 mV	4.57 m	250.00 ml/min
11/01/2022 15:52	01:00	6.55 pH	10.16 °C	1,050.3 µS/cm	0.78 mg/L	9.44 NTU	-114.2 mV	4.57 m	250.00 ml/min
11/01/2022 15:53	02:00	6.57 pH	10.13 °C	1,047.1 µS/cm	0.57 mg/L	5.13 NTU	-124.4 mV	4.57 m	250.00 ml/min
11/01/2022 15:54	03:00	6.57 pH	10.02 °C	1,045.8 µS/cm	0.53 mg/L	4.47 NTU	-132.9 mV	4.57 m	250.00 ml/min
11/01/2022 15:55	04:00	6.58 pH	9.95 °C	1,047.4 µS/cm	0.54 mg/L	4.91 NTU	-138.0 mV	4.57 m	250.00 ml/min
11/01/2022 15:56	05:00	6.57 pH	9.95 °C	1,046.9 µS/cm	0.51 mg/L	4.18 NTU	-142.6 mV	4.57 m	250.00 ml/min
11/01/2022 15:57	06:00	6.57 pH	9.99 °C	1,046.7 µS/cm	0.49 mg/L	3.59 NTU	-143.6 mV	4.57 m	250.00 ml/min
11/01/2022 15:58	07:00	6.57 pH	9.99 °C	1,046.2 µS/cm	0.48 mg/L	3.25 NTU	-148.1 mV	4.57 m	250.00 ml/min
11/01/2022 15:59	08:00	6.57 pH	10.02 °C	1,048.2 µS/cm	0.46 mg/L	3.20 NTU	-151.5 mV	4.57 m	250.00 ml/min
11/01/2022 16:00	09:00	6.57 pH	10.04 °C	1,048.0 µS/cm	0.37 mg/L	3.05 NTU	-154.6 mV	4.57 m	250.00 ml/min

Samples

Sample ID:	Description:
BH105	

Low-Flow Test Report:

Test Date / Time: 12/01/2022 09:52:20
Project: Mobuoy
Operator Name: JB

Location Name: BH106 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 1 m** **Top of Screen: 6 m** **Total Depth: 7.37 m** **Initial Depth to Water: 4.42 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 6.1 m** **Estimated Total Volume Pumped: 2500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 4.88 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
12/01/2022 09:52	00:00	6.55 pH	10.32 °C	997.61 µS/cm	2.86 mg/L	58.69 NTU	-59.0 mV	4.42 m	250.00 ml/min
12/01/2022 09:53	01:00	6.53 pH	10.26 °C	988.73 µS/cm	1.73 mg/L	58.53 NTU	-56.4 mV	4.42 m	250.00 ml/min
12/01/2022 09:54	02:00	6.51 pH	10.21 °C	987.80 µS/cm	1.58 mg/L	52.83 NTU	-54.5 mV	4.42 m	250.00 ml/min
12/01/2022 09:55	03:00	6.50 pH	10.21 °C	990.74 µS/cm	1.58 mg/L	40.02 NTU	-53.0 mV	4.42 m	250.00 ml/min
12/01/2022 09:56	04:00	6.51 pH	10.22 °C	989.46 µS/cm	1.56 mg/L	48.43 NTU	-51.9 mV	4.42 m	250.00 ml/min
12/01/2022 09:57	05:00	6.50 pH	9.97 °C	980.14 µS/cm	1.17 mg/L	63.26 NTU	-50.5 mV	4.42 m	250.00 ml/min
12/01/2022 09:58	06:00	6.48 pH	9.97 °C	985.35 µS/cm	0.81 mg/L	54.31 NTU	-50.1 mV	4.42 m	250.00 ml/min
12/01/2022 09:59	07:00	6.47 pH	10.09 °C	985.29 µS/cm	0.78 mg/L	60.26 NTU	-51.8 mV	4.42 m	250.00 ml/min
12/01/2022 10:00	08:00	6.47 pH	10.14 °C	983.70 µS/cm	0.65 mg/L	50.13 NTU	-51.8 mV	4.42 m	250.00 ml/min
12/01/2022 10:01	09:00	6.47 pH	10.15 °C	983.57 µS/cm	0.65 mg/L	67.41 NTU	-50.5 mV	4.42 m	250.00 ml/min
12/01/2022 10:02	10:00	6.46 pH	10.14 °C	982.56 µS/cm	0.66 mg/L	48.63 NTU	-49.1 mV	4.42 m	250.00 ml/min

Samples

Sample ID:	**Description:**
BH106	

Low-Flow Test Report:

Test Date / Time: 13/01/2022 14:46:26
Project: Mobuoy
Operator Name: JC

Location Name: BH107 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 1.5 m** **Top of Screen: 6.5 m** **Total Depth: 8.7 m** **Initial Depth to Water: 4.58 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 7 m** **Estimated Total Volume Pumped: 2954.167 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 6.3 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
13/01/2022 14:46	00:00	6.61 pH	10.46 °C	3,914.5 µS/cm	1.16 mg/L	-31.7 mV	4.58 m	250.00 ml/min
13/01/2022 14:47	01:00	6.61 pH	10.39 °C	3,874.5 µS/cm	1.02 mg/L	-32.6 mV	4.58 m	250.00 ml/min
13/01/2022 14:51	04:49	6.59 pH	10.31 °C	3,845.8 µS/cm	1.57 mg/L	-36.3 mV	4.58 m	250.00 ml/min
13/01/2022 14:52	05:49	6.61 pH	10.32 °C	3,591.1 µS/cm	1.15 mg/L	-37.3 mV	4.58 m	250.00 ml/min
13/01/2022 14:53	06:49	6.61 pH	10.31 °C	3,578.4 µS/cm	0.67 mg/L	-38.1 mV	4.58 m	250.00 ml/min
13/01/2022 14:54	07:49	6.61 pH	10.25 °C	3,563.8 µS/cm	0.50 mg/L	-38.8 mV	4.58 m	250.00 ml/min
13/01/2022 14:55	08:49	6.62 pH	10.18 °C	3,546.9 µS/cm	0.46 mg/L	-39.3 mV	4.58 m	250.00 ml/min
13/01/2022 14:56	09:49	6.62 pH	10.12 °C	3,548.1 µS/cm	0.46 mg/L	-39.7 mV	4.58 m	250.00 ml/min
13/01/2022 14:57	10:49	6.62 pH	10.07 °C	3,543.4 µS/cm	0.45 mg/L	-40.7 mV	4.58 m	250.00 ml/min
13/01/2022 14:58	11:49	6.63 pH	10.02 °C	3,576.6 µS/cm	0.43 mg/L	-41.6 mV	4.58 m	250.00 ml/min

Samples

Sample ID:	Description:

BH107	

Low-Flow Test Report:

Test Date / Time: 13/01/2022 11:41:50
Project: Mobuoy
Operator Name: JC

Location Name: BH108 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3 m** **Top of Screen: 1 m** **Total Depth: 4.12 m** **Initial Depth to Water: 1.26 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 2.8 m** **Estimated Total Volume Pumped: 1000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 1.27 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
13/01/2022 11:41	00:00	7.36 pH	7.87 °C	326.61 µS/cm	0.80 mg/L		-80.4 mV	1.26 m	250.00 ml/min
13/01/2022 11:42	01:00	7.36 pH	7.86 °C	325.30 µS/cm	0.74 mg/L		-80.3 mV	1.26 m	250.00 ml/min
13/01/2022 11:43	02:00	7.35 pH	7.82 °C	323.63 µS/cm	0.68 mg/L		-80.3 mV	1.26 m	250.00 ml/min
13/01/2022 11:44	03:00	7.35 pH	7.87 °C	320.70 µS/cm	0.62 mg/L		-80.6 mV	1.26 m	250.00 ml/min
13/01/2022 11:45	04:00	7.36 pH	7.87 °C	320.99 µS/cm	0.57 mg/L		-81.0 mV	1.26 m	250.00 ml/min

Samples

Sample ID:	Description:
BH108	

Low-Flow Test Report:

Test Date / Time: 13/01/2022 11:07:13
Project: Mobuoy
Operator Name: JB

Location Name: BH111 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 4.5 m** **Top of Screen: 6 m** **Total Depth: 9.52 m** **Initial Depth to Water: 4.18 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 6.9 m** **Estimated Total Volume Pumped: 1500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 4.17 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.3	+/- 3 %	+/- 0.2	+/- 10	+/- 20		
13/01/2022 11:07	00:00	8.06 pH	8.72 °C	343.71 µS/cm	8.84 mg/L	8.39 NTU	-79.4 mV	4.18 m	250.00 ml/min
13/01/2022 11:08	01:00	7.86 pH	8.42 °C	346.71 µS/cm	7.14 mg/L	5.05 NTU	-45.4 mV	4.18 m	250.00 ml/min
13/01/2022 11:09	02:00	7.74 pH	8.27 °C	342.53 µS/cm	6.75 mg/L	3.72 NTU	-26.2 mV	4.18 m	250.00 ml/min
13/01/2022 11:10	03:00	7.67 pH	8.16 °C	341.84 µS/cm	6.68 mg/L	0.74 NTU	-13.7 mV	4.18 m	250.00 ml/min
13/01/2022 11:11	04:00	7.64 pH	8.08 °C	339.40 µS/cm	6.68 mg/L	1.47 NTU	-8.0 mV	4.18 m	250.00 ml/min
13/01/2022 11:12	05:00	7.64 pH	8.08 °C	337.85 µS/cm	6.68 mg/L	0.00 NTU	-2.4 mV	4.18 m	250.00 ml/min
13/01/2022 11:13	06:00	7.62 pH	8.07 °C	338.75 µS/cm	6.63 mg/L	0.00 NTU	1.9 mV	4.18 m	250.00 ml/min

Samples

Sample ID:	**Description:**
BH111	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 13/01/2022 12:38:46
Project: Mobuoy
Operator Name: JB

Location Name: BH112 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3 m** **Top of Screen: 2.6 m** **Total Depth: 5.31 m** **Initial Depth to Water: 0.39 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 3 m** **Estimated Total Volume Pumped: 1750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 0.37 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
13/01/2022 12:38	00:00	6.97 pH	8.85 °C	358.05 µS/cm	8.75 mg/L	66.8 mV	0.39 m	250.00 ml/min
13/01/2022 12:39	01:00	6.73 pH	8.80 °C	353.17 µS/cm	8.75 mg/L	67.3 mV	0.39 m	250.00 ml/min
13/01/2022 12:40	02:00	6.59 pH	8.78 °C	353.96 µS/cm	8.74 mg/L	78.5 mV	0.39 m	250.00 ml/min
13/01/2022 12:41	03:00	6.50 pH	8.74 °C	348.84 µS/cm	8.74 mg/L	84.9 mV	0.39 m	250.00 ml/min
13/01/2022 12:42	04:00	6.46 pH	8.73 °C	349.41 µS/cm	8.74 mg/L	89.9 mV	0.39 m	250.00 ml/min
13/01/2022 12:43	05:00	6.41 pH	8.75 °C	342.37 µS/cm	8.70 mg/L	93.6 mV	0.39 m	250.00 ml/min
13/01/2022 12:44	06:00	6.37 pH	8.76 °C	337.34 µS/cm	8.69 mg/L	102.3 mV	0.39 m	250.00 ml/min
13/01/2022 12:45	07:00	6.36 pH	8.78 °C	333.63 µS/cm	8.69 mg/L	108.0 mV	0.39 m	250.00 ml/min

Samples

Sample ID:	Description:
BH112	

Low-Flow Test Report:

Test Date / Time: 11/01/2022 09:48:38
Project: Mobuoy
Operator Name: JB

Location Name: BH114 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 1.5 m** **Top of Screen: 3.5 m** **Total Depth: 5.44 m** **Initial Depth to Water: 2.5 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 4 m** **Estimated Total Volume Pumped: 2716.667 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.3 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
11/01/2022 09:48	00:00	6.38 pH	8.56 °C	271.37 µS/cm	6.34 mg/L	3.04 NTU	104.2 mV	2.50 m	250.00 ml/min
11/01/2022 09:49	01:00	6.38 pH	8.44 °C	268.08 µS/cm	6.36 mg/L	3.07 NTU	104.5 mV	2.50 m	250.00 ml/min
11/01/2022 09:50	02:00	6.35 pH	8.34 °C	268.65 µS/cm	6.35 mg/L	1.57 NTU	106.7 mV	2.50 m	250.00 ml/min
11/01/2022 09:51	03:00	6.33 pH	8.28 °C	271.00 µS/cm	6.31 mg/L	3.93 NTU	108.2 mV	2.50 m	250.00 ml/min
11/01/2022 09:52	04:00	6.32 pH	8.22 °C	270.58 µS/cm	6.31 mg/L	2.00 NTU	108.9 mV	2.50 m	250.00 ml/min
11/01/2022 09:53	05:00	6.30 pH	8.17 °C	269.93 µS/cm	6.30 mg/L	4.52 NTU	109.7 mV	2.50 m	250.00 ml/min
11/01/2022 09:54	06:00	6.26 pH	8.21 °C	271.97 µS/cm	6.31 mg/L	5.57 NTU	112.8 mV	2.50 m	250.00 ml/min
11/01/2022 09:55	07:00	6.26 pH	8.24 °C	270.84 µS/cm	6.31 mg/L	5.74 NTU	113.7 mV	2.50 m	250.00 ml/min
11/01/2022 09:56	08:00	6.25 pH	8.25 °C	270.06 µS/cm	6.30 mg/L	4.25 NTU	114.9 mV	2.50 m	250.00 ml/min
11/01/2022 09:59	10:52	6.22 pH	8.27 °C	272.53 µS/cm	6.22 mg/L	5.82 NTU	117.8 mV	2.50 m	250.00 ml/min

Samples

Sample ID:	Description:
BH114	GW

Low-Flow Test Report:

Test Date / Time: 14/01/2022 11:53:33
Project: Mobuoy
Operator Name: JB

Location Name: BH118 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 1 m** **Top of Screen: 8.8 m** **Total Depth: 8.84 m** **Initial Depth to Water: 0.75 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 4.6 m** **Estimated Total Volume Pumped: 1000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 0.74 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
14/01/2022 11:53	00:00	6.48 pH	9.15 °C	353.01 µS/cm	0.43 mg/L	300.85 NTU	121.1 mV	75.00 cm	250.00 ml/min
14/01/2022 11:54	01:00	6.51 pH	9.11 °C	354.04 µS/cm	0.48 mg/L	262.22 NTU	120.9 mV	75.00 cm	250.00 ml/min
14/01/2022 11:55	02:00	6.52 pH	9.07 °C	353.58 µS/cm	0.59 mg/L	251.36 NTU	120.9 mV	75.00 cm	250.00 ml/min
14/01/2022 11:56	03:00	6.52 pH	9.06 °C	353.52 µS/cm	0.49 mg/L	241.00 NTU	121.5 mV	75.00 cm	250.00 ml/min
14/01/2022 11:57	04:00	6.52 pH	9.04 °C	353.07 µS/cm	0.49 mg/L	194.79 NTU	122.1 mV	75.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH118	GW

Low-Flow Test Report:

Test Date / Time: 11/01/2022 12:20:13
Project: Mobuoy
Operator Name: JB

Location Name: BH121 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 2 m** **Top of Screen: 3 m** **Total Depth: 5.42 m** **Initial Depth to Water: 2.03 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 3.7 m** **Estimated Total Volume Pumped: 3750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.02 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
11/01/2022 12:20	00:00	6.34 pH	9.19 °C	377.11 µS/cm	5.72 mg/L	15.32 NTU	58.0 mV	2.03 m	250.00 ml/min
11/01/2022 12:21	01:00	6.30 pH	9.13 °C	377.46 µS/cm	5.30 mg/L	13.99 NTU	64.5 mV	2.03 m	250.00 ml/min
11/01/2022 12:22	02:00	6.28 pH	9.04 °C	381.74 µS/cm	4.96 mg/L	10.32 NTU	67.6 mV	2.03 m	250.00 ml/min
11/01/2022 12:23	03:00	6.27 pH	8.97 °C	385.35 µS/cm	4.43 mg/L	7.16 NTU	69.7 mV	2.03 m	250.00 ml/min
11/01/2022 12:24	04:00	6.26 pH	8.94 °C	388.60 µS/cm	3.99 mg/L	8.18 NTU	71.0 mV	2.03 m	250.00 ml/min
11/01/2022 12:25	05:00	6.26 pH	8.94 °C	390.13 µS/cm	3.81 mg/L	6.26 NTU	71.8 mV	2.03 m	250.00 ml/min
11/01/2022 12:26	06:00	6.26 pH	8.94 °C	391.87 µS/cm	3.72 mg/L	5.71 NTU	72.6 mV	2.03 m	250.00 ml/min
11/01/2022 12:27	07:00	6.26 pH	8.94 °C	393.45 µS/cm	3.46 mg/L	8.58 NTU	74.2 mV	2.03 m	250.00 ml/min
11/01/2022 12:28	08:00	6.27 pH	8.94 °C	397.36 µS/cm	3.06 mg/L	5.01 NTU	76.7 mV	2.03 m	250.00 ml/min
11/01/2022 12:29	09:00	6.26 pH	8.93 °C	397.31 µS/cm	2.61 mg/L	7.30 NTU	79.6 mV	2.03 m	250.00 ml/min
11/01/2022 12:30	10:00	6.27 pH	8.91 °C	395.18 µS/cm	2.84 mg/L	14.62 NTU	81.2 mV	2.03 m	250.00 ml/min
11/01/2022 12:31	11:00	6.26 pH	8.91 °C	395.46 µS/cm	2.97 mg/L	6.83 NTU	82.8 mV	2.03 m	250.00 ml/min
11/01/2022 12:32	12:00	6.26 pH	8.90 °C	396.12 µS/cm	3.00 mg/L	6.39 NTU	83.6 mV	2.03 m	250.00 ml/min
11/01/2022 12:33	13:00	6.26 pH	8.89 °C	396.45 µS/cm	3.03 mg/L	5.38 NTU	84.1 mV	2.03 m	250.00 ml/min
11/01/2022 12:34	14:00	6.27 pH	8.87 °C	395.15 µS/cm	3.03 mg/L	7.90 NTU	84.6 mV	2.03 m	250.00 ml/min

11/01/2022 12:35	15:00	6.27 pH	8.63 °C	394.26 µS/cm	3.07 mg/L	6.94 NTU	84.4 mV	2.03 m	250.00 ml/min

Samples

Sample ID:	Description:
BH121	

Low-Flow Test Report:

Test Date / Time: 17/01/2022 11:30:36
Project: Mobuoy
Operator Name: JB

Location Name: BH122 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 8 m** **Top of Screen: 3 m** **Total Depth: 11.26 m** **Initial Depth to Water: 3.69 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 7 m** **Estimated Total Volume Pumped: 1750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.69 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
17/01/2022 11:30	00:00	6.47 pH	9.45 °C	574.55 µS/cm	3.16 mg/L	167.55 NTU	104.6 mV	369.00 cm	250.00 ml/min
17/01/2022 11:31	01:00	6.44 pH	9.42 °C	575.36 µS/cm	2.80 mg/L	103.11 NTU	110.5 mV	369.00 cm	250.00 ml/min
17/01/2022 11:32	02:00	6.43 pH	9.32 °C	575.13 µS/cm	2.50 mg/L	150.81 NTU	113.9 mV	369.00 cm	250.00 ml/min
17/01/2022 11:33	03:00	6.41 pH	9.27 °C	574.47 µS/cm	2.27 mg/L	101.40 NTU	116.0 mV	369.00 cm	250.00 ml/min
17/01/2022 11:34	04:00	6.39 pH	9.23 °C	574.87 µS/cm	2.21 mg/L	184.73 NTU	117.0 mV	369.00 cm	250.00 ml/min
17/01/2022 11:35	05:00	6.38 pH	9.20 °C	574.96 µS/cm	2.18 mg/L	112.16 NTU	117.6 mV	369.00 cm	250.00 ml/min
17/01/2022 11:36	06:00	6.38 pH	9.12 °C	574.80 µS/cm	2.09 mg/L	171.83 NTU	117.4 mV	369.00 cm	250.00 ml/min
17/01/2022 11:37	07:00	6.38 pH	9.01 °C	574.29 µS/cm	2.05 mg/L	101.15 NTU	117.0 mV	369.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH122	GW

Low-Flow Test Report:

Test Date / Time: 19/01/2022 15:12:42
Project: Mobuoy
Operator Name: JC

Location Name: BH201 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 1 m** **Top of Screen: 6.5 m** **Total Depth: 8.5 m** **Initial Depth to Water: 3.14 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 7 m** **Estimated Total Volume Pumped: 2000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.17 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
19/01/2022 15:12	00:00	7.10 pH	9.41 °C	2,716.1 µS/cm	2.61 mg/L	-78.6 mV	3.14 m	250.00 ml/min
19/01/2022 15:13	01:00	7.12 pH	9.22 °C	2,719.9 µS/cm	1.82 mg/L	-90.7 mV	3.14 m	250.00 ml/min
19/01/2022 15:14	02:00	7.12 pH	9.12 °C	2,718.8 µS/cm	1.43 mg/L	-98.3 mV	3.14 m	250.00 ml/min
19/01/2022 15:15	03:00	7.12 pH	9.10 °C	2,727.8 µS/cm	1.20 mg/L	-104.0 mV	3.14 m	250.00 ml/min
19/01/2022 15:16	04:00	7.12 pH	9.06 °C	2,732.3 µS/cm	1.04 mg/L	-108.2 mV	3.14 m	250.00 ml/min
19/01/2022 15:17	05:00	7.12 pH	9.03 °C	2,746.3 µS/cm	0.95 mg/L	-111.5 mV	3.14 m	250.00 ml/min
19/01/2022 15:18	06:00	7.12 pH	9.06 °C	2,747.8 µS/cm	0.86 mg/L	-114.5 mV	3.14 m	250.00 ml/min
19/01/2022 15:19	07:00	7.12 pH	8.95 °C	2,745.7 µS/cm	0.82 mg/L	-116.3 mV	3.14 m	250.00 ml/min
19/01/2022 15:20	08:00	7.12 pH	8.87 °C	2,752.8 µS/cm	0.81 mg/L	-117.9 mV	3.14 m	250.00 ml/min

Samples

Sample ID:	**Description:**
BH201	

Low-Flow Test Report:

Test Date / Time: 19/01/2022 13:50:36
Project: Mobuoy
Operator Name: JB

Location Name: BH202 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 4 m** **Top of Screen: 3 m** **Total Depth: 8.02 m** **Initial Depth to Water: 4.62 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 6.4 m** **Estimated Total Volume Pumped: 4500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 4.67 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
19/01/2022 13:50	00:00	6.80 pH	9.51 °C	1,352.5 µS/cm	4.11 mg/L	69.49 NTU	-52.0 mV	462.00 cm	250.00 ml/min
19/01/2022 13:51	01:00	6.73 pH	9.54 °C	1,332.3 µS/cm	3.20 mg/L	57.47 NTU	-54.4 mV	462.00 cm	250.00 ml/min
19/01/2022 13:52	02:00	6.73 pH	9.57 °C	1,324.8 µS/cm	2.46 mg/L	56.32 NTU	-56.0 mV	462.00 cm	250.00 ml/min
19/01/2022 13:53	03:00	6.73 pH	9.58 °C	1,315.9 µS/cm	1.88 mg/L	55.97 NTU	-58.6 mV	462.00 cm	250.00 ml/min
19/01/2022 13:54	04:00	6.73 pH	9.56 °C	1,323.6 µS/cm	1.63 mg/L	45.11 NTU	-61.1 mV	462.00 cm	250.00 ml/min
19/01/2022 13:55	05:00	6.74 pH	9.54 °C	1,313.3 µS/cm	1.81 mg/L	47.61 NTU	-63.2 mV	462.00 cm	250.00 ml/min
19/01/2022 13:56	06:00	6.73 pH	9.51 °C	1,290.7 µS/cm	1.52 mg/L	39.54 NTU	-64.8 mV	462.00 cm	250.00 ml/min
19/01/2022 13:57	07:00	6.73 pH	9.51 °C	1,308.1 µS/cm	1.51 mg/L	35.65 NTU	-65.8 mV	462.00 cm	250.00 ml/min
19/01/2022 13:58	08:00	6.72 pH	9.50 °C	1,302.7 µS/cm	1.72 mg/L	26.18 NTU	-66.7 mV	462.00 cm	250.00 ml/min
19/01/2022 13:59	09:00	6.72 pH	9.50 °C	1,294.4 µS/cm	1.80 mg/L	23.03 NTU	-67.5 mV	462.00 cm	250.00 ml/min
19/01/2022 14:00	10:00	6.72 pH	9.51 °C	1,291.1 µS/cm	1.73 mg/L	20.15 NTU	-67.7 mV	462.00 cm	250.00 ml/min
19/01/2022 14:01	11:00	6.72 pH	9.50 °C	1,323.2 µS/cm	1.61 mg/L	25.65 NTU	-68.4 mV	462.00 cm	250.00 ml/min
19/01/2022 14:02	12:00	6.74 pH	9.44 °C	1,314.6 µS/cm	1.45 mg/L	19.97 NTU	-70.4 mV	462.00 cm	250.00 ml/min
19/01/2022 14:03	13:00	6.74 pH	9.35 °C	1,282.5 µS/cm	1.26 mg/L	35.08 NTU	-71.9 mV	462.00 cm	250.00 ml/min
19/01/2022 14:04	14:00	6.73 pH	9.35 °C	1,274.6 µS/cm	1.11 mg/L	44.44 NTU	-72.7 mV	462.00 cm	250.00 ml/min

19/01/2022 14:05	15:00	6.73 pH	9.35 °C	1,269.0 µS/cm	1.01 mg/L	31.50 NTU	-73.1 mV	462.00 cm	250.00 ml/min
19/01/2022 14:06	16:00	6.72 pH	9.34 °C	1,267.5 µS/cm	1.08 mg/L	32.50 NTU	-73.3 mV	462.00 cm	250.00 ml/min
19/01/2022 14:07	17:00	6.72 pH	9.33 °C	1,265.9 µS/cm	1.11 mg/L	25.40 NTU	-73.5 mV	462.00 cm	250.00 ml/min
19/01/2022 14:08	18:00	6.72 pH	9.33 °C	1,276.2 µS/cm	1.05 mg/L	32.09 NTU	-73.5 mV	462.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH202 and DUP6	

Low-Flow Test Report:

Test Date / Time: 13/01/2022 15:20:37
Project: Mobuoy (3)
Operator Name: JB

Location Name: BH203 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3 m** **Top of Screen: 1 m** **Total Depth: 4.32 m** **Initial Depth to Water: 3.55 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 3.9 m** **Estimated Total Volume Pumped: 1500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.54 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:
Borehole opened and strong gasses released.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
13/01/2022 15:20	00:00	6.67 pH	9.49 °C	1,946.3 µS/cm	1.82 mg/L	128.99 NTU	-80.4 mV	355.00 cm	250.00 ml/min
13/01/2022 15:21	01:00	6.67 pH	9.37 °C	1,945.4 µS/cm	1.57 mg/L	179.27 NTU	-83.1 mV	355.00 cm	250.00 ml/min
13/01/2022 15:22	02:00	6.68 pH	9.30 °C	1,945.2 µS/cm	1.43 mg/L	112.41 NTU	-87.3 mV	355.00 cm	250.00 ml/min
13/01/2022 15:23	03:00	6.68 pH	9.28 °C	1,946.5 µS/cm	1.40 mg/L	138.05 NTU	-88.3 mV	355.00 cm	250.00 ml/min
13/01/2022 15:24	04:00	6.68 pH	9.18 °C	1,945.4 µS/cm	1.44 mg/L	115.39 NTU	-89.6 mV	355.00 cm	250.00 ml/min
13/01/2022 15:25	05:00	6.68 pH	9.13 °C	1,950.7 µS/cm	1.38 mg/L	92.34 NTU	-91.2 mV	355.00 cm	250.00 ml/min
13/01/2022 15:26	06:00	6.68 pH	9.11 °C	1,954.2 µS/cm	1.29 mg/L	68.98 NTU	-92.8 mV	355.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH203 and DUP7	Duplicate taken

Low-Flow Test Report:

Test Date / Time: 14/01/2022 10:50:15
Project: Mobuoy
Operator Name: JB

Location Name: BH204 **Well Diameter: 10 cm** **Casing Type: Plastic** **Screen Length: 3.5 m** **Top of Screen: 2 m** **Total Depth: 5.87 m** **Initial Depth to Water: 2.83 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 4.3 m** **Estimated Total Volume Pumped: 3250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.84 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
14/01/2022 10:50	00:00	7.10 pH	8.29 °C	848.92 µS/cm	2.67 mg/L	278.61 NTU	42.7 mV	283.00 cm	250.00 ml/min
14/01/2022 10:51	01:00	6.72 pH	8.39 °C	851.30 µS/cm	1.26 mg/L	214.37 NTU	66.4 mV	283.00 cm	250.00 ml/min
14/01/2022 10:52	02:00	6.64 pH	8.44 °C	847.85 µS/cm	1.02 mg/L	222.42 NTU	74.5 mV	283.00 cm	250.00 ml/min
14/01/2022 10:53	03:00	6.62 pH	8.46 °C	841.49 µS/cm	1.06 mg/L	182.23 NTU	79.3 mV	283.00 cm	250.00 ml/min
14/01/2022 10:54	04:00	6.61 pH	8.43 °C	842.56 µS/cm	1.38 mg/L	168.26 NTU	81.9 mV	283.00 cm	250.00 ml/min
14/01/2022 10:55	05:00	6.60 pH	8.41 °C	844.20 µS/cm	0.99 mg/L	204.49 NTU	83.9 mV	283.00 cm	250.00 ml/min
14/01/2022 10:56	06:00	6.58 pH	8.41 °C	839.28 µS/cm	1.02 mg/L	182.21 NTU	86.3 mV	283.00 cm	250.00 ml/min
14/01/2022 10:57	07:00	6.57 pH	8.42 °C	837.88 µS/cm	1.16 mg/L	168.20 NTU	86.0 mV	283.00 cm	250.00 ml/min
14/01/2022 10:58	08:00	6.59 pH	8.42 °C	836.47 µS/cm	1.01 mg/L	183.29 NTU	83.7 mV	283.00 cm	250.00 ml/min
14/01/2022 10:59	09:00	6.59 pH	8.40 °C	836.55 µS/cm	0.82 mg/L	144.39 NTU	83.7 mV	283.00 cm	250.00 ml/min
14/01/2022 11:00	10:00	6.58 pH	8.37 °C	836.34 µS/cm	0.78 mg/L	151.78 NTU	82.3 mV	283.00 cm	250.00 ml/min
14/01/2022 11:01	11:00	6.58 pH	8.35 °C	836.69 µS/cm	0.70 mg/L	197.98 NTU	79.8 mV	283.00 cm	250.00 ml/min
14/01/2022 11:02	12:00	6.58 pH	8.35 °C	837.09 µS/cm	0.65 mg/L	137.51 NTU	78.9 mV	283.00 cm	250.00 ml/min
14/01/2022 11:03	13:00	6.58 pH	8.35 °C	838.03 µS/cm	0.61 mg/L	165.03 NTU	78.4 mV	283.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH204	GW

Low-Flow Test Report:

Test Date / Time: 11/01/2022 14:17:50
Project: Mobuoy
Operator Name: JB

Location Name: BH205 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3 m** **Top of Screen: 4.6 m** **Total Depth: 7.75 m** **Initial Depth to Water: 5.35 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 6.2 m** **Estimated Total Volume Pumped: 4250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 5.37 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
11/01/2022 14:17	00:00	6.42 pH	10.56 °C	1,151.8 µS/cm	1.88 mg/L	67.30 NTU	-141.7 mV	5.35 m	250.00 ml/min
11/01/2022 14:18	01:00	6.49 pH	10.63 °C	1,148.6 µS/cm	0.70 mg/L	67.14 NTU	-150.3 mV	5.35 m	250.00 ml/min
11/01/2022 14:19	02:00	6.51 pH	10.52 °C	1,149.0 µS/cm	0.80 mg/L	66.08 NTU	-152.9 mV	5.35 m	250.00 ml/min
11/01/2022 14:20	03:00	6.52 pH	10.37 °C	1,173.5 µS/cm	1.04 mg/L	59.07 NTU	-157.1 mV	5.35 m	250.00 ml/min
11/01/2022 14:21	04:00	6.53 pH	10.25 °C	1,213.9 µS/cm	0.87 mg/L	54.44 NTU	-160.3 mV	5.35 m	250.00 ml/min
11/01/2022 14:22	05:00	6.54 pH	10.19 °C	1,237.5 µS/cm	0.81 mg/L	42.08 NTU	-160.9 mV	5.35 m	250.00 ml/min
11/01/2022 14:23	06:00	6.57 pH	10.16 °C	1,277.8 µS/cm	0.82 mg/L	43.43 NTU	-166.2 mV	5.35 m	250.00 ml/min
11/01/2022 14:24	07:00	6.57 pH	10.14 °C	1,348.2 µS/cm	0.72 mg/L	48.95 NTU	-167.4 mV	5.35 m	250.00 ml/min
11/01/2022 14:25	08:00	6.59 pH	10.12 °C	1,350.3 µS/cm	0.91 mg/L	41.48 NTU	-166.0 mV	5.35 m	250.00 ml/min
11/01/2022 14:26	09:00	6.60 pH	10.15 °C	1,392.2 µS/cm	0.90 mg/L	37.08 NTU	-170.9 mV	5.35 m	250.00 ml/min
11/01/2022 14:27	10:00	6.60 pH	10.16 °C	1,407.9 µS/cm	0.72 mg/L	34.76 NTU	-173.0 mV	5.35 m	250.00 ml/min
11/01/2022 14:28	11:00	6.61 pH	10.17 °C	1,418.2 µS/cm	0.73 mg/L	37.53 NTU	-170.5 mV	5.35 m	250.00 ml/min
11/01/2022 14:29	12:00	6.62 pH	10.16 °C	1,446.9 µS/cm	0.66 mg/L	33.42 NTU	-174.7 mV	5.35 m	250.00 ml/min
11/01/2022 14:30	13:00	6.63 pH	10.15 °C	1,514.1 µS/cm	0.61 mg/L	22.76 NTU	-175.2 mV	5.35 m	250.00 ml/min
11/01/2022 14:31	14:00	6.64 pH	10.16 °C	1,529.3 µS/cm	0.49 mg/L	24.94 NTU	-178.4 mV	5.35 m	250.00 ml/min

11/01/2022 14:32	15:00	6.64 pH	10.17 °C	1,526.7 µS/cm	0.50 mg/L	25.88 NTU	-175.6 mV	5.35 m	250.00 ml/min
11/01/2022 14:33	16:00	6.65 pH	10.02 °C	1,529.0 µS/cm	0.51 mg/L	35.75 NTU	-176.8 mV	5.35 m	250.00 ml/min
11/01/2022 14:34	17:00	6.65 pH	10.18 °C	1,504.3 µS/cm	0.47 mg/L	37.66 NTU	-181.3 mV	5.35 m	250.00 ml/min

Samples

Sample ID:	Description:
BH205	GW

Low-Flow Test Report:

Test Date / Time: 12/01/2022 12:26:30
Project: Mobuoy (2)
Operator Name: JB

Location Name: BH206 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3 m** **Top of Screen: 4 m** **Total Depth: 7.15 m** **Initial Depth to Water: 4.93 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 5.6 m** **Estimated Total Volume Pumped: 1250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 4.92 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
12/01/2022 12:26	00:00	6.76 pH	11.69 °C	3,032.3 µS/cm	0.86 mg/L	127.67 NTU	-103.1 mV	4.93 m	250.00 ml/min
12/01/2022 12:27	01:00	6.76 pH	11.56 °C	3,048.8 µS/cm	0.60 mg/L	145.30 NTU	-105.3 mV	4.93 m	250.00 ml/min
12/01/2022 12:28	02:00	6.75 pH	11.42 °C	3,053.7 µS/cm	0.53 mg/L	79.06 NTU	-107.7 mV	4.93 m	250.00 ml/min
12/01/2022 12:29	03:00	6.75 pH	11.46 °C	3,073.2 µS/cm	0.53 mg/L	65.75 NTU	-108.4 mV	4.93 m	250.00 ml/min
12/01/2022 12:30	04:00	6.75 pH	11.53 °C	3,078.1 µS/cm	0.54 mg/L	60.47 NTU	-107.8 mV	4.93 m	250.00 ml/min
12/01/2022 12:31	05:00	6.75 pH	11.59 °C	3,080.5 µS/cm	0.56 mg/L	56.75 NTU	-106.8 mV	4.93 m	250.00 ml/min

Samples

Sample ID:	Description:
BH206	GW

Low-Flow Test Report:

Test Date / Time: 13/01/2022 14:04:06
Project: Mobuoy
Operator Name: JC

Location Name: BH207 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 4 m** **Top of Screen: 5 m** **Total Depth: 6.33 m** **Initial Depth to Water: 2.43 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5.5 m** **Estimated Total Volume Pumped: 2000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.7 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
13/01/2022 14:04	00:00	6.91 pH	10.26 °C	2,186.3 µS/cm	2.57 mg/L	-49.1 mV	2.43 m	250.00 ml/min
13/01/2022 14:05	01:00	6.91 pH	10.16 °C	2,185.9 µS/cm	1.59 mg/L	-52.1 mV	2.43 m	250.00 ml/min
13/01/2022 14:06	02:00	6.91 pH	10.16 °C	2,188.1 µS/cm	1.13 mg/L	-54.8 mV	2.43 m	250.00 ml/min
13/01/2022 14:07	03:00	6.90 pH	10.15 °C	2,187.5 µS/cm	0.97 mg/L	-57.3 mV	2.43 m	250.00 ml/min
13/01/2022 14:08	04:00	6.90 pH	10.17 °C	2,188.0 µS/cm	0.81 mg/L	-59.4 mV	2.43 m	250.00 ml/min
13/01/2022 14:09	05:00	6.90 pH	10.18 °C	2,187.2 µS/cm	0.70 mg/L	-61.0 mV	2.43 m	250.00 ml/min
13/01/2022 14:10	06:00	6.90 pH	10.12 °C	2,185.2 µS/cm	0.62 mg/L	-61.8 mV	2.43 m	250.00 ml/min
13/01/2022 14:11	07:00	6.90 pH	10.11 °C	2,184.8 µS/cm	0.60 mg/L	-62.7 mV	2.43 m	250.00 ml/min
13/01/2022 14:12	08:00	6.90 pH	10.07 °C	2,182.4 µS/cm	0.62 mg/L	-63.0 mV	2.43 m	250.00 ml/min

Samples

Sample ID:	Description:
BH207	

Low-Flow Test Report:

Test Date / Time: 11/01/2022 11:43:21
Project: Mobuoy
Operator Name: JB

Location Name: BH208 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 2.6 m** **Top of Screen: 0.7 m** **Total Depth: 3.26 m** **Initial Depth to Water: 1.89 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 2.5 m** **Estimated Total Volume Pumped: 4750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 1.93 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
11/01/2022 11:43	00:00	7.09 pH	9.27 °C	395.69 µS/cm	2.52 mg/L	32.63 NTU	-6.1 mV	1.89 m	250.00 ml/min
11/01/2022 11:44	01:00	6.60 pH	9.31 °C	387.87 µS/cm	0.99 mg/L	31.09 NTU	21.2 mV	1.89 m	250.00 ml/min
11/01/2022 11:45	02:00	6.42 pH	9.32 °C	393.26 µS/cm	0.83 mg/L	31.50 NTU	28.1 mV	1.89 m	250.00 ml/min
11/01/2022 11:46	03:00	6.33 pH	9.36 °C	372.59 µS/cm	0.72 mg/L	26.50 NTU	31.6 mV	1.89 m	250.00 ml/min
11/01/2022 11:47	04:00	6.29 pH	9.38 °C	369.49 µS/cm	0.58 mg/L	29.86 NTU	34.5 mV	1.89 m	250.00 ml/min
11/01/2022 11:48	05:00	6.26 pH	9.39 °C	370.20 µS/cm	0.47 mg/L	19.75 NTU	37.3 mV	1.89 m	250.00 ml/min
11/01/2022 11:49	06:00	6.24 pH	9.42 °C	366.31 µS/cm	0.42 mg/L	29.62 NTU	39.7 mV	1.89 m	250.00 ml/min
11/01/2022 11:50	07:00	6.23 pH	9.49 °C	364.72 µS/cm	0.38 mg/L	17.32 NTU	40.2 mV	1.89 m	250.00 ml/min
11/01/2022 11:51	08:00	6.23 pH	9.51 °C	366.31 µS/cm	0.37 mg/L	18.24 NTU	40.3 mV	1.89 m	250.00 ml/min
11/01/2022 11:52	09:00	6.22 pH	9.52 °C	367.02 µS/cm	0.35 mg/L	21.09 NTU	40.6 mV	1.89 m	250.00 ml/min
11/01/2022 11:53	10:00	6.22 pH	9.51 °C	366.12 µS/cm	0.37 mg/L	15.80 NTU	41.5 mV	1.89 m	250.00 ml/min
11/01/2022 11:54	11:00	6.22 pH	9.51 °C	368.54 µS/cm	0.32 mg/L	16.63 NTU	40.9 mV	1.89 m	250.00 ml/min
11/01/2022 11:55	12:00	6.22 pH	9.51 °C	367.85 µS/cm	0.33 mg/L	12.57 NTU	40.9 mV	1.89 m	250.00 ml/min
11/01/2022 11:56	13:00	6.22 pH	9.50 °C	370.06 µS/cm	0.34 mg/L	13.82 NTU	41.2 mV	1.89 m	250.00 ml/min
11/01/2022 11:57	14:00	6.21 pH	9.54 °C	371.44 µS/cm	0.35 mg/L	19.84 NTU	41.6 mV	1.89 m	250.00 ml/min

11/01/2022 11:58	15:00	6.21 pH	9.55 °C	371.13 µS/cm	0.38 mg/L	14.53 NTU	40.9 mV	1.89 m	250.00 ml/min
11/01/2022 11:59	16:00	6.21 pH	9.57 °C	372.51 µS/cm	0.34 mg/L	16.24 NTU	40.3 mV	1.89 m	250.00 ml/min
11/01/2022 12:00	17:00	6.21 pH	9.54 °C	372.67 µS/cm	0.29 mg/L	6.44 NTU	39.4 mV	1.89 m	250.00 ml/min
11/01/2022 12:01	18:00	6.21 pH	9.52 °C	373.01 µS/cm	0.28 mg/L	4.83 NTU	38.8 mV	1.89 m	250.00 ml/min
11/01/2022 12:02	19:00	6.21 pH	9.49 °C	373.54 µS/cm	0.28 mg/L	4.10 NTU	38.3 mV	1.89 m	250.00 ml/min

Samples

Sample ID:	Description:
BH208	

Low-Flow Test Report:

Test Date / Time: 11/01/2022 10:30:31
Project: Mobuoy (2)
Operator Name: JB

Location Name: BH209 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 2.9 m** **Top of Screen: 1 m** **Total Depth: 4.9 m** **Initial Depth to Water: 2.24 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 4 m** **Estimated Total Volume Pumped: 3250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.58 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
11/01/2022 10:30	00:00	6.65 pH	9.17 °C	3,466.9 µS/cm	0.50 mg/L	0.00 NTU	-190.2 mV	2.24 m	250.00 ml/min
11/01/2022 10:31	01:00	6.70 pH	9.07 °C	3,437.8 µS/cm	0.43 mg/L	0.52 NTU	-188.8 mV	2.24 m	250.00 ml/min
11/01/2022 10:32	02:00	6.71 pH	9.05 °C	3,408.7 µS/cm	0.45 mg/L	2.64 NTU	-202.3 mV	2.24 m	250.00 ml/min
11/01/2022 10:33	03:00	6.72 pH	9.02 °C	3,373.9 µS/cm	0.38 mg/L	0.28 NTU	-207.4 mV	2.24 m	250.00 ml/min
11/01/2022 10:34	04:00	6.73 pH	9.05 °C	3,349.4 µS/cm	0.35 mg/L	0.79 NTU	-208.5 mV	2.24 m	250.00 ml/min
11/01/2022 10:35	05:00	6.73 pH	9.03 °C	3,339.7 µS/cm	0.32 mg/L	1.41 NTU	-209.2 mV	2.24 m	250.00 ml/min
11/01/2022 10:36	06:00	6.73 pH	9.06 °C	3,332.0 µS/cm	0.31 mg/L	20.36 NTU	-211.5 mV	2.24 m	250.00 ml/min
11/01/2022 10:37	07:00	6.74 pH	9.06 °C	3,327.0 µS/cm	0.32 mg/L	1.18 NTU	-212.4 mV	2.24 m	250.00 ml/min
11/01/2022 10:38	08:00	6.74 pH	9.01 °C	3,312.1 µS/cm	0.27 mg/L	1.32 NTU	-212.5 mV	2.24 m	250.00 ml/min
11/01/2022 10:39	09:00	6.73 pH	9.04 °C	3,333.1 µS/cm	0.25 mg/L	1.73 NTU	-214.9 mV	2.24 m	250.00 ml/min
11/01/2022 10:40	10:00	6.73 pH	9.14 °C	3,331.4 µS/cm	0.23 mg/L	6.07 NTU	-215.9 mV	2.24 m	250.00 ml/min
11/01/2022 10:41	11:00	6.74 pH	9.21 °C	3,285.7 µS/cm	0.22 mg/L	6.62 NTU	-217.8 mV	2.24 m	250.00 ml/min
11/01/2022 10:42	12:00	6.74 pH	9.21 °C	3,249.1 µS/cm	0.23 mg/L	5.15 NTU	-219.6 mV	2.24 m	250.00 ml/min
11/01/2022 10:43	13:00	6.74 pH	9.27 °C	3,247.5 µS/cm	0.20 mg/L	4.50 NTU	-220.2 mV	2.24 m	250.00 ml/min

Samples

Sample ID:	Description:
BH209	GW

Low-Flow Test Report:

Test Date / Time: 12/01/2022 15:21:17
Project: Mobuoy
Operator Name: JC

Location Name: BH212 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3 m** **Top of Screen: 1 m** **Total Depth: 5.22 m** **Initial Depth to Water: 3.14 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 2.7 m** **Estimated Total Volume Pumped: 2000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.33 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
12/01/2022 15:21	00:00	7.43 pH	10.02 °C	617.46 µS/cm	4.66 mg/L		-28.0 mV	3.14 m	250.00 ml/min
12/01/2022 15:22	01:00	7.46 pH	9.95 °C	615.67 µS/cm	2.26 mg/L		-30.6 mV	3.14 m	250.00 ml/min
12/01/2022 15:23	02:00	7.45 pH	9.85 °C	615.31 µS/cm	1.51 mg/L		-30.9 mV	3.14 m	250.00 ml/min
12/01/2022 15:24	03:00	7.45 pH	9.79 °C	615.62 µS/cm	1.22 mg/L		-30.9 mV	3.14 m	250.00 ml/min
12/01/2022 15:25	04:00	7.45 pH	9.79 °C	616.06 µS/cm	1.04 mg/L		-30.4 mV	3.14 m	250.00 ml/min
12/01/2022 15:26	05:00	7.45 pH	9.81 °C	616.42 µS/cm	0.94 mg/L		-30.2 mV	3.14 m	250.00 ml/min
12/01/2022 15:27	06:00	7.45 pH	9.83 °C	616.28 µS/cm	0.98 mg/L		-29.7 mV	3.14 m	250.00 ml/min
12/01/2022 15:28	07:00	7.45 pH	9.82 °C	616.03 µS/cm	1.07 mg/L		-29.3 mV	3.14 m	250.00 ml/min
12/01/2022 15:29	08:00	7.45 pH	9.80 °C	615.91 µS/cm	1.12 mg/L		-28.9 mV	3.14 m	250.00 ml/min

Samples

Sample ID:	Description:
BH212	

Low-Flow Test Report:

Test Date / Time: 10/01/2022 11:49:57
Project: Mobuoy
Operator Name: JC

Location Name: BH213 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5.2 m** **Top of Screen: 1 m** **Total Depth: 6.2 m** **Initial Depth to Water: 2.51 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 4.3 m** **Estimated Total Volume Pumped: 2450 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 2.67 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
10/01/2022 11:49	00:00	6.93 pH	11.95 °C	3,665.1 µS/cm	6.24 mg/L		-24.3 mV	2.51 m	350.00 ml/min
10/01/2022 11:50	01:00	6.93 pH	12.04 °C	3,645.3 µS/cm	2.98 mg/L		-40.6 mV	2.51 m	350.00 ml/min
10/01/2022 11:51	02:00	6.93 pH	12.02 °C	3,644.2 µS/cm	2.09 mg/L		-49.2 mV	2.51 m	350.00 ml/min
10/01/2022 11:52	03:00	6.93 pH	12.01 °C	3,654.7 µS/cm	1.84 mg/L		-55.4 mV	2.51 m	350.00 ml/min
10/01/2022 11:53	04:00	6.93 pH	12.00 °C	3,675.2 µS/cm	1.77 mg/L		-60.0 mV	2.51 m	350.00 ml/min
10/01/2022 11:54	05:00	6.93 pH	11.99 °C	3,682.5 µS/cm	1.74 mg/L		-63.5 mV	2.51 m	350.00 ml/min
10/01/2022 11:55	06:00	6.93 pH	11.96 °C	3,704.0 µS/cm	1.72 mg/L		-66.2 mV	2.51 m	350.00 ml/min
10/01/2022 11:56	07:00	6.93 pH	11.97 °C	3,727.0 µS/cm	1.70 mg/L		-68.5 mV	2.51 m	350.00 ml/min

Samples

Sample ID:	Description:
BH213	

Low-Flow Test Report:

Test Date / Time: 10/01/2022 13:22:48
Project: Mobuoy
Operator Name: JC

Location Name: BH214 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 8.4 m** **Top of Screen: 1 m** **Total Depth: 9.11 m** **Initial Depth to Water: 5.45 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 7.3 m** **Estimated Total Volume Pumped: 1250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 7.02 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:
Unable to retrieve whole suite
Only got 2xvial and 1xglass 1l

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
10/01/2022 13:22	00:00	7.24 pH	12.58 °C	8,685.9 µS/cm	1.82 mg/L		-73.3 mV	5.45 m	250.00 ml/min
10/01/2022 13:23	01:00	7.25 pH	12.60 °C	8,703.6 µS/cm	1.80 mg/L		-79.8 mV	5.45 m	250.00 ml/min
10/01/2022 13:24	02:00	7.25 pH	12.63 °C	8,720.2 µS/cm	1.76 mg/L		-84.1 mV	5.45 m	250.00 ml/min
10/01/2022 13:25	03:00	7.25 pH	12.64 °C	8,734.4 µS/cm	1.74 mg/L		-87.1 mV	5.45 m	250.00 ml/min
10/01/2022 13:26	04:00	7.25 pH	12.66 °C	8,746.3 µS/cm	1.72 mg/L		-89.5 mV	5.45 m	250.00 ml/min
10/01/2022 13:27	05:00	7.25 pH	12.67 °C	8,755.5 µS/cm	1.71 mg/L		-91.6 mV	5.45 m	250.00 ml/min

Samples

Sample ID:	Description:
BH214	

Low-Flow Test Report:

Test Date / Time: 10/01/2022 12:33:19
Project: Mobuoy
Operator Name: JC

Location Name: BH215 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 10.5 m** **Top of Screen: 1 m** **Total Depth: 9.28 m** **Initial Depth to Water: 2.55 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5.9 m** **Estimated Total Volume Pumped: 1750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.03 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
10/01/2022 12:33	00:00	6.96 pH	11.58 °C	3,473.0 µS/cm	7.01 mg/L		-28.9 mV	2.55 m	250.00 ml/min
10/01/2022 12:34	01:00	6.95 pH	11.45 °C	3,472.1 µS/cm	3.25 mg/L		-56.8 mV	2.55 m	250.00 ml/min
10/01/2022 12:35	02:00	6.95 pH	11.45 °C	3,474.6 µS/cm	2.34 mg/L		-66.1 mV	2.55 m	250.00 ml/min
10/01/2022 12:36	03:00	6.94 pH	11.37 °C	3,482.2 µS/cm	1.99 mg/L		-71.7 mV	2.55 m	250.00 ml/min
10/01/2022 12:37	04:00	6.94 pH	11.43 °C	3,482.7 µS/cm	1.91 mg/L		-75.6 mV	2.55 m	250.00 ml/min
10/01/2022 12:38	05:00	6.94 pH	11.36 °C	3,475.1 µS/cm	2.01 mg/L		-77.2 mV	2.55 m	250.00 ml/min
10/01/2022 12:39	06:00	6.94 pH	11.31 °C	3,479.4 µS/cm	2.02 mg/L		-78.5 mV	2.55 m	250.00 ml/min
10/01/2022 12:40	07:00	6.94 pH	11.28 °C	3,482.9 µS/cm	1.98 mg/L		-79.7 mV	2.55 m	250.00 ml/min

Samples

Sample ID:	Description:
BH215	

Low-Flow Test Report:

Test Date / Time: 13/01/2022 09:46:46
Project: Mobuoy
Operator Name: JB

Location Name: BH216 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 1 m** **Top of Screen: 5 m** **Total Depth: 5.87 m** **Initial Depth to Water: 0.67 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 3.3 m** **Estimated Total Volume Pumped: 2758.333 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 0.77 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
13/01/2022 09:46	00:00	7.03 pH	8.47 °C	569.85 µS/cm	1.51 mg/L	49.76 NTU	-28.9 mV	0.67 m	250.00 ml/min
13/01/2022 09:47	01:00	6.93 pH	8.27 °C	571.43 µS/cm	1.07 mg/L	31.28 NTU	-23.4 mV	0.67 m	250.00 ml/min
13/01/2022 09:48	02:00	6.84 pH	8.12 °C	571.25 µS/cm	0.89 mg/L	29.09 NTU	-18.9 mV	0.67 m	250.00 ml/min
13/01/2022 09:49	03:00	6.81 pH	8.20 °C	574.63 µS/cm	0.77 mg/L	16.62 NTU	-18.0 mV	0.67 m	250.00 ml/min
13/01/2022 09:50	04:00	6.80 pH	8.36 °C	576.96 µS/cm	0.75 mg/L	15.11 NTU	-16.3 mV	0.67 m	250.00 ml/min
13/01/2022 09:51	05:00	6.81 pH	8.43 °C	573.27 µS/cm	0.78 mg/L	29.66 NTU	-14.5 mV	0.67 m	250.00 ml/min
13/01/2022 09:52	06:00	6.79 pH	8.01 °C	570.14 µS/cm	0.48 mg/L	45.48 NTU	-14.4 mV	0.67 m	250.00 ml/min
13/01/2022 09:53	07:02	6.77 pH	7.85 °C	569.44 µS/cm	0.39 mg/L	34.84 NTU	-13.7 mV	0.67 m	250.00 ml/min
13/01/2022 09:54	08:02	6.76 pH	7.79 °C	570.50 µS/cm	0.36 mg/L	37.86 NTU	-13.4 mV	0.67 m	250.00 ml/min
13/01/2022 09:55	09:02	6.74 pH	7.79 °C	572.09 µS/cm	0.30 mg/L	35.63 NTU	-13.2 mV	0.67 m	250.00 ml/min
13/01/2022 09:56	10:02	6.74 pH	7.74 °C	571.91 µS/cm	0.28 mg/L	38.96 NTU	-13.6 mV	0.67 m	250.00 ml/min
13/01/2022 09:57	11:02	6.74 pH	7.73 °C	572.03 µS/cm	0.27 mg/L	33.34 NTU	-13.7 mV	0.67 m	250.00 ml/min

Samples

Sample ID:	Description:

BH216	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 13/01/2022 10:32:52
Project: Mobuoy
Operator Name: JB

Location Name: BH217 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 1 m** **Total Depth: 5.96 m** **Initial Depth to Water: 1.14 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 3.6 m** **Estimated Total Volume Pumped: 1000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 1.17 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.3	+/- 3 %	+/- 0.2	+/- 10	+/- 20		
13/01/2022 10:32	00:00	7.33 pH	8.90 °C	1,441.9 µS/cm	0.58 mg/L	5.77 NTU	-141.7 mV	1.14 m	250.00 ml/min
13/01/2022 10:33	01:00	7.33 pH	8.86 °C	1,439.6 µS/cm	0.60 mg/L	9.98 NTU	-141.2 mV	1.14 m	250.00 ml/min
13/01/2022 10:34	02:00	7.34 pH	8.75 °C	1,447.0 µS/cm	0.63 mg/L	10.82 NTU	-144.0 mV	1.14 m	250.00 ml/min
13/01/2022 10:35	03:00	7.34 pH	8.79 °C	1,450.0 µS/cm	0.61 mg/L	8.10 NTU	-147.6 mV	1.14 m	250.00 ml/min
13/01/2022 10:36	04:00	7.34 pH	8.83 °C	1,450.2 µS/cm	0.54 mg/L	7.54 NTU	-150.9 mV	1.14 m	250.00 ml/min

Samples

Sample ID:	Description:
BH217	

Low-Flow Test Report:

Test Date / Time: 13/01/2022 12:01:52
Project: Mobuoy
Operator Name: JB

Location Name: BH218 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 2.7 m** **Top of Screen: 2.3 m** **Total Depth: 3.5 m** **Initial Depth to Water: 2.6 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 2.6 m** **Estimated Total Volume Pumped: 2000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
13/01/2022 12:01	00:00	7.10 pH	9.56 °C	7,859.9 µS/cm	0.62 mg/L	29.63 NTU	-102.6 mV	2.60 m	250.00 ml/min
13/01/2022 12:02	01:00	7.11 pH	9.34 °C	9,497.6 µS/cm	0.60 mg/L	36.87 NTU	-115.1 mV	2.60 m	250.00 ml/min
13/01/2022 12:03	02:00	7.12 pH	9.85 °C	9,683.5 µS/cm	0.27 mg/L	34.11 NTU	-138.9 mV	2.60 m	250.00 ml/min
13/01/2022 12:04	03:00	7.12 pH	9.96 °C	9,761.2 µS/cm	0.19 mg/L	27.55 NTU	-145.8 mV	2.60 m	250.00 ml/min
13/01/2022 12:05	04:00	7.12 pH	9.96 °C	9,718.5 µS/cm	0.16 mg/L	30.37 NTU	-146.7 mV	2.60 m	250.00 ml/min
13/01/2022 12:06	05:00	7.12 pH	9.92 °C	9,724.1 µS/cm	0.19 mg/L	24.35 NTU	-142.7 mV	2.60 m	250.00 ml/min
13/01/2022 12:07	06:00	7.12 pH	9.88 °C	9,754.0 µS/cm	0.22 mg/L	15.56 NTU	-142.8 mV	2.60 m	250.00 ml/min
13/01/2022 12:08	07:00	7.12 pH	9.84 °C	9,768.3 µS/cm	0.24 mg/L	24.79 NTU	-142.3 mV	2.60 m	250.00 ml/min
13/01/2022 12:09	08:00	7.12 pH	9.83 °C	9,798.9 µS/cm	0.24 mg/L	14.44 NTU	-142.2 mV	2.60 m	250.00 ml/min

Samples

Sample ID:	Description:
BH218	

Low-Flow Test Report:

Test Date / Time: 13/01/2022 12:19:53
Project: Mobuoy
Operator Name: JC

Location Name: BH219 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 4.4 m** **Top of Screen: 1 m** **Total Depth: 5.7 m** **Initial Depth to Water: 2.25 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 4 m** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.3 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
13/01/2022 12:19	00:00	6.96 pH	9.91 °C	1,186.0 µS/cm	2.05 mg/L	-48.0 mV	2.25 m	250.00 ml/min
13/01/2022 12:20	01:00	6.97 pH	9.96 °C	1,188.3 µS/cm	1.39 mg/L	-51.1 mV	2.25 m	250.00 ml/min
13/01/2022 12:21	02:00	6.97 pH	10.00 °C	1,188.6 µS/cm	1.07 mg/L	-53.1 mV	2.25 m	250.00 ml/min
13/01/2022 12:22	03:00	6.97 pH	10.01 °C	1,189.6 µS/cm	0.95 mg/L	-54.6 mV	2.25 m	250.00 ml/min
13/01/2022 12:23	04:00	6.98 pH	10.03 °C	1,189.1 µS/cm	0.81 mg/L	-55.9 mV	2.25 m	250.00 ml/min
13/01/2022 12:24	05:00	6.98 pH	10.03 °C	1,189.5 µS/cm	0.72 mg/L	-56.7 mV	2.25 m	250.00 ml/min
13/01/2022 12:25	06:00	6.98 pH	10.00 °C	1,189.3 µS/cm	0.69 mg/L	-57.3 mV	2.25 m	250.00 ml/min
13/01/2022 12:26	07:00	6.99 pH	9.98 °C	1,190.0 µS/cm	0.71 mg/L	-57.6 mV	2.25 m	250.00 ml/min
13/01/2022 12:27	08:00	6.99 pH	9.98 °C	1,190.9 µS/cm	0.67 mg/L	-57.4 mV	2.25 m	250.00 ml/min
13/01/2022 12:28	09:00	6.99 pH	10.01 °C	1,191.4 µS/cm	0.62 mg/L	-56.8 mV	2.25 m	250.00 ml/min

Samples

Sample ID:	Description:

BH219	

Low-Flow Test Report:

Test Date / Time: 13/01/2022 11:07:10
Project: Mobuoy
Operator Name: JC

Location Name: BH220 **Well Diameter: 15 cm** **Casing Type: Plastic** **Screen Length: 3.5 m** **Top of Screen: 1 m** **Total Depth: 5.11 m** **Initial Depth to Water: 2.18 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 3.7 m** **Estimated Total Volume Pumped: 2000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.25 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
13/01/2022 11:07	00:00	7.02 pH	8.88 °C	1,341.3 µS/cm	3.72 mg/L		-65.1 mV	2.18 m	250.00 ml/min
13/01/2022 11:08	01:00	7.02 pH	8.83 °C	1,340.3 µS/cm	1.94 mg/L		-64.1 mV	2.18 m	250.00 ml/min
13/01/2022 11:09	02:00	7.02 pH	8.79 °C	1,343.0 µS/cm	1.23 mg/L		-64.1 mV	2.18 m	250.00 ml/min
13/01/2022 11:10	03:00	7.01 pH	8.79 °C	1,343.5 µS/cm	0.92 mg/L		-64.3 mV	2.18 m	250.00 ml/min
13/01/2022 11:11	04:00	7.01 pH	8.81 °C	1,344.4 µS/cm	0.76 mg/L		-64.8 mV	2.18 m	250.00 ml/min
13/01/2022 11:12	05:00	7.01 pH	8.81 °C	1,343.8 µS/cm	0.65 mg/L		-65.4 mV	2.18 m	250.00 ml/min
13/01/2022 11:13	06:00	7.01 pH	8.81 °C	1,346.0 µS/cm	0.60 mg/L		-66.0 mV	2.18 m	250.00 ml/min
13/01/2022 11:14	07:00	7.01 pH	8.80 °C	1,347.5 µS/cm	0.62 mg/L		-66.3 mV	2.18 m	250.00 ml/min
13/01/2022 11:15	08:00	7.01 pH	8.79 °C	1,345.2 µS/cm	0.64 mg/L		-66.7 mV	2.18 m	250.00 ml/min

Samples

Sample ID:	**Description:**
BH220	

Low-Flow Test Report:

Test Date / Time: 12/01/2022 15:49:26
Project: Mobuoy (3)
Operator Name: JC

Location Name: BH221 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3 m** **Top of Screen: 3.6 m** **Total Depth: 6.21 m** **Initial Depth to Water: 2.92 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 4.6 m** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.15 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
12/01/2022 15:49	00:00	7.32 pH	9.97 °C	747.80 µS/cm	3.47 mg/L		-41.8 mV	2.92 m	250.00 ml/min
12/01/2022 15:50	01:00	7.32 pH	9.80 °C	752.63 µS/cm	1.79 mg/L		-58.9 mV	2.92 m	250.00 ml/min
12/01/2022 15:51	02:00	7.32 pH	9.71 °C	748.13 µS/cm	1.24 mg/L		-66.6 mV	2.92 m	250.00 ml/min
12/01/2022 15:52	03:00	7.32 pH	9.67 °C	746.37 µS/cm	1.02 mg/L		-71.5 mV	2.92 m	250.00 ml/min
12/01/2022 15:53	04:00	7.32 pH	9.66 °C	747.38 µS/cm	0.94 mg/L		-74.8 mV	2.92 m	250.00 ml/min
12/01/2022 15:54	05:00	7.33 pH	9.66 °C	746.46 µS/cm	0.78 mg/L		-77.6 mV	2.92 m	250.00 ml/min
12/01/2022 15:55	06:00	7.32 pH	9.63 °C	748.04 µS/cm	0.70 mg/L		-79.2 mV	2.92 m	250.00 ml/min
12/01/2022 15:56	07:00	7.32 pH	9.61 °C	747.02 µS/cm	0.64 mg/L		-80.5 mV	2.92 m	250.00 ml/min
12/01/2022 15:57	08:00	7.32 pH	9.59 °C	746.44 µS/cm	0.60 mg/L		-81.6 mV	2.92 m	250.00 ml/min
12/01/2022 15:58	09:00	7.32 pH	9.58 °C	747.11 µS/cm	0.58 mg/L		-82.6 mV	2.92 m	250.00 ml/min

Samples

Sample ID:	Description:

BH221	

Low-Flow Test Report:

Test Date / Time: 12/01/2022 14:16:56
Project: Mobuoy
Operator Name: JC

Location Name: BH301 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 9 m** **Top of Screen: 3 m** **Total Depth: 12.31 m** **Initial Depth to Water: 7.95 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 10.15 m** **Estimated Total Volume Pumped: 1500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 7.72 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
12/01/2022 14:16	00:00	7.02 pH	9.88 °C	800.11 µS/cm	1.65 mg/L		-35.2 mV	7.95 m	250.00 ml/min
12/01/2022 14:17	01:00	7.00 pH	9.89 °C	794.54 µS/cm	1.16 mg/L		-39.6 mV	7.95 m	250.00 ml/min
12/01/2022 14:18	02:00	7.00 pH	9.88 °C	795.81 µS/cm	0.96 mg/L		-42.7 mV	7.95 m	250.00 ml/min
12/01/2022 14:19	03:00	7.00 pH	9.92 °C	792.23 µS/cm	0.85 mg/L		-44.8 mV	7.95 m	250.00 ml/min
12/01/2022 14:20	04:00	7.00 pH	9.95 °C	791.66 µS/cm	0.80 mg/L		-46.4 mV	7.95 m	250.00 ml/min
12/01/2022 14:21	05:00	7.00 pH	9.97 °C	791.51 µS/cm	0.76 mg/L		-47.4 mV	7.95 m	250.00 ml/min
12/01/2022 14:22	06:00	6.99 pH	10.00 °C	791.56 µS/cm	0.73 mg/L		-48.2 mV	7.95 m	250.00 ml/min

Samples

Sample ID:	Description:
BH301	

Low-Flow Test Report:

Test Date / Time: 11/01/2022 10:26:16
Project: Mobuoy
Operator Name: JC

Location Name: BH302 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 10 m** **Top of Screen: 6 m** **Total Depth: 16.25 m** **Initial Depth to Water: 9.76 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 13 m** **Estimated Total Volume Pumped: 2750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 10.14 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
11/01/2022 10:26	00:00	7.37 pH	7.93 °C	6,349.7 µS/cm	4.31 mg/L		-52.9 mV	9.76 m	250.00 ml/min
11/01/2022 10:27	01:00	7.37 pH	7.98 °C	6,356.0 µS/cm	3.48 mg/L		-58.9 mV	9.76 m	250.00 ml/min
11/01/2022 10:28	02:00	7.36 pH	8.01 °C	6,361.6 µS/cm	3.12 mg/L		-63.6 mV	9.76 m	250.00 ml/min
11/01/2022 10:29	03:00	7.36 pH	8.03 °C	6,357.7 µS/cm	2.85 mg/L		-67.0 mV	9.76 m	250.00 ml/min
11/01/2022 10:30	04:00	7.35 pH	8.05 °C	6,368.5 µS/cm	2.59 mg/L		-70.0 mV	9.76 m	250.00 ml/min
11/01/2022 10:31	05:00	7.35 pH	8.10 °C	6,363.2 µS/cm	2.36 mg/L		-72.4 mV	9.76 m	250.00 ml/min
11/01/2022 10:32	06:00	7.35 pH	8.14 °C	6,372.1 µS/cm	2.22 mg/L		-74.1 mV	9.76 m	250.00 ml/min
11/01/2022 10:33	07:00	7.34 pH	8.19 °C	6,368.3 µS/cm	2.05 mg/L		-76.5 mV	9.76 m	250.00 ml/min
11/01/2022 10:34	08:00	7.34 pH	8.27 °C	6,368.3 µS/cm	1.95 mg/L		-77.6 mV	9.76 m	250.00 ml/min
11/01/2022 10:35	09:00	7.34 pH	8.29 °C	6,381.8 µS/cm	1.86 mg/L		-78.7 mV	9.76 m	250.00 ml/min
11/01/2022 10:36	10:00	7.34 pH	8.32 °C	6,376.2 µS/cm	1.92 mg/L		-79.8 mV	9.76 m	250.00 ml/min
11/01/2022 10:37	11:00	7.33 pH	8.33 °C	6,372.1 µS/cm	1.90 mg/L		-81.0 mV	9.76 m	250.00 ml/min

Samples

Sample ID:	Description:
BH302	

Low-Flow Test Report:

Test Date / Time: 11/01/2022 15:15:23
Project: Mobuoy
Operator Name: JC

Location Name: BH303 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 9 m** **Total Depth: 12.7 m** **Initial Depth to Water: 11.77 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 12.25 m** **Estimated Total Volume Pumped: 2500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 11.69 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
11/01/2022 15:15	00:00	7.36 pH	8.72 °C	3,319.2 µS/cm	8.28 mg/L		-89.3 mV	11.77 m	250.00 ml/min
11/01/2022 15:16	01:00	7.36 pH	8.66 °C	3,316.5 µS/cm	7.96 mg/L		-86.4 mV	11.77 m	250.00 ml/min
11/01/2022 15:17	02:00	7.36 pH	8.64 °C	3,311.8 µS/cm	7.71 mg/L		-85.2 mV	11.77 m	250.00 ml/min
11/01/2022 15:18	03:00	7.35 pH	8.58 °C	3,308.1 µS/cm	7.52 mg/L		-84.7 mV	11.77 m	250.00 ml/min
11/01/2022 15:19	04:00	7.36 pH	8.53 °C	3,304.8 µS/cm	7.40 mg/L		-84.5 mV	11.77 m	250.00 ml/min
11/01/2022 15:20	05:00	7.36 pH	8.48 °C	3,300.8 µS/cm	7.28 mg/L		-83.9 mV	11.77 m	250.00 ml/min
11/01/2022 15:21	06:00	7.36 pH	8.30 °C	3,299.5 µS/cm	7.26 mg/L		-82.3 mV	11.77 m	250.00 ml/min
11/01/2022 15:22	07:00	7.36 pH	8.21 °C	3,309.3 µS/cm	7.33 mg/L		-82.0 mV	11.77 m	250.00 ml/min
11/01/2022 15:23	08:00	7.35 pH	8.13 °C	3,315.5 µS/cm	7.33 mg/L		-81.4 mV	11.77 m	250.00 ml/min
11/01/2022 15:24	09:00	7.34 pH	8.08 °C	3,323.4 µS/cm	7.25 mg/L		-80.7 mV	11.77 m	250.00 ml/min
11/01/2022 15:25	10:00	7.33 pH	8.05 °C	3,338.8 µS/cm	7.16 mg/L		-79.9 mV	11.77 m	250.00 ml/min

Samples

Sample ID:	Description:
BH303	

Low-Flow Test Report:

Test Date / Time: 11/01/2022 15:19:45
Project: Mobuoy
Operator Name: JB

Location Name: BH401
Well Diameter: 5 cm
Casing Type: Plastic
Screen Length: 2 m
Top of Screen: 8 m
Total Depth: 9.61 m
Initial Depth to Water: 4.81 m

Pump Type: Peristaltic - geopump
Tubing Type: HDPE
Pump Intake From TOC: 7.2 m
Estimated Total Volume Pumped: 2000 ml
Flow Cell Volume: 130 ml
Final Flow Rate: 250 ml/min
Final Draw Down: 4.81 m

Instrument Used: Aqua TROLL 500
Serial Number: 754810

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
11/01/2022 15:19	00:00	6.29 pH	9.61 °C	1,280.7 µS/cm	1.70 mg/L	86.61 NTU	-52.7 mV	4.81 m	250.00 ml/min
11/01/2022 15:20	01:00	6.29 pH	9.78 °C	1,271.1 µS/cm	0.65 mg/L	125.03 NTU	-54.2 mV	4.81 m	250.00 ml/min
11/01/2022 15:21	02:00	6.30 pH	9.67 °C	1,261.6 µS/cm	0.43 mg/L	115.73 NTU	-56.3 mV	4.81 m	250.00 ml/min
11/01/2022 15:22	03:00	6.29 pH	9.41 °C	1,261.1 µS/cm	0.38 mg/L	139.62 NTU	-59.1 mV	4.81 m	250.00 ml/min
11/01/2022 15:23	04:00	6.29 pH	9.25 °C	1,265.7 µS/cm	0.35 mg/L	163.39 NTU	-60.6 mV	4.81 m	250.00 ml/min
11/01/2022 15:24	05:00	6.28 pH	9.17 °C	1,269.8 µS/cm	0.34 mg/L	181.24 NTU	-61.5 mV	4.81 m	250.00 ml/min
11/01/2022 15:25	06:00	6.28 pH	9.12 °C	1,275.4 µS/cm	0.35 mg/L	203.85 NTU	-64.3 mV	4.81 m	250.00 ml/min
11/01/2022 15:26	07:00	6.28 pH	9.04 °C	1,277.4 µS/cm	0.35 mg/L	137.04 NTU	-65.7 mV	4.81 m	250.00 ml/min
11/01/2022 15:27	08:00	6.28 pH	9.00 °C	1,277.2 µS/cm	0.38 mg/L	140.61 NTU	-66.6 mV	4.81 m	250.00 ml/min

Samples

Sample ID:	Description:
BH401	GW

Low-Flow Test Report:

Test Date / Time: 20/01/2022 14:21:02
Project: Mobuoy
Operator Name: JB

Location Name: BH402S **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 2 m** **Top of Screen: 2.5 m** **Total Depth: 4.56 m** **Initial Depth to Water: 3.17 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 3.9 m** **Estimated Total Volume Pumped: 1500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.38 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
20/01/2022 14:21	00:00	6.62 pH	11.43 °C	1,843.7 µS/cm	1.20 mg/L	1,390.8 NTU	-62.3 mV	317.00 cm	250.00 ml/min
20/01/2022 14:22	01:00	6.62 pH	11.11 °C	1,851.2 µS/cm	0.68 mg/L	1,254.3 NTU	-65.3 mV	317.00 cm	250.00 ml/min
20/01/2022 14:23	02:00	6.61 pH	10.99 °C	1,861.0 µS/cm	0.56 mg/L	1,116.0 NTU	-66.7 mV	317.00 cm	250.00 ml/min
20/01/2022 14:24	03:00	6.60 pH	10.88 °C	1,860.5 µS/cm	0.58 mg/L	1,481.9 NTU	-67.0 mV	317.00 cm	250.00 ml/min
20/01/2022 14:25	04:00	6.61 pH	10.79 °C	1,859.9 µS/cm	0.52 mg/L	1,225.4 NTU	-66.8 mV	317.00 cm	250.00 ml/min
20/01/2022 14:26	05:00	6.60 pH	10.74 °C	1,861.1 µS/cm	0.49 mg/L	1,235.2 NTU	-66.8 mV	317.00 cm	250.00 ml/min
20/01/2022 14:27	06:00	6.60 pH	10.67 °C	1,861.0 µS/cm	0.51 mg/L	1,223.8 NTU	-66.5 mV	317.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH402S	

Low-Flow Test Report:

Test Date / Time: 12/01/2022 11:22:39
Project: Mobuoy
Operator Name: JB

Location Name: BH402 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 1.5 m** **Top of Screen: 8.5 m** **Total Depth: 10.31 m** **Initial Depth to Water: 4.17 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 7.4 m** **Estimated Total Volume Pumped: 5250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 4.17 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
12/01/2022 11:22	00:00	6.55 pH	10.81 °C	2,381.1 µS/cm	2.99 mg/L	68.28 NTU	-11.7 mV	4.17 m	250.00 ml/min
12/01/2022 11:23	01:00	6.61 pH	10.73 °C	2,384.2 µS/cm	1.45 mg/L	70.72 NTU	-14.4 mV	4.17 m	250.00 ml/min
12/01/2022 11:24	02:00	6.62 pH	10.68 °C	2,350.9 µS/cm	0.97 mg/L	82.73 NTU	-15.7 mV	4.17 m	250.00 ml/min
12/01/2022 11:25	03:00	6.62 pH	10.64 °C	2,355.3 µS/cm	0.82 mg/L	76.85 NTU	-17.2 mV	4.17 m	250.00 ml/min
12/01/2022 11:26	04:00	6.63 pH	10.63 °C	2,353.9 µS/cm	0.75 mg/L	79.57 NTU	-19.1 mV	4.17 m	250.00 ml/min
12/01/2022 11:27	05:00	6.63 pH	10.65 °C	2,354.4 µS/cm	0.71 mg/L	94.64 NTU	-20.8 mV	4.17 m	250.00 ml/min
12/01/2022 11:28	06:00	6.97 pH	10.84 °C	2.97 µS/cm	10.81 mg/L	0.00 NTU	-56.1 mV	4.17 m	250.00 ml/min
12/01/2022 11:29	07:00	7.17 pH	11.21 °C	1.58 µS/cm	11.34 mg/L	0.00 NTU	-52.0 mV	4.17 m	250.00 ml/min
12/01/2022 11:30	08:00	7.28 pH	11.49 °C	1.41 µS/cm	11.36 mg/L	0.00 NTU	-44.7 mV	4.17 m	250.00 ml/min
12/01/2022 11:31	09:00	7.35 pH	11.75 °C	1.34 µS/cm	11.33 mg/L	0.00 NTU	-36.9 mV	4.17 m	250.00 ml/min
12/01/2022 11:32	10:00	7.39 pH	12.01 °C	1.29 µS/cm	11.30 mg/L	0.00 NTU	-29.5 mV	4.17 m	250.00 ml/min
12/01/2022 11:33	11:00	7.42 pH	12.26 °C	1.25 µS/cm	11.24 mg/L	0.00 NTU	-22.9 mV	4.17 m	250.00 ml/min
12/01/2022 11:34	12:00	7.43 pH	12.42 °C	1.18 µS/cm	11.13 mg/L	0.00 NTU	-16.5 mV	4.17 m	250.00 ml/min
12/01/2022 11:35	13:00	7.35 pH	12.43 °C	12.48 µS/cm	11.03 mg/L	118.31 NTU	-15.2 mV	4.17 m	250.00 ml/min
12/01/2022 11:36	14:00	7.04 pH	11.50 °C	2,312.5 µS/cm	6.70 mg/L	118.07 NTU	-33.1 mV	4.17 m	250.00 ml/min

12/01/2022 11:37	15:00	6.68 pH	11.30 °C	2,329.3 µS/cm	2.83 mg/L	99.32 NTU	-18.9 mV	4.17 m	250.00 ml/min
12/01/2022 11:38	16:00	6.65 pH	11.17 °C	2,335.4 µS/cm	1.34 mg/L	135.58 NTU	-17.3 mV	4.17 m	250.00 ml/min
12/01/2022 11:39	17:00	6.64 pH	11.10 °C	2,341.4 µS/cm	0.95 mg/L	121.54 NTU	-18.1 mV	4.17 m	250.00 ml/min
12/01/2022 11:40	18:00	6.64 pH	11.05 °C	2,348.3 µS/cm	0.96 mg/L	117.80 NTU	-18.9 mV	4.17 m	250.00 ml/min
12/01/2022 11:41	19:00	6.63 pH	11.03 °C	2,349.9 µS/cm	1.15 mg/L	126.06 NTU	-19.8 mV	4.17 m	250.00 ml/min
12/01/2022 11:42	20:00	6.63 pH	11.03 °C	2,347.1 µS/cm	1.08 mg/L	132.97 NTU	-20.6 mV	4.17 m	250.00 ml/min
12/01/2022 11:43	21:00	6.63 pH	11.05 °C	2,348.7 µS/cm	0.86 mg/L	120.84 NTU	-21.7 mV	4.17 m	250.00 ml/min

Samples

Sample ID:	Description:
BH402	GW

Low-Flow Test Report:

Test Date / Time: 14/01/2022 10:12:49
Project: Mobuoy
Operator Name: JC

Location Name: BH403 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 2 m** **Top of Screen: 9.3 m** **Total Depth: 10.98 m** **Initial Depth to Water: 3.64 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 10.3 m** **Estimated Total Volume Pumped: 3250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.7 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
14/01/2022 10:12	00:00	7.12 pH	8.83 °C	3,791.1 µS/cm	2.35 mg/L	-36.3 mV	3.64 m	250.00 ml/min
14/01/2022 10:13	01:00	7.13 pH	8.76 °C	3,788.1 µS/cm	2.20 mg/L	-48.3 mV	3.64 m	250.00 ml/min
14/01/2022 10:14	02:00	7.13 pH	8.64 °C	3,788.8 µS/cm	2.24 mg/L	-54.8 mV	3.64 m	250.00 ml/min
14/01/2022 10:15	03:00	7.14 pH	8.48 °C	3,787.6 µS/cm	2.41 mg/L	-59.1 mV	3.64 m	250.00 ml/min
14/01/2022 10:16	04:00	7.14 pH	8.46 °C	3,786.5 µS/cm	2.44 mg/L	-61.8 mV	3.64 m	250.00 ml/min
14/01/2022 10:17	05:00	7.14 pH	8.42 °C	3,784.5 µS/cm	2.60 mg/L	-63.3 mV	3.64 m	250.00 ml/min
14/01/2022 10:18	06:00	7.14 pH	8.36 °C	3,786.6 µS/cm	2.82 mg/L	-64.5 mV	3.64 m	250.00 ml/min
14/01/2022 10:19	07:00	7.14 pH	8.33 °C	3,786.2 µS/cm	3.07 mg/L	-65.3 mV	3.64 m	250.00 ml/min
14/01/2022 10:20	08:00	7.14 pH	8.30 °C	3,786.8 µS/cm	3.26 mg/L	-65.7 mV	3.64 m	250.00 ml/min
14/01/2022 10:21	09:00	7.14 pH	8.29 °C	3,787.2 µS/cm	3.39 mg/L	-66.0 mV	3.64 m	250.00 ml/min
14/01/2022 10:22	10:00	7.15 pH	8.27 °C	3,787.2 µS/cm	3.48 mg/L	-66.1 mV	3.64 m	250.00 ml/min
14/01/2022 10:23	11:00	7.14 pH	8.27 °C	3,789.2 µS/cm	3.36 mg/L	-66.3 mV	3.64 m	250.00 ml/min
14/01/2022 10:24	12:00	7.15 pH	8.27 °C	3,789.5 µS/cm	3.39 mg/L	-66.6 mV	3.64 m	250.00 ml/min

14/01/2022 10:25	13:00	7.15 pH	8.27 °C	3,791.6 µS/cm	3.61 mg/L	-66.7 mV	3.64 m	250.00 ml/min

Samples

Sample ID:	Description:
BH403	

Low-Flow Test Report:

Test Date / Time: 12/01/2022 14:17:51
Project: Mobuoy
Operator Name: JB

Location Name: BH404 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 10 m** **Top of Screen: 6 m** **Total Depth: 15 m** **Initial Depth to Water: 6.46 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 10.6 m** **Estimated Total Volume Pumped: 4500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 6.53 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
12/01/2022 14:17	00:00	6.71 pH	10.94 °C	1,793.0 µS/cm	1.06 mg/L	112.44 NTU	-61.0 mV	6.46 m	250.00 ml/min
12/01/2022 14:18	01:00	6.72 pH	10.91 °C	1,813.9 µS/cm	0.91 mg/L	106.96 NTU	-63.4 mV	6.46 m	250.00 ml/min
12/01/2022 14:19	02:00	6.72 pH	10.86 °C	1,832.9 µS/cm	0.91 mg/L	73.77 NTU	-64.2 mV	6.46 m	250.00 ml/min
12/01/2022 14:20	03:00	6.73 pH	10.83 °C	1,849.0 µS/cm	1.33 mg/L	74.28 NTU	-64.7 mV	6.46 m	250.00 ml/min
12/01/2022 14:21	04:00	6.72 pH	10.80 °C	1,865.5 µS/cm	1.35 mg/L	56.89 NTU	-64.7 mV	6.46 m	250.00 ml/min
12/01/2022 14:22	05:00	6.73 pH	10.80 °C	1,872.5 µS/cm	0.93 mg/L	60.13 NTU	-65.4 mV	6.46 m	250.00 ml/min
12/01/2022 14:23	06:00	6.73 pH	10.81 °C	1,873.7 µS/cm	0.70 mg/L	55.18 NTU	-66.6 mV	6.46 m	250.00 ml/min
12/01/2022 14:24	07:00	6.72 pH	10.83 °C	1,875.5 µS/cm	0.66 mg/L	35.21 NTU	-66.9 mV	6.46 m	250.00 ml/min
12/01/2022 14:25	08:00	6.72 pH	10.84 °C	1,875.6 µS/cm	0.71 mg/L	39.55 NTU	-67.1 mV	6.46 m	250.00 ml/min
12/01/2022 14:26	09:00	6.72 pH	10.86 °C	1,876.1 µS/cm	0.80 mg/L	47.94 NTU	-67.0 mV	6.46 m	250.00 ml/min
12/01/2022 14:27	10:00	6.73 pH	10.77 °C	1,870.0 µS/cm	1.19 mg/L	54.86 NTU	-66.2 mV	6.46 m	250.00 ml/min
12/01/2022 14:28	11:00	6.72 pH	10.98 °C	1,870.2 µS/cm	0.56 mg/L	47.71 NTU	-67.4 mV	6.46 m	250.00 ml/min
12/01/2022 14:29	12:00	6.72 pH	11.05 °C	1,862.2 µS/cm	0.57 mg/L	49.00 NTU	-68.0 mV	6.46 m	250.00 ml/min
12/01/2022 14:30	13:00	6.72 pH	11.07 °C	1,855.9 µS/cm	0.61 mg/L	56.46 NTU	-68.8 mV	6.46 m	250.00 ml/min
12/01/2022 14:31	14:00	6.72 pH	11.08 °C	1,858.2 µS/cm	0.81 mg/L	52.41 NTU	-69.1 mV	6.46 m	250.00 ml/min

12/01/2022 14:32	15:00	6.72 pH	11.11 °C	1,858.9 µS/cm	0.64 mg/L	41.98 NTU	-68.3 mV	6.46 m	250.00 ml/min
12/01/2022 14:33	16:00	6.72 pH	11.12 °C	1,859.7 µS/cm	0.67 mg/L	45.62 NTU	-68.2 mV	6.46 m	250.00 ml/min
12/01/2022 14:34	17:00	6.72 pH	11.13 °C	1,861.2 µS/cm	0.66 mg/L	47.93 NTU	-69.2 mV	6.46 m	250.00 ml/min
12/01/2022 14:35	18:00	6.72 pH	11.15 °C	1,860.6 µS/cm	0.59 mg/L	69.59 NTU	-69.8 mV	6.46 m	250.00 ml/min

Samples

Sample ID:	Description:
BH404 and DUP1	

Low-Flow Test Report:

Test Date / Time: 12/01/2022 11:01:01
Project: Mobuoy
Operator Name: JC

Location Name: BH406 **Well Diameter: 15 cm** **Casing Type: Plastic** **Screen Length: 6 m** **Top of Screen: 14 m** **Total Depth: 19.7 m** **Initial Depth to Water: 12.3 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 16 m** **Estimated Total Volume Pumped: 3750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 12.7 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20		
12/01/2022 11:01	00:00	7.18 pH	10.16 °C	2,306.1 µS/cm	4.42 mg/L		-59.6 mV	12.30 m	250.00 ml/min
12/01/2022 11:02	01:00	7.21 pH	10.04 °C	2,306.3 µS/cm	3.61 mg/L		-61.1 mV	12.30 m	250.00 ml/min
12/01/2022 11:03	02:00	7.22 pH	9.99 °C	2,303.9 µS/cm	3.82 mg/L		-62.8 mV	12.30 m	250.00 ml/min
12/01/2022 11:04	03:00	7.24 pH	9.93 °C	2,302.9 µS/cm	4.21 mg/L		-64.4 mV	12.30 m	250.00 ml/min
12/01/2022 11:05	04:00	7.26 pH	9.88 °C	2,302.3 µS/cm	4.57 mg/L		-65.6 mV	12.30 m	250.00 ml/min
12/01/2022 11:06	05:00	7.27 pH	9.84 °C	2,301.7 µS/cm	4.91 mg/L		-66.6 mV	12.30 m	250.00 ml/min
12/01/2022 11:07	06:00	7.28 pH	9.80 °C	2,301.0 µS/cm	5.22 mg/L		-67.5 mV	12.30 m	250.00 ml/min
12/01/2022 11:08	07:00	7.29 pH	9.77 °C	2,300.1 µS/cm	5.48 mg/L		-68.1 mV	12.30 m	250.00 ml/min
12/01/2022 11:09	08:00	7.31 pH	9.73 °C	2,299.4 µS/cm	5.74 mg/L		-68.7 mV	12.30 m	250.00 ml/min
12/01/2022 11:10	09:00	7.32 pH	9.71 °C	2,298.6 µS/cm	5.97 mg/L		-69.2 mV	12.30 m	250.00 ml/min
12/01/2022 11:11	10:00	7.32 pH	9.69 °C	2,297.4 µS/cm	6.11 mg/L		-69.5 mV	12.30 m	250.00 ml/min
12/01/2022 11:12	11:00	7.33 pH	9.66 °C	2,296.5 µS/cm	6.23 mg/L		-69.7 mV	12.30 m	250.00 ml/min
12/01/2022 11:13	12:00	7.34 pH	9.63 °C	2,295.9 µS/cm	6.33 mg/L		-69.8 mV	12.30 m	250.00 ml/min

12/01/2022 11:14	13:00	7.34 pH	9.61 °C	2,294.9 µS/cm	6.42 mg/L		-69.9 mV	12.30 m	250.00 ml/min
12/01/2022 11:15	14:00	7.35 pH	9.59 °C	2,294.4 µS/cm	6.51 mg/L		-70.0 mV	12.30 m	250.00 ml/min
12/01/2022 11:16	15:00	7.35 pH	9.57 °C	2,293.6 µS/cm	6.60 mg/L		-69.9 mV	12.30 m	250.00 ml/min

Samples

Sample ID:	Description:
BH406	

Low-Flow Test Report:

Test Date / Time: 15/02/2022 14:38:53
Project: Mobuoy
Operator Name: James Scott

Location Name: BH610S **Well Diameter: 5 cm** **Screen Length: 5 m** **Top of Screen: 0.5 m** **Total Depth: 5.01 m** **Initial Depth to Water: 1.58 m**	**Pump Type: Peristaltic** **Tubing Type: Watera** **Pump Intake From TOC: 1 m** **Estimated Total Volume Pumped: 4900 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 0 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 10		
15/02/2022 14:38	00:00	6.60 pH	9.13 °C	2,455.4 µS/cm	3.53 mg/L		-73.8 mV	1.58 m	350.00 ml/min
15/02/2022 14:39	01:00	6.55 pH	9.22 °C	2,372.2 µS/cm	2.11 mg/L		-70.7 mV	1.58 m	350.00 ml/min
15/02/2022 14:40	02:00	6.54 pH	9.23 °C	2,377.7 µS/cm	1.48 mg/L		-70.5 mV	1.58 m	350.00 ml/min
15/02/2022 14:41	03:00	6.53 pH	9.17 °C	2,361.0 µS/cm	1.17 mg/L		-71.1 mV	1.58 m	350.00 ml/min
15/02/2022 14:42	04:00	6.52 pH	9.15 °C	2,378.2 µS/cm	1.06 mg/L		-71.6 mV	1.58 m	350.00 ml/min
15/02/2022 14:43	05:00	6.52 pH	9.16 °C	2,391.6 µS/cm	1.31 mg/L		-72.1 mV	1.58 m	350.00 ml/min
15/02/2022 14:44	06:00	6.52 pH	9.18 °C	2,407.5 µS/cm	1.38 mg/L		-72.8 mV	1.58 m	350.00 ml/min
15/02/2022 14:45	07:00	6.52 pH	9.20 °C	2,404.8 µS/cm	1.47 mg/L		-73.5 mV	1.58 m	350.00 ml/min
15/02/2022 14:46	08:00	6.52 pH	9.22 °C	2,408.4 µS/cm	1.56 mg/L		-73.9 mV	1.58 m	350.00 ml/min
15/02/2022 14:47	09:00	6.52 pH	9.21 °C	2,421.7 µS/cm	1.73 mg/L		-74.5 mV	1.58 m	350.00 ml/min
15/02/2022 14:48	10:00	6.52 pH	9.23 °C	2,445.5 µS/cm	1.81 mg/L		-75.3 mV	1.58 m	350.00 ml/min
15/02/2022 14:49	11:00	6.52 pH	9.21 °C	2,451.0 µS/cm	1.93 mg/L		-76.1 mV	1.58 m	350.00 ml/min
15/02/2022 14:50	12:00	6.52 pH	9.24 °C	2,463.0 µS/cm	1.92 mg/L		-76.7 mV	1.58 m	350.00 ml/min

15/02/2022 14:51	13:00	6.52 pH	9.25 °C	2,464.2 µS/cm	1.99 mg/L		-77.3 mV	1.58 m	350.00 ml/min
15/02/2022 14:52	14:00	6.53 pH	9.27 °C	2,478.6 µS/cm	2.03 mg/L		-77.9 mV	1.58 m	350.00 ml/min

Samples

Sample ID:	Description:

Low-Flow Test Report:

Test Date / Time: 15/02/2022 14:38:53
Project: Mobuoy
Operator Name: James Scott

Location Name: BH610S **Well Diameter: 5 cm** **Screen Length: 5 m** **Top of Screen: 0.5 m** **Total Depth: 5.01 m** **Initial Depth to Water: 1.58 m**	**Pump Type: Peristaltic** **Tubing Type: Watera** **Pump Intake From TOC: 1 m** **Estimated Total Volume Pumped: 4900 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 0 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 10		
15/02/2022 14:38	00:00	6.60 pH	9.13 °C	2,455.4 µS/cm	3.53 mg/L		-73.8 mV	1.58 m	350.00 ml/min
15/02/2022 14:39	01:00	6.55 pH	9.22 °C	2,372.2 µS/cm	2.11 mg/L		-70.7 mV	1.58 m	350.00 ml/min
15/02/2022 14:40	02:00	6.54 pH	9.23 °C	2,377.7 µS/cm	1.48 mg/L		-70.5 mV	1.58 m	350.00 ml/min
15/02/2022 14:41	03:00	6.53 pH	9.17 °C	2,361.0 µS/cm	1.17 mg/L		-71.1 mV	1.58 m	350.00 ml/min
15/02/2022 14:42	04:00	6.52 pH	9.15 °C	2,378.2 µS/cm	1.06 mg/L		-71.6 mV	1.58 m	350.00 ml/min
15/02/2022 14:43	05:00	6.52 pH	9.16 °C	2,391.6 µS/cm	1.31 mg/L		-72.1 mV	1.58 m	350.00 ml/min
15/02/2022 14:44	06:00	6.52 pH	9.18 °C	2,407.5 µS/cm	1.38 mg/L		-72.8 mV	1.58 m	350.00 ml/min
15/02/2022 14:45	07:00	6.52 pH	9.20 °C	2,404.8 µS/cm	1.47 mg/L		-73.5 mV	1.58 m	350.00 ml/min
15/02/2022 14:46	08:00	6.52 pH	9.22 °C	2,408.4 µS/cm	1.56 mg/L		-73.9 mV	1.58 m	350.00 ml/min
15/02/2022 14:47	09:00	6.52 pH	9.21 °C	2,421.7 µS/cm	1.73 mg/L		-74.5 mV	1.58 m	350.00 ml/min
15/02/2022 14:48	10:00	6.52 pH	9.23 °C	2,445.5 µS/cm	1.81 mg/L		-75.3 mV	1.58 m	350.00 ml/min
15/02/2022 14:49	11:00	6.52 pH	9.21 °C	2,451.0 µS/cm	1.93 mg/L		-76.1 mV	1.58 m	350.00 ml/min
15/02/2022 14:50	12:00	6.52 pH	9.24 °C	2,463.0 µS/cm	1.92 mg/L		-76.7 mV	1.58 m	350.00 ml/min

15/02/2022 14:51	13:00	6.52 pH	9.25 °C	2,464.2 µS/cm	1.99 mg/L		-77.3 mV	1.58 m	350.00 ml/min
15/02/2022 14:52	14:00	6.53 pH	9.27 °C	2,478.6 µS/cm	2.03 mg/L		-77.9 mV	1.58 m	350.00 ml/min

Samples

Sample ID:	Description:

Low-Flow Test Report:

Test Date / Time: 17/01/2022 10:29:47
Project: Mobuoy
Operator Name: JB

Location Name: BH614 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3.3 m** **Top of Screen: 1 m** **Total Depth: 3.58 m** **Initial Depth to Water: 2.25 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 2.9 m** **Estimated Total Volume Pumped: 2041.667 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.49 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Weather Conditions:
Cold temperature - 1 degree's

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
17/01/2022 10:29	00:00	7.04 pH	7.53 °C	675.82 µS/cm	1.61 mg/L	313.31 NTU	-5.4 mV	225.00 cm	250.00 ml/min
17/01/2022 10:30	01:00	7.06 pH	7.95 °C	665.82 µS/cm	1.75 mg/L	390.78 NTU	-2.3 mV	225.00 cm	250.00 ml/min
17/01/2022 10:31	02:00	7.09 pH	8.29 °C	659.00 µS/cm	1.75 mg/L	336.52 NTU	3.0 mV	225.00 cm	250.00 ml/min
17/01/2022 10:32	03:00	7.11 pH	8.50 °C	661.65 µS/cm	1.73 mg/L	763.09 NTU	10.6 mV	225.00 cm	250.00 ml/min
17/01/2022 10:33	04:00	7.11 pH	8.60 °C	656.41 µS/cm	1.68 mg/L	834.45 NTU	13.1 mV	225.00 cm	250.00 ml/min
17/01/2022 10:34	05:00	7.11 pH	8.79 °C	652.22 µS/cm	1.70 mg/L	1,174.6 NTU	15.3 mV	225.00 cm	250.00 ml/min
17/01/2022 10:35	06:00	7.11 pH	8.90 °C	652.81 µS/cm	1.81 mg/L	1,455.9 NTU	16.1 mV	225.00 cm	250.00 ml/min
17/01/2022 10:36	07:00	7.10 pH	8.95 °C	655.04 µS/cm	1.68 mg/L	1,484.5 NTU	17.3 mV	225.00 cm	250.00 ml/min
17/01/2022 10:37	07:48	7.09 pH	8.99 °C	656.12 µS/cm	1.63 mg/L	1,189.4 NTU	18.2 mV	225.00 cm	250.00 ml/min
17/01/2022 10:37	08:10	7.09 pH	9.00 °C	656.52 µS/cm	1.57 mg/L	1,611.8 NTU	18.9 mV	225.00 cm	250.00 ml/min

Samples

Sample ID:	Description:

BH614 and DUP4	GW

Low-Flow Test Report:

Test Date / Time: 15/02/2022 16:54:50
Project: Mobuoy
Operator Name: James Scott

Location Name: BH615D **Well Diameter: 3.8 cm** **Screen Length: 8 m** **Top of Screen: 6 m** **Total Depth: 14 m** **Initial Depth to Water: 2.81 m**	**Pump Type: Peristaltic** **Tubing Type: Watera** **Pump Intake From TOC: 1 m** **Estimated Total Volume Pumped: 4946.667 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 0 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 10		
15/02/2022 16:54	00:00	6.84 pH	9.24 °C	327.12 µS/cm	8.92 mg/L		12.1 mV	2.81 m	350.00 ml/min
15/02/2022 16:55	01:00	6.65 pH	9.33 °C	323.25 µS/cm	8.46 mg/L		22.4 mV	2.81 m	350.00 ml/min
15/02/2022 16:56	02:00	6.46 pH	9.30 °C	317.21 µS/cm	8.36 mg/L		35.5 mV	2.81 m	350.00 ml/min
15/02/2022 16:57	03:00	6.34 pH	9.31 °C	313.89 µS/cm	8.40 mg/L		47.1 mV	2.81 m	350.00 ml/min
15/02/2022 16:58	04:00	6.27 pH	9.37 °C	313.75 µS/cm	8.52 mg/L		56.6 mV	2.81 m	350.00 ml/min
15/02/2022 16:59	05:00	6.20 pH	9.41 °C	312.07 µS/cm	8.65 mg/L		66.4 mV	2.81 m	350.00 ml/min
15/02/2022 17:00	06:00	6.16 pH	9.42 °C	309.18 µS/cm	8.68 mg/L		73.6 mV	2.81 m	350.00 ml/min
15/02/2022 17:01	07:08	6.12 pH	9.29 °C	307.80 µS/cm	8.68 mg/L		80.5 mV	2.81 m	350.00 ml/min
15/02/2022 17:02	08:08	6.11 pH	9.18 °C	307.55 µS/cm	8.65 mg/L		86.0 mV	2.81 m	350.00 ml/min
15/02/2022 17:03	09:08	6.08 pH	9.17 °C	306.58 µS/cm	8.55 mg/L		91.6 mV	2.81 m	350.00 ml/min
15/02/2022 17:04	10:08	6.06 pH	9.13 °C	308.77 µS/cm	8.42 mg/L		96.4 mV	2.81 m	350.00 ml/min
15/02/2022 17:05	11:08	6.05 pH	9.20 °C	308.73 µS/cm	8.41 mg/L		100.5 mV	2.81 m	350.00 ml/min
15/02/2022 17:06	12:08	6.04 pH	9.19 °C	307.61 µS/cm	8.45 mg/L		104.4 mV	2.81 m	350.00 ml/min

15/02/2022 17:07	13:08	6.03 pH	9.24 °C	307.55 µS/cm	8.47 mg/L		108.4 mV	2.81 m	350.00 ml/min
15/02/2022 17:08	14:08	6.01 pH	9.23 °C	307.02 µS/cm	8.54 mg/L		112.3 mV	2.81 m	350.00 ml/min

Samples

Sample ID:	Description:

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 15/02/2022 17:22:56
Project: Mobuoy
Operator Name: James Scott

Location Name: BH615s **Well Diameter: 5 cm** **Screen Length: 4.3 m** **Top of Screen: 0.5 m** **Total Depth: 5.3 m** **Initial Depth to Water: 2.82 m**	**Pump Type: Peristaltic** **Tubing Type: Watera** **Pump Intake From TOC: 1 m** **Estimated Total Volume Pumped: 5950 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 0 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Rainy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 10		
15/02/2022 17:22	00:00	6.35 pH	9.00 °C	1,532.1 µS/cm	3.59 mg/L		119.5 mV	2.82 m	350.00 ml/min
15/02/2022 17:23	01:00	6.38 pH	9.02 °C	1,534.1 µS/cm	2.49 mg/L		112.2 mV	2.82 m	350.00 ml/min
15/02/2022 17:24	02:00	6.39 pH	9.06 °C	1,534.5 µS/cm	1.74 mg/L		104.2 mV	2.82 m	350.00 ml/min
15/02/2022 17:25	03:00	6.40 pH	9.11 °C	1,531.8 µS/cm	1.30 mg/L		96.2 mV	2.82 m	350.00 ml/min
15/02/2022 17:26	04:00	6.41 pH	9.13 °C	1,531.0 µS/cm	1.00 mg/L		88.2 mV	2.82 m	350.00 ml/min
15/02/2022 17:27	05:00	6.42 pH	9.11 °C	1,528.9 µS/cm	0.77 mg/L		79.7 mV	2.82 m	350.00 ml/min
15/02/2022 17:28	06:00	6.43 pH	9.14 °C	1,528.4 µS/cm	0.62 mg/L		71.2 mV	2.82 m	350.00 ml/min
15/02/2022 17:29	07:00	6.43 pH	9.14 °C	1,524.3 µS/cm	0.55 mg/L		63.2 mV	2.82 m	350.00 ml/min
15/02/2022 17:30	08:00	6.44 pH	9.13 °C	1,509.3 µS/cm	0.47 mg/L		55.2 mV	2.82 m	350.00 ml/min
15/02/2022 17:31	09:00	6.44 pH	9.10 °C	1,487.2 µS/cm	0.42 mg/L		47.8 mV	2.82 m	350.00 ml/min
15/02/2022 17:32	10:00	6.45 pH	9.05 °C	1,480.8 µS/cm	0.39 mg/L		41.4 mV	2.82 m	350.00 ml/min
15/02/2022 17:33	11:00	6.45 pH	9.07 °C	1,478.3 µS/cm	0.37 mg/L		35.4 mV	2.82 m	350.00 ml/min
15/02/2022 17:34	12:00	6.45 pH	9.04 °C	1,478.1 µS/cm	0.34 mg/L		29.7 mV	2.82 m	350.00 ml/min

15/02/2022 17:35	13:00	6.46 pH	9.05 °C	1,475.9 µS/cm	0.32 mg/L		24.9 mV	2.82 m	350.00 ml/min
15/02/2022 17:36	14:00	6.46 pH	9.06 °C	1,472.3 µS/cm	0.30 mg/L		20.3 mV	2.82 m	350.00 ml/min
15/02/2022 17:37	15:00	6.46 pH	9.02 °C	1,474.5 µS/cm	0.29 mg/L		16.2 mV	2.82 m	350.00 ml/min
15/02/2022 17:38	16:00	6.46 pH	9.06 °C	1,480.3 µS/cm	0.30 mg/L		12.7 mV	2.82 m	350.00 ml/min
15/02/2022 17:39	17:00	6.47 pH	9.08 °C	1,475.6 µS/cm	0.29 mg/L		9.5 mV	2.82 m	350.00 ml/min

Samples

Sample ID:	Description:

Low-Flow Test Report:

Test Date / Time: 17/01/2022 12:35:00
Project: Mobuoy
Operator Name: JB

Location Name: BH616 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3 m** **Top of Screen: 2 m** **Total Depth: 5.04 m** **Initial Depth to Water: 2.19 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 3.5 m** **Estimated Total Volume Pumped: 1629.167 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.4 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
17/01/2022 12:35	00:00	6.73 pH	7.82 °C	4,919.1 µS/cm	0.71 mg/L	35.20 NTU	-77.5 mV	219.00 cm	250.00 ml/min
17/01/2022 12:36	01:00	6.76 pH	7.84 °C	4,900.3 µS/cm	0.63 mg/L	60.06 NTU	-83.4 mV	219.00 cm	250.00 ml/min
17/01/2022 12:37	02:00	6.77 pH	7.91 °C	4,891.9 µS/cm	0.80 mg/L	44.67 NTU	-88.0 mV	219.00 cm	250.00 ml/min
17/01/2022 12:38	03:00	6.78 pH	7.93 °C	4,885.1 µS/cm	0.66 mg/L	33.52 NTU	-91.2 mV	219.00 cm	250.00 ml/min
17/01/2022 12:39	04:00	6.78 pH	7.90 °C	4,868.1 µS/cm	0.54 mg/L	36.31 NTU	-93.0 mV	219.00 cm	250.00 ml/min
17/01/2022 12:40	05:00	6.79 pH	7.99 °C	4,878.2 µS/cm	0.52 mg/L	37.73 NTU	-94.0 mV	219.00 cm	250.00 ml/min
17/01/2022 12:40	05:31	6.79 pH	8.06 °C	4,886.9 µS/cm	0.62 mg/L	26.61 NTU	-94.7 mV	219.00 cm	250.00 ml/min
17/01/2022 12:41	06:31	6.79 pH	8.18 °C	4,887.8 µS/cm	0.72 mg/L	26.44 NTU	-96.9 mV	219.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH616	GW

Low-Flow Test Report:

Test Date / Time: 17/01/2022 09:43:30
Project: Mobuoy
Operator Name: JB

Location Name: BH617 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 3 m** **Total Depth: 8.48 m** **Initial Depth to Water: 2.75 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 5.4 m** **Estimated Total Volume Pumped: 1750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.75 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Weather Conditions:
Cold temperature - 1 degree's

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
17/01/2022 09:43	00:00	6.50 pH	6.98 °C	1,474.1 µS/cm	1.02 mg/L	738.55 NTU	-26.6 mV	275.00 cm	250.00 ml/min
17/01/2022 09:44	01:00	6.51 pH	7.11 °C	1,467.5 µS/cm	0.87 mg/L	920.04 NTU	-29.0 mV	275.00 cm	250.00 ml/min
17/01/2022 09:45	02:00	6.50 pH	7.06 °C	1,461.0 µS/cm	0.79 mg/L	866.18 NTU	-29.9 mV	275.00 cm	250.00 ml/min
17/01/2022 09:46	03:00	6.49 pH	6.78 °C	1,456.4 µS/cm	0.75 mg/L	830.22 NTU	-30.7 mV	275.00 cm	250.00 ml/min
17/01/2022 09:47	04:00	6.49 pH	6.67 °C	1,460.4 µS/cm	0.72 mg/L	960.85 NTU	-31.3 mV	275.00 cm	250.00 ml/min
17/01/2022 09:48	05:00	6.48 pH	6.63 °C	1,459.8 µS/cm	0.68 mg/L	816.19 NTU	-32.1 mV	275.00 cm	250.00 ml/min
17/01/2022 09:49	06:00	6.48 pH	6.61 °C	1,461.1 µS/cm	0.63 mg/L	997.18 NTU	-33.0 mV	275.00 cm	250.00 ml/min
17/01/2022 09:50	07:00	6.47 pH	6.63 °C	1,460.9 µS/cm	0.66 mg/L	769.28 NTU	-33.6 mV	275.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH616	GW

Low-Flow Test Report:

Test Date / Time: 17/01/2022 12:10:37
Project: Mobuoy
Operator Name: JC

Location Name: BH618D
Well Diameter: 5 cm
Casing Type: Plastic
Screen Length: 5 m
Top of Screen: 3 m
Total Depth: 8.07 m
Initial Depth to Water: 3.44 m

Pump Type: Perastaltic
Tubing Type: HDPE
Pump Intake From TOC: 5.8 m
Estimated Total Volume Pumped: 5500 ml
Flow Cell Volume: 130 ml
Final Flow Rate: 250 ml/min
Final Draw Down: 3.47 m

Instrument Used: Aqua TROLL 500
Serial Number: 791283

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
17/01/2022 12:10	00:00	7.24 pH	8.12 °C	933.51 µS/cm	6.59 mg/L	65.9 mV	3.44 m	250.00 ml/min
17/01/2022 12:11	01:00	7.25 pH	8.00 °C	932.64 µS/cm	6.01 mg/L	59.7 mV	3.44 m	250.00 ml/min
17/01/2022 12:12	02:00	7.26 pH	7.88 °C	932.90 µS/cm	6.20 mg/L	56.2 mV	3.44 m	250.00 ml/min
17/01/2022 12:13	03:00	7.28 pH	7.79 °C	932.95 µS/cm	6.54 mg/L	53.2 mV	3.44 m	250.00 ml/min
17/01/2022 12:14	04:00	7.30 pH	7.71 °C	933.04 µS/cm	6.83 mg/L	50.3 mV	3.44 m	250.00 ml/min
17/01/2022 12:15	05:00	7.32 pH	7.64 °C	932.44 µS/cm	7.06 mg/L	47.9 mV	3.44 m	250.00 ml/min
17/01/2022 12:16	06:00	7.33 pH	7.58 °C	932.24 µS/cm	7.26 mg/L	45.9 mV	3.44 m	250.00 ml/min
17/01/2022 12:17	07:00	7.34 pH	7.51 °C	932.10 µS/cm	7.47 mg/L	44.0 mV	3.44 m	250.00 ml/min
17/01/2022 12:18	08:00	7.36 pH	7.45 °C	931.83 µS/cm	7.64 mg/L	42.1 mV	3.44 m	250.00 ml/min
17/01/2022 12:19	09:00	7.37 pH	7.39 °C	931.67 µS/cm	7.83 mg/L	40.7 mV	3.44 m	250.00 ml/min
17/01/2022 12:20	10:00	7.39 pH	7.32 °C	931.48 µS/cm	8.00 mg/L	39.4 mV	3.44 m	250.00 ml/min
17/01/2022 12:21	11:00	7.40 pH	7.26 °C	931.30 µS/cm	8.16 mg/L	38.3 mV	3.44 m	250.00 ml/min
17/01/2022 12:22	12:00	7.41 pH	7.20 °C	931.14 µS/cm	8.32 mg/L	37.2 mV	3.44 m	250.00 ml/min

17/01/2022 12:23	13:00	7.42 pH	7.14 °C	930.77 µS/cm	8.47 mg/L	36.3 mV	3.44 m	250.00 ml/min
17/01/2022 12:24	14:00	7.44 pH	7.08 °C	930.47 µS/cm	8.62 mg/L	35.0 mV	3.44 m	250.00 ml/min
17/01/2022 12:25	15:00	7.45 pH	7.02 °C	930.50 µS/cm	8.76 mg/L	34.1 mV	3.44 m	250.00 ml/min
17/01/2022 12:26	16:00	7.46 pH	6.97 °C	930.19 µS/cm	8.89 mg/L	33.2 mV	3.44 m	250.00 ml/min
17/01/2022 12:27	17:00	7.47 pH	6.92 °C	929.97 µS/cm	9.00 mg/L	32.5 mV	3.44 m	250.00 ml/min
17/01/2022 12:28	18:00	7.49 pH	6.87 °C	929.96 µS/cm	9.13 mg/L	31.3 mV	3.44 m	250.00 ml/min
17/01/2022 12:29	19:00	7.50 pH	6.82 °C	929.89 µS/cm	9.21 mg/L	30.6 mV	3.44 m	250.00 ml/min
17/01/2022 12:30	20:00	7.51 pH	6.77 °C	929.60 µS/cm	9.31 mg/L	30.1 mV	3.44 m	250.00 ml/min
17/01/2022 12:31	21:00	7.52 pH	6.72 °C	929.26 µS/cm	9.37 mg/L	29.7 mV	3.44 m	250.00 ml/min
17/01/2022 12:32	22:00	7.53 pH	6.67 °C	929.24 µS/cm	9.48 mg/L	29.3 mV	3.44 m	250.00 ml/min

Samples

Sample ID:	**Description:**
BH618D	

Low-Flow Test Report:

Test Date / Time: 17/01/2022 11:43:26
Project: Mobuoy
Operator Name: JC

Location Name: BH619D **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 4 m** **Top of Screen: 4 m** **Total Depth: 7.9 m** **Initial Depth to Water: 2.74 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5.2 m** **Estimated Total Volume Pumped: 1750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.75 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:
Overcast

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
17/01/2022 11:43	00:00	7.62 pH	8.14 °C	386.78 µS/cm	10.46 mg/L	33.4 mV	2.74 m	250.00 ml/min
17/01/2022 11:44	01:00	7.64 pH	8.11 °C	386.85 µS/cm	10.26 mg/L	33.5 mV	2.74 m	250.00 ml/min
17/01/2022 11:45	02:00	7.65 pH	8.06 °C	386.67 µS/cm	10.26 mg/L	34.5 mV	2.74 m	250.00 ml/min
17/01/2022 11:46	03:00	7.61 pH	8.02 °C	386.49 µS/cm	10.33 mg/L	37.9 mV	2.74 m	250.00 ml/min
17/01/2022 11:47	04:00	7.63 pH	7.97 °C	386.35 µS/cm	10.53 mg/L	38.9 mV	2.74 m	250.00 ml/min
17/01/2022 11:48	05:00	7.66 pH	7.94 °C	386.18 µS/cm	10.67 mg/L	37.1 mV	2.74 m	250.00 ml/min
17/01/2022 11:49	06:00	7.71 pH	7.91 °C	386.13 µS/cm	10.83 mg/L	33.5 mV	2.74 m	250.00 ml/min
17/01/2022 11:50	07:00	7.73 pH	7.88 °C	386.01 µS/cm	10.85 mg/L	32.0 mV	2.74 m	250.00 ml/min

Samples

Sample ID:	Description:
BH619D	

Low-Flow Test Report:

Test Date / Time: 17/01/2022 10:49:19
Project: Mobuoy
Operator Name: JC

Location Name: BH619S **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3.2 m** **Top of Screen: 0.3 m** **Total Depth: 5.55 m** **Initial Depth to Water: 2.74 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 3 m** **Estimated Total Volume Pumped: 6250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.75 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:
Overcast

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
17/01/2022 10:49	00:00	7.36 pH	8.08 °C	531.65 µS/cm	8.09 mg/L	244.9 mV	2.74 m	250.00 ml/min
17/01/2022 10:50	01:00	7.37 pH	7.90 °C	530.45 µS/cm	6.07 mg/L	224.6 mV	2.74 m	250.00 ml/min
17/01/2022 10:51	02:00	7.39 pH	7.71 °C	529.95 µS/cm	5.53 mg/L	199.8 mV	2.74 m	250.00 ml/min
17/01/2022 10:52	03:00	7.40 pH	7.52 °C	529.92 µS/cm	5.42 mg/L	171.4 mV	2.74 m	250.00 ml/min
17/01/2022 10:53	04:00	7.42 pH	7.38 °C	529.90 µS/cm	5.53 mg/L	143.0 mV	2.74 m	250.00 ml/min
17/01/2022 10:54	05:00	7.44 pH	7.26 °C	529.69 µS/cm	5.73 mg/L	118.5 mV	2.74 m	250.00 ml/min
17/01/2022 10:55	06:00	7.46 pH	7.15 °C	529.61 µS/cm	5.97 mg/L	97.0 mV	2.74 m	250.00 ml/min
17/01/2022 10:56	07:00	7.47 pH	7.05 °C	529.46 µS/cm	6.23 mg/L	79.7 mV	2.74 m	250.00 ml/min
17/01/2022 10:57	08:00	7.48 pH	6.97 °C	529.37 µS/cm	6.48 mg/L	67.0 mV	2.74 m	250.00 ml/min
17/01/2022 10:58	09:00	7.49 pH	6.89 °C	529.14 µS/cm	6.73 mg/L	56.4 mV	2.74 m	250.00 ml/min
17/01/2022 10:59	10:00	7.50 pH	6.82 °C	528.99 µS/cm	6.97 mg/L	48.7 mV	2.74 m	250.00 ml/min
17/01/2022 11:00	11:00	7.51 pH	6.77 °C	528.79 µS/cm	7.10 mg/L	42.9 mV	2.74 m	250.00 ml/min
17/01/2022 11:01	12:00	7.52 pH	6.71 °C	528.61 µS/cm	7.28 mg/L	38.1 mV	2.74 m	250.00 ml/min

17/01/2022 11:02	13:00	7.53 pH	6.65 °C	528.43 µS/cm	7.39 mg/L	34.1 mV	2.74 m	250.00 ml/min
17/01/2022 11:03	14:00	7.53 pH	6.60 °C	528.23 µS/cm	7.54 mg/L	31.2 mV	2.74 m	250.00 ml/min
17/01/2022 11:04	15:00	7.54 pH	6.55 °C	528.12 µS/cm	7.67 mg/L	28.6 mV	2.74 m	250.00 ml/min
17/01/2022 11:05	16:00	7.55 pH	6.50 °C	527.89 µS/cm	7.81 mg/L	26.6 mV	2.74 m	250.00 ml/min
17/01/2022 11:06	17:00	7.56 pH	6.46 °C	527.69 µS/cm	7.94 mg/L	24.9 mV	2.74 m	250.00 ml/min
17/01/2022 11:07	18:00	7.56 pH	6.41 °C	526.91 µS/cm	8.03 mg/L	23.6 mV	2.74 m	250.00 ml/min
17/01/2022 11:08	19:00	7.57 pH	6.36 °C	527.37 µS/cm	8.14 mg/L	22.2 mV	2.74 m	250.00 ml/min
17/01/2022 11:09	20:00	7.58 pH	6.32 °C	526.63 µS/cm	8.23 mg/L	21.1 mV	2.74 m	250.00 ml/min
17/01/2022 11:10	21:00	7.59 pH	6.28 °C	526.97 µS/cm	8.34 mg/L	20.4 mV	2.74 m	250.00 ml/min
17/01/2022 11:11	22:00	7.59 pH	6.25 °C	526.80 µS/cm	8.43 mg/L	19.8 mV	2.74 m	250.00 ml/min
17/01/2022 11:12	23:00	7.60 pH	6.21 °C	526.62 µS/cm	8.54 mg/L	19.1 mV	2.74 m	250.00 ml/min
17/01/2022 11:13	24:00	7.61 pH	6.18 °C	526.41 µS/cm	8.64 mg/L	18.6 mV	2.74 m	250.00 ml/min
17/01/2022 11:14	25:00	7.61 pH	6.15 °C	526.25 µS/cm	8.73 mg/L	18.3 mV	2.74 m	250.00 ml/min

Samples

Sample ID:	Description:
BH619S	

Low-Flow Test Report:

Test Date / Time: 13/01/2022 14:23:25
Project: Mobuoy
Operator Name: JB

Location Name: BH620 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 3 m** **Total Depth: 7.9 m** **Initial Depth to Water: 3.94 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 6 m** **Estimated Total Volume Pumped: 3000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.93 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
13/01/2022 14:23	00:00	6.63 pH	10.64 °C	877.70 µS/cm	1.86 mg/L	387.59 NTU	-61.1 mV	394.00 cm	250.00 ml/min
13/01/2022 14:24	01:00	6.66 pH	10.61 °C	873.25 µS/cm	1.70 mg/L	411.65 NTU	-62.0 mV	394.00 cm	250.00 ml/min
13/01/2022 14:25	02:00	6.64 pH	10.51 °C	871.05 µS/cm	1.47 mg/L	362.83 NTU	-60.4 mV	394.00 cm	250.00 ml/min
13/01/2022 14:26	03:00	6.64 pH	10.48 °C	871.91 µS/cm	1.24 mg/L	302.62 NTU	-60.7 mV	394.00 cm	250.00 ml/min
13/01/2022 14:27	04:00	6.64 pH	10.45 °C	870.67 µS/cm	1.27 mg/L	358.35 NTU	-60.0 mV	394.00 cm	250.00 ml/min
13/01/2022 14:28	05:00	6.64 pH	10.41 °C	868.15 µS/cm	1.20 mg/L	506.91 NTU	-60.0 mV	394.00 cm	250.00 ml/min
13/01/2022 14:29	06:00	6.64 pH	10.15 °C	864.63 µS/cm	1.01 mg/L	527.47 NTU	-59.7 mV	394.00 cm	250.00 ml/min
13/01/2022 14:30	07:00	6.60 pH	10.37 °C	866.61 µS/cm	0.72 mg/L	406.44 NTU	-58.6 mV	394.00 cm	250.00 ml/min
13/01/2022 14:31	08:00	6.62 pH	10.55 °C	862.81 µS/cm	0.66 mg/L	379.85 NTU	-60.0 mV	394.00 cm	250.00 ml/min
13/01/2022 14:32	09:00	6.62 pH	10.58 °C	859.70 µS/cm	0.60 mg/L	348.81 NTU	-59.8 mV	394.00 cm	250.00 ml/min
13/01/2022 14:33	10:00	6.62 pH	10.59 °C	854.92 µS/cm	0.55 mg/L	357.23 NTU	-58.6 mV	394.00 cm	250.00 ml/min
13/01/2022 14:34	11:00	6.62 pH	10.56 °C	852.78 µS/cm	0.54 mg/L	319.96 NTU	-57.6 mV	394.00 cm	250.00 ml/min
13/01/2022 14:35	12:00	6.62 pH	10.47 °C	852.86 µS/cm	0.57 mg/L	383.32 NTU	-57.0 mV	394.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH620	GW - Borehole was purged on 10/01/2022

Low-Flow Test Report:

Test Date / Time: 17/01/2022 09:54:38
Project: Mobuoy
Operator Name: JC

Location Name: BH621 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 4 m** **Top of Screen: 4 m** **Total Depth: 8.1 m** **Initial Depth to Water: 3.1 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5.4 m** **Estimated Total Volume Pumped: 6250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.1 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
17/01/2022 09:54	00:00	6.99 pH	7.20 °C	813.71 µS/cm	5.99 mg/L	272.1 mV	3.10 m	250.00 ml/min
17/01/2022 09:55	01:00	7.00 pH	6.95 °C	808.52 µS/cm	4.71 mg/L	271.3 mV	3.10 m	250.00 ml/min
17/01/2022 09:56	02:00	7.02 pH	6.74 °C	807.43 µS/cm	4.38 mg/L	271.3 mV	3.10 m	250.00 ml/min
17/01/2022 09:57	03:00	7.03 pH	6.57 °C	807.25 µS/cm	4.38 mg/L	272.3 mV	3.10 m	250.00 ml/min
17/01/2022 09:58	04:00	7.04 pH	6.41 °C	807.05 µS/cm	4.49 mg/L	273.0 mV	3.10 m	250.00 ml/min
17/01/2022 09:59	05:00	7.05 pH	6.27 °C	807.15 µS/cm	4.67 mg/L	273.3 mV	3.10 m	250.00 ml/min
17/01/2022 10:00	06:00	7.06 pH	6.14 °C	807.16 µS/cm	4.87 mg/L	273.4 mV	3.10 m	250.00 ml/min
17/01/2022 10:01	07:00	7.07 pH	6.03 °C	807.20 µS/cm	5.04 mg/L	273.7 mV	3.10 m	250.00 ml/min
17/01/2022 10:02	08:00	7.07 pH	5.93 °C	807.20 µS/cm	5.21 mg/L	274.6 mV	3.10 m	250.00 ml/min
17/01/2022 10:03	09:00	7.09 pH	5.82 °C	807.25 µS/cm	5.40 mg/L	273.9 mV	3.10 m	250.00 ml/min
17/01/2022 10:04	10:00	7.09 pH	5.73 °C	807.33 µS/cm	5.57 mg/L	274.3 mV	3.10 m	250.00 ml/min
17/01/2022 10:05	11:00	7.11 pH	5.64 °C	807.47 µS/cm	5.73 mg/L	274.0 mV	3.10 m	250.00 ml/min
17/01/2022 10:06	12:00	7.11 pH	5.55 °C	807.40 µS/cm	5.89 mg/L	274.1 mV	3.10 m	250.00 ml/min

17/01/2022 10:07	13:00	7.12 pH	5.48 °C	807.51 µS/cm	6.05 mg/L	274.1 mV	3.10 m	250.00 ml/min
17/01/2022 10:08	14:00	7.13 pH	5.39 °C	807.55 µS/cm	6.20 mg/L	273.8 mV	3.10 m	250.00 ml/min
17/01/2022 10:09	15:00	7.15 pH	5.32 °C	807.55 µS/cm	6.35 mg/L	273.3 mV	3.10 m	250.00 ml/min
17/01/2022 10:10	16:00	7.15 pH	5.25 °C	807.58 µS/cm	6.51 mg/L	273.7 mV	3.10 m	250.00 ml/min
17/01/2022 10:11	17:00	7.16 pH	5.18 °C	807.71 µS/cm	6.66 mg/L	273.3 mV	3.10 m	250.00 ml/min
17/01/2022 10:12	18:00	7.17 pH	5.12 °C	807.62 µS/cm	6.80 mg/L	273.0 mV	3.10 m	250.00 ml/min
17/01/2022 10:13	19:00	7.18 pH	5.07 °C	807.93 µS/cm	6.93 mg/L	272.8 mV	3.10 m	250.00 ml/min
17/01/2022 10:14	20:00	7.19 pH	5.00 °C	807.82 µS/cm	7.07 mg/L	272.5 mV	3.10 m	250.00 ml/min
17/01/2022 10:15	21:00	7.19 pH	4.95 °C	807.73 µS/cm	7.19 mg/L	272.5 mV	3.10 m	250.00 ml/min
17/01/2022 10:16	22:00	7.23 pH	4.92 °C	808.13 µS/cm	7.30 mg/L	271.0 mV	3.10 m	250.00 ml/min
17/01/2022 10:17	23:00	7.24 pH	4.92 °C	808.36 µS/cm	7.36 mg/L	271.1 mV	3.10 m	250.00 ml/min
17/01/2022 10:18	24:00	7.19 pH	4.89 °C	807.18 µS/cm	7.38 mg/L	273.4 mV	3.10 m	250.00 ml/min
17/01/2022 10:19	25:00	7.21 pH	4.78 °C	807.50 µS/cm	7.48 mg/L	271.9 mV	3.10 m	250.00 ml/min

Samples

Sample ID:	Description:
BH621	

Low-Flow Test Report:

Test Date / Time: 18/01/2022 14:33:51
Project: Mobuoy
Operator Name: JC

Location Name: BH622 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 12 m** **Top of Screen: 3 m** **Total Depth: 10.75 m** **Initial Depth to Water: 2.47 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 6 m** **Estimated Total Volume Pumped: 2750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.38 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
18/01/2022 14:33	00:00	6.72 pH	9.83 °C	1,084.7 µS/cm	9.99 mg/L	18.6 mV	2.47 m	250.00 ml/min
18/01/2022 14:34	01:00	6.57 pH	9.82 °C	1,085.2 µS/cm	4.95 mg/L	24.3 mV	2.47 m	250.00 ml/min
18/01/2022 14:35	02:00	6.53 pH	9.76 °C	1,085.5 µS/cm	3.00 mg/L	26.7 mV	2.47 m	250.00 ml/min
18/01/2022 14:36	03:00	6.51 pH	9.72 °C	1,086.2 µS/cm	2.10 mg/L	27.8 mV	2.47 m	250.00 ml/min
18/01/2022 14:37	04:00	6.51 pH	9.72 °C	1,088.1 µS/cm	1.57 mg/L	28.7 mV	2.47 m	250.00 ml/min
18/01/2022 14:38	05:00	6.50 pH	9.71 °C	1,089.2 µS/cm	1.26 mg/L	29.2 mV	2.47 m	250.00 ml/min
18/01/2022 14:39	06:00	6.50 pH	9.71 °C	1,089.7 µS/cm	1.08 mg/L	29.3 mV	2.47 m	250.00 ml/min
18/01/2022 14:40	07:00	6.50 pH	9.71 °C	1,089.8 µS/cm	0.96 mg/L	29.0 mV	2.47 m	250.00 ml/min
18/01/2022 14:41	08:00	6.49 pH	9.71 °C	1,089.4 µS/cm	0.88 mg/L	29.2 mV	2.47 m	250.00 ml/min
18/01/2022 14:42	09:00	6.50 pH	9.70 °C	1,087.0 µS/cm	0.81 mg/L	28.9 mV	2.47 m	250.00 ml/min
18/01/2022 14:43	10:00	6.48 pH	9.71 °C	1,087.7 µS/cm	0.77 mg/L	29.3 mV	2.47 m	250.00 ml/min
18/01/2022 14:44	11:00	6.48 pH	9.71 °C	1,089.1 µS/cm	0.72 mg/L	28.9 mV	2.47 m	250.00 ml/min

Samples

Sample ID:	Description:
BH622	

Low-Flow Test Report:

Test Date / Time: 19/01/2022 11:52:13
Project: Mobuoy
Operator Name: JB

Location Name: BH623D
Well Diameter: 5 cm
Casing Type: Plastic
Screen Length: 7 m
Top of Screen: 5 m
Total Depth: 11.65 m
Initial Depth to Water: 4.45 m

Pump Type: Peristaltic - geopump
Tubing Type: HDPE
Pump Intake From TOC: 8 m
Estimated Total Volume Pumped: 1000 ml
Flow Cell Volume: 130 ml
Final Flow Rate: 250 ml/min
Final Draw Down: 4.46 m

Instrument Used: Aqua TROLL 500
Serial Number: 754810

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
19/01/2022 11:52	00:00	6.70 pH	9.50 °C	1,923.6 µS/cm	1.74 mg/L	246.42 NTU	-64.2 mV	445.00 cm	250.00 ml/min
19/01/2022 11:53	01:00	6.74 pH	9.58 °C	1,928.3 µS/cm	1.38 mg/L	185.79 NTU	-69.8 mV	445.00 cm	250.00 ml/min
19/01/2022 11:54	02:00	6.74 pH	9.63 °C	1,936.8 µS/cm	1.16 mg/L	205.45 NTU	-73.5 mV	445.00 cm	250.00 ml/min
19/01/2022 11:55	03:00	6.74 pH	9.71 °C	1,944.3 µS/cm	1.04 mg/L	218.25 NTU	-77.0 mV	445.00 cm	250.00 ml/min
19/01/2022 11:56	04:00	6.75 pH	9.76 °C	1,945.9 µS/cm	1.01 mg/L	171.61 NTU	-78.4 mV	445.00 cm	250.00 ml/min
19/01/2022 11:57	05:09		9.73 °C	1,935.5 µS/cm	0.91 mg/L	145.37 NTU	-81.5 mV		
19/01/2022 11:58	06:30	6.74 pH	9.62 °C	1,929.8 µS/cm	0.90 mg/L	163.31 NTU	-83.2 mV		
19/01/2022 11:59	07:30	6.75 pH	9.58 °C	1,927.6 µS/cm	0.84 mg/L	147.64 NTU	-84.7 mV		
19/01/2022 12:00	08:30	6.75 pH	9.49 °C	1,920.3 µS/cm	0.76 mg/L	140.99 NTU	-84.5 mV		

Samples

Sample ID:	Description:
BH623D	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 20/01/2022 11:36:24
Project: Mobuoy
Operator Name: JB

Location Name: BH624S **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3.5 m** **Top of Screen: 1 m** **Total Depth: 5.39 m** **Initial Depth to Water: 0.25 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 2.8 m** **Estimated Total Volume Pumped: 1250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 1.28 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
20/01/2022 11:36	00:00	6.68 pH	8.71 °C	2,069.8 µS/cm	0.21 mg/L	20.37 NTU	-75.9 mV	25.00 cm	250.00 ml/min
20/01/2022 11:37	01:00	6.71 pH	8.81 °C	2,075.1 µS/cm	0.18 mg/L	16.77 NTU	-79.0 mV	25.00 cm	250.00 ml/min
20/01/2022 11:38	02:00	6.71 pH	8.79 °C	2,079.6 µS/cm	0.27 mg/L	24.40 NTU	-81.5 mV	25.00 cm	250.00 ml/min
20/01/2022 11:39	03:00	6.71 pH	8.81 °C	2,091.7 µS/cm	0.26 mg/L	26.32 NTU	-83.4 mV	25.00 cm	250.00 ml/min
20/01/2022 11:40	04:00	6.70 pH	8.90 °C	2,096.7 µS/cm	0.30 mg/L	13.03 NTU	-85.1 mV	25.00 cm	250.00 ml/min
20/01/2022 11:41	05:00	6.70 pH	8.88 °C	2,095.1 µS/cm	0.26 mg/L	17.96 NTU	-86.7 mV	25.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH624S	

Low-Flow Test Report:

Test Date / Time: 20/01/2022 10:59:22
Project: Mobuoy
Operator Name: JB

Location Name: BH624D **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 7 m** **Top of Screen: 5 m** **Total Depth: 12.61 m** **Initial Depth to Water: 1.71 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 7.3 m** **Estimated Total Volume Pumped: 1750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.12 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
20/01/2022 10:59	00:00	6.73 pH	8.92 °C	2,676.6 µS/cm	1.07 mg/L	28.44 NTU	-73.1 mV	171.00 cm	250.00 ml/min
20/01/2022 11:00	01:00	6.74 pH	8.92 °C	2,667.4 µS/cm	1.00 mg/L	18.90 NTU	-76.8 mV	171.00 cm	250.00 ml/min
20/01/2022 11:01	02:00	6.73 pH	8.87 °C	2,663.2 µS/cm	0.93 mg/L	14.73 NTU	-79.7 mV	171.00 cm	250.00 ml/min
20/01/2022 11:02	03:00	6.73 pH	8.85 °C	2,666.6 µS/cm	0.79 mg/L	10.79 NTU	-82.6 mV	171.00 cm	250.00 ml/min
20/01/2022 11:03	04:00	6.72 pH	8.86 °C	2,669.9 µS/cm	0.67 mg/L	14.02 NTU	-85.3 mV	171.00 cm	250.00 ml/min
20/01/2022 11:04	05:00	6.72 pH	8.97 °C	2,679.2 µS/cm	0.65 mg/L	12.61 NTU	-87.1 mV	171.00 cm	250.00 ml/min
20/01/2022 11:05	06:00	6.71 pH	9.04 °C	2,670.3 µS/cm	0.60 mg/L	18.65 NTU	-88.8 mV	171.00 cm	250.00 ml/min
20/01/2022 11:06	07:00	6.71 pH	9.02 °C	2,671.5 µS/cm	0.56 mg/L	16.60 NTU	-90.4 mV	171.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH624D	

Low-Flow Test Report:

Test Date / Time: 20/01/2022 10:56:11
Project: Mobuoy
Operator Name: JC

Location Name: BH625 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 3 m** **Total Depth: 8.1 m** **Initial Depth to Water: 2.17 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5.2 m** **Estimated Total Volume Pumped: 2500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.2 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
20/01/2022 10:56	00:00	6.59 pH	8.69 °C	2,217.6 µS/cm	5.90 mg/L	139.2 mV	2.17 m	250.00 ml/min
20/01/2022 10:57	01:00	6.60 pH	8.52 °C	2,211.8 µS/cm	3.54 mg/L	88.2 mV	2.17 m	250.00 ml/min
20/01/2022 10:58	02:00	6.60 pH	8.47 °C	2,211.0 µS/cm	2.40 mg/L	43.1 mV	2.17 m	250.00 ml/min
20/01/2022 10:59	03:00	6.61 pH	8.43 °C	2,209.5 µS/cm	1.79 mg/L	9.4 mV	2.17 m	250.00 ml/min
20/01/2022 11:00	04:00	6.61 pH	8.37 °C	2,207.6 µS/cm	1.48 mg/L	-12.4 mV	2.17 m	250.00 ml/min
20/01/2022 11:01	05:00	6.61 pH	8.33 °C	2,207.7 µS/cm	1.31 mg/L	-27.4 mV	2.17 m	250.00 ml/min
20/01/2022 11:02	06:00	6.61 pH	8.34 °C	2,210.3 µS/cm	1.16 mg/L	-37.9 mV	2.17 m	250.00 ml/min
20/01/2022 11:03	07:00	6.61 pH	8.36 °C	2,210.5 µS/cm	1.05 mg/L	-45.3 mV	2.17 m	250.00 ml/min
20/01/2022 11:04	08:00	6.61 pH	8.35 °C	2,209.9 µS/cm	1.00 mg/L	-51.2 mV	2.17 m	250.00 ml/min
20/01/2022 11:05	09:00	6.61 pH	8.36 °C	2,208.7 µS/cm	1.03 mg/L	-55.9 mV	2.17 m	250.00 ml/min
20/01/2022 11:06	10:00	6.61 pH	8.37 °C	2,208.5 µS/cm	0.99 mg/L	-59.6 mV	2.17 m	250.00 ml/min

Samples

Sample ID:	Description:
BH625	

Low-Flow Test Report:

Test Date / Time: 19/01/2022 10:29:39
Project: Mobuoy
Operator Name: JB

Location Name: BH626 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 6 m** **Top of Screen: 2 m** **Total Depth: 8.05 m** **Initial Depth to Water: 1.25 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 4.5 m** **Estimated Total Volume Pumped: 1250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 1.27 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
19/01/2022 10:29	00:00	6.67 pH	8.90 °C	904.07 µS/cm	0.54 mg/L	585.97 NTU	-54.6 mV	125.00 cm	250.00 ml/min
19/01/2022 10:30	01:00	6.67 pH	8.94 °C	910.57 µS/cm	0.44 mg/L	615.01 NTU	-57.4 mV	125.00 cm	250.00 ml/min
19/01/2022 10:31	02:00	6.66 pH	8.96 °C	910.42 µS/cm	0.40 mg/L	451.39 NTU	-59.1 mV	125.00 cm	250.00 ml/min
19/01/2022 10:32	03:00	6.66 pH	8.99 °C	919.04 µS/cm	0.33 mg/L	482.58 NTU	-60.7 mV	125.00 cm	250.00 ml/min
19/01/2022 10:33	04:00	6.65 pH	9.00 °C	919.09 µS/cm	0.31 mg/L	520.55 NTU	-61.6 mV	125.00 cm	250.00 ml/min
19/01/2022 10:34	05:00	6.65 pH	9.02 °C	920.62 µS/cm	0.30 mg/L	619.84 NTU	-62.6 mV	125.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH626	

Low-Flow Test Report:

Test Date / Time: 19/01/2022 11:02:12
Project: Mobuoy
Operator Name: JB

Location Name: BH627 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 6 m** **Top of Screen: 2 m** **Total Depth: 7.3 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 4.4 m** **Estimated Total Volume Pumped: 2500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 1.51 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
19/01/2022 11:02	00:00	6.85 pH	8.76 °C	553.91 µS/cm	1.08 mg/L	768.84 NTU	-71.1 mV		250.00 ml/min
19/01/2022 11:03	01:00	6.85 pH	8.90 °C	544.69 µS/cm	0.52 mg/L	690.94 NTU	-79.6 mV		250.00 ml/min
19/01/2022 11:04	02:00	6.84 pH	8.95 °C	540.24 µS/cm	0.42 mg/L	572.24 NTU	-84.3 mV		250.00 ml/min
19/01/2022 11:05	03:00	6.84 pH	8.99 °C	535.69 µS/cm	0.38 mg/L	501.31 NTU	-88.3 mV		250.00 ml/min
19/01/2022 11:06	04:00	6.85 pH	9.05 °C	528.09 µS/cm	0.34 mg/L	528.97 NTU	-91.5 mV		250.00 ml/min
19/01/2022 11:07	05:00	6.85 pH	9.05 °C	517.39 µS/cm	0.32 mg/L	577.59 NTU	-94.1 mV		250.00 ml/min
19/01/2022 11:08	06:00	6.87 pH	9.06 °C	497.89 µS/cm	0.30 mg/L	500.51 NTU	-96.5 mV		250.00 ml/min
19/01/2022 11:09	07:00	6.87 pH	9.09 °C	496.93 µS/cm	0.27 mg/L	496.90 NTU	-97.9 mV		250.00 ml/min
19/01/2022 11:10	08:00	6.87 pH	9.11 °C	487.07 µS/cm	0.26 mg/L	535.83 NTU	-99.3 mV		250.00 ml/min
19/01/2022 11:11	09:00	6.90 pH	9.10 °C	487.32 µS/cm	0.26 mg/L	428.55 NTU	-99.2 mV		250.00 ml/min
19/01/2022 11:12	10:00	6.90 pH	9.05 °C	482.59 µS/cm	0.27 mg/L	359.72 NTU	-98.2 mV		250.00 ml/min

Samples

Sample ID:	Description:
BH627	

Low-Flow Test Report:

Test Date / Time: 19/01/2022 10:22:52
Project: Mobuoy
Operator Name: JC

Location Name: BH628 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 3 m** **Total Depth: 7.65 m** **Initial Depth to Water: 2.41 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5 m** **Estimated Total Volume Pumped: 1500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.41 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
19/01/2022 10:22	00:00	6.75 pH	8.68 °C	375.79 µS/cm	7.39 mg/L	70.5 mV	2.41 m	250.00 ml/min
19/01/2022 10:23	01:00	6.68 pH	8.70 °C	376.21 µS/cm	5.33 mg/L	70.7 mV	2.41 m	250.00 ml/min
19/01/2022 10:24	02:00	6.65 pH	8.73 °C	375.58 µS/cm	4.74 mg/L	70.8 mV	2.41 m	250.00 ml/min
19/01/2022 10:25	03:00	6.64 pH	8.71 °C	375.17 µS/cm	4.59 mg/L	71.1 mV	2.41 m	250.00 ml/min
19/01/2022 10:26	04:00	6.63 pH	8.73 °C	375.01 µS/cm	4.55 mg/L	71.7 mV	2.41 m	250.00 ml/min
19/01/2022 10:27	05:00	6.63 pH	8.73 °C	374.97 µS/cm	4.51 mg/L	71.8 mV	2.41 m	250.00 ml/min
19/01/2022 10:28	06:00	6.62 pH	8.75 °C	374.90 µS/cm	4.48 mg/L	72.4 mV	2.41 m	250.00 ml/min

Samples

Sample ID:	**Description:**
BH628	

Low-Flow Test Report:

Test Date / Time: 19/01/2022 09:41:52
Project: Mobuoy
Operator Name: JB

Location Name: BH629 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 3 m** **Total Depth: 7.16 m** **Initial Depth to Water: 1.76 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 4.5 m** **Estimated Total Volume Pumped: 1750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 1.78 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
19/01/2022 09:41	00:00	7.88 pH	9.01 °C	1,223.9 µS/cm	3.54 mg/L	546.39 NTU	-115.1 mV	176.00 cm	250.00 ml/min
19/01/2022 09:42	01:00	7.55 pH	8.93 °C	1,219.0 µS/cm	1.41 mg/L	672.04 NTU	-115.6 mV	176.00 cm	250.00 ml/min
19/01/2022 09:43	02:00	7.47 pH	8.72 °C	1,218.4 µS/cm	1.16 mg/L	464.05 NTU	-115.6 mV	176.00 cm	250.00 ml/min
19/01/2022 09:44	03:00	7.42 pH	8.63 °C	1,232.9 µS/cm	1.06 mg/L	506.83 NTU	-115.1 mV	176.00 cm	250.00 ml/min
19/01/2022 09:45	04:00	7.39 pH	8.63 °C	1,239.0 µS/cm	1.01 mg/L	516.08 NTU	-115.4 mV	176.00 cm	250.00 ml/min
19/01/2022 09:46	05:00	7.39 pH	8.63 °C	1,228.2 µS/cm	0.95 mg/L	470.68 NTU	-115.5 mV	176.00 cm	250.00 ml/min
19/01/2022 09:47	06:00	7.38 pH	8.65 °C	1,233.0 µS/cm	0.99 mg/L	458.38 NTU	-115.8 mV	176.00 cm	250.00 ml/min
19/01/2022 09:48	07:00	7.37 pH	8.72 °C	1,244.6 µS/cm	0.92 mg/L	555.61 NTU	-116.7 mV	176.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH629	

Low-Flow Test Report:

Test Date / Time: 19/01/2022 09:44:25
Project: Mobuoy
Operator Name: JC

Location Name: BH630 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 3 m** **Total Depth: 7.62 m** **Initial Depth to Water: 1.9 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 4.8 m** **Estimated Total Volume Pumped: 1750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 1.9 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
19/01/2022 09:44	00:00	7.23 pH	8.32 °C	495.24 µS/cm	11.01 mg/L	156.3 mV	1.90 m	250.00 ml/min
19/01/2022 09:45	01:00	6.89 pH	8.35 °C	498.47 µS/cm	9.88 mg/L	163.0 mV	1.90 m	250.00 ml/min
19/01/2022 09:46	02:00	6.78 pH	8.36 °C	499.25 µS/cm	9.60 mg/L	160.3 mV	1.90 m	250.00 ml/min
19/01/2022 09:47	03:00	6.73 pH	8.36 °C	499.94 µS/cm	9.51 mg/L	155.4 mV	1.90 m	250.00 ml/min
19/01/2022 09:48	04:00	6.72 pH	8.36 °C	500.62 µS/cm	9.57 mg/L	150.0 mV	1.90 m	250.00 ml/min
19/01/2022 09:49	05:00	6.71 pH	8.36 °C	500.75 µS/cm	9.66 mg/L	143.5 mV	1.90 m	250.00 ml/min
19/01/2022 09:50	06:00	6.72 pH	8.35 °C	501.05 µS/cm	9.75 mg/L	137.2 mV	1.90 m	250.00 ml/min
19/01/2022 09:51	07:00	6.73 pH	8.34 °C	501.18 µS/cm	9.85 mg/L	131.9 mV	1.90 m	250.00 ml/min

Samples

Sample ID:	**Description:**
BH630	

Low-Flow Test Report:

Test Date / Time: 15/02/2022 12:43:13
Project: Mobuoy
Operator Name: James Scott

Location Name: BH631 **Well Diameter: 5 cm** **Screen Length: 3 m** **Top of Screen: 0.56 m** **Total Depth: 3.56 m** **Initial Depth to Water: 2.07 m**	**Pump Type: Peristaltic** **Tubing Type: Watera** **Pump Intake From TOC: 1 m** **Estimated Total Volume Pumped: 3500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 0 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Rain

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 10		
15/02/2022 12:43	00:00	6.76 pH	7.96 °C	732.51 µS/cm	4.75 mg/L		-43.2 mV	2.07 m	350.00 ml/min
15/02/2022 12:44	01:00	6.65 pH	7.89 °C	715.46 µS/cm	3.43 mg/L		-36.5 mV	2.07 m	350.00 ml/min
15/02/2022 12:45	02:00	6.58 pH	7.88 °C	706.78 µS/cm	2.68 mg/L		-31.6 mV	2.07 m	350.00 ml/min
15/02/2022 12:46	03:00	6.53 pH	7.89 °C	705.32 µS/cm	2.27 mg/L		-27.1 mV	2.07 m	350.00 ml/min
15/02/2022 12:47	04:00	6.50 pH	7.88 °C	700.38 µS/cm	2.04 mg/L		-23.9 mV	2.07 m	350.00 ml/min
15/02/2022 12:48	05:00	6.47 pH	7.87 °C	700.88 µS/cm	1.88 mg/L		-20.4 mV	2.07 m	350.00 ml/min
15/02/2022 12:49	06:00	6.45 pH	7.80 °C	696.96 µS/cm	1.83 mg/L		-15.8 mV	2.07 m	350.00 ml/min
15/02/2022 12:50	07:00	6.44 pH	7.78 °C	695.27 µS/cm	1.81 mg/L		-13.5 mV	2.07 m	350.00 ml/min
15/02/2022 12:51	08:00	6.44 pH	7.76 °C	692.47 µS/cm	1.79 mg/L		-11.4 mV	2.07 m	350.00 ml/min
15/02/2022 12:52	09:00	6.43 pH	7.77 °C	689.04 µS/cm	1.76 mg/L		-7.9 mV	2.07 m	350.00 ml/min
15/02/2022 12:53	10:00	6.42 pH	7.77 °C	683.52 µS/cm	1.72 mg/L		-5.7 mV	2.07 m	350.00 ml/min

Samples

Sample ID:	Description:

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 19/01/2022 11:48:44
Project: Mobuoy
Operator Name: JC

Location Name: BH632 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 6 m** **Top of Screen: 4 m** **Total Depth: 10.08 m** **Initial Depth to Water: 1.06 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5.5 m** **Estimated Total Volume Pumped: 3000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.65 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
19/01/2022 11:48	00:00	6.72 pH	9.79 °C	1,544.2 µS/cm	3.45 mg/L	54.8 mV	1.06 m	250.00 ml/min
19/01/2022 11:49	01:00	6.76 pH	9.62 °C	1,536.7 µS/cm	2.02 mg/L	16.5 mV	1.06 m	250.00 ml/min
19/01/2022 11:50	02:00	6.77 pH	9.37 °C	1,539.9 µS/cm	1.44 mg/L	-10.5 mV	1.06 m	250.00 ml/min
19/01/2022 11:51	03:00	6.78 pH	9.23 °C	1,554.3 µS/cm	1.14 mg/L	-28.2 mV	1.06 m	250.00 ml/min
19/01/2022 11:52	04:00	6.79 pH	9.25 °C	1,555.9 µS/cm	1.00 mg/L	-41.3 mV	1.06 m	250.00 ml/min
19/01/2022 11:53	05:00	6.79 pH	9.28 °C	1,558.0 µS/cm	0.86 mg/L	-50.4 mV	1.06 m	250.00 ml/min
19/01/2022 11:54	06:00	6.79 pH	9.33 °C	1,555.6 µS/cm	0.75 mg/L	-58.0 mV	1.06 m	250.00 ml/min
19/01/2022 11:55	07:00	6.80 pH	9.30 °C	1,549.6 µS/cm	0.70 mg/L	-64.2 mV	1.06 m	250.00 ml/min
19/01/2022 11:56	08:00	6.80 pH	9.15 °C	1,546.6 µS/cm	0.73 mg/L	-68.8 mV	1.06 m	250.00 ml/min
19/01/2022 11:57	09:00	6.79 pH	9.04 °C	1,550.0 µS/cm	0.71 mg/L	-72.7 mV	1.06 m	250.00 ml/min
19/01/2022 11:58	10:00	6.80 pH	8.90 °C	1,552.7 µS/cm	0.70 mg/L	-75.8 mV	1.06 m	250.00 ml/min
19/01/2022 11:59	11:00	6.80 pH	8.82 °C	1,555.0 µS/cm	0.65 mg/L	-78.7 mV	1.06 m	250.00 ml/min
19/01/2022 12:00	12:00	6.80 pH	8.77 °C	1,553.5 µS/cm	0.60 mg/L	-81.0 mV	1.06 m	250.00 ml/min

Samples

Sample ID:	Description:
BH632	

Low-Flow Test Report:

Test Date / Time: 17/01/2022 13:53:17
Project: Mobuoy
Operator Name: JC

Location Name: BH633 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 6 m** **Total Depth: 9.66 m** **Initial Depth to Water: 4.04 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 7 m** **Estimated Total Volume Pumped: 2750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 4.32 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
17/01/2022 13:53	00:00	7.40 pH	8.56 °C	1,205.9 µS/cm	7.00 mg/L	46.7 mV	4.04 m	250.00 ml/min
17/01/2022 13:54	01:00	7.40 pH	8.60 °C	1,211.7 µS/cm	6.09 mg/L	48.6 mV	4.04 m	250.00 ml/min
17/01/2022 13:55	02:00	7.41 pH	8.73 °C	1,216.7 µS/cm	6.14 mg/L	51.6 mV	4.04 m	250.00 ml/min
17/01/2022 13:56	03:00	7.41 pH	8.68 °C	1,220.4 µS/cm	6.38 mg/L	54.9 mV	4.04 m	250.00 ml/min
17/01/2022 13:57	04:00	7.43 pH	8.59 °C	1,225.0 µS/cm	6.73 mg/L	58.1 mV	4.04 m	250.00 ml/min
17/01/2022 13:58	05:00	7.44 pH	8.49 °C	1,232.0 µS/cm	7.07 mg/L	61.2 mV	4.04 m	250.00 ml/min
17/01/2022 13:59	06:00	7.46 pH	8.43 °C	1,237.4 µS/cm	7.35 mg/L	64.4 mV	4.04 m	250.00 ml/min
17/01/2022 14:00	07:00	7.46 pH	8.41 °C	1,241.0 µS/cm	7.53 mg/L	67.2 mV	4.04 m	250.00 ml/min
17/01/2022 14:01	08:00	7.47 pH	8.44 °C	1,250.3 µS/cm	7.60 mg/L	69.7 mV	4.04 m	250.00 ml/min
17/01/2022 14:02	09:00	7.48 pH	8.47 °C	1,251.6 µS/cm	7.62 mg/L	72.2 mV	4.04 m	250.00 ml/min
17/01/2022 14:03	10:00	7.47 pH	8.49 °C	1,252.9 µS/cm	7.62 mg/L	74.6 mV	4.04 m	250.00 ml/min
17/01/2022 14:04	11:00	7.48 pH	8.51 °C	1,252.8 µS/cm	7.61 mg/L	76.7 mV	4.04 m	250.00 ml/min

Samples

Sample ID:	Description:
BH633	

Low-Flow Test Report:

Test Date / Time: 18/01/2022 11:40:01
Project: Mobuoy
Operator Name: JC

Location Name: BH635S **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3.6 m** **Top of Screen: 2 m** **Total Depth: 7.25 m** **Initial Depth to Water: 1.59 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 4.4 m** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 1.59 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
18/01/2022 11:40	00:00	6.46 pH	8.06 °C	1,300.8 µS/cm	4.49 mg/L	-6.0 mV	1.59 m	250.00 ml/min
18/01/2022 11:41	01:00	6.46 pH	7.96 °C	1,300.3 µS/cm	2.42 mg/L	-22.1 mV	1.59 m	250.00 ml/min
18/01/2022 11:42	02:00	6.46 pH	7.89 °C	1,301.4 µS/cm	1.60 mg/L	-32.6 mV	1.59 m	250.00 ml/min
18/01/2022 11:43	03:00	6.46 pH	7.84 °C	1,300.9 µS/cm	1.19 mg/L	-40.4 mV	1.59 m	250.00 ml/min
18/01/2022 11:44	04:00	6.46 pH	7.81 °C	1,297.1 µS/cm	0.96 mg/L	-46.3 mV	1.59 m	250.00 ml/min
18/01/2022 11:45	05:00	6.46 pH	7.80 °C	1,295.7 µS/cm	0.80 mg/L	-51.0 mV	1.59 m	250.00 ml/min
18/01/2022 11:46	06:00	6.46 pH	7.78 °C	1,298.5 µS/cm	0.70 mg/L	-54.8 mV	1.59 m	250.00 ml/min
18/01/2022 11:47	07:00	6.46 pH	7.78 °C	1,301.9 µS/cm	0.65 mg/L	-57.6 mV	1.59 m	250.00 ml/min
18/01/2022 11:48	08:00	6.45 pH	7.79 °C	1,304.4 µS/cm	0.60 mg/L	-60.3 mV	1.59 m	250.00 ml/min
18/01/2022 11:49	09:00	6.45 pH	7.80 °C	1,304.3 µS/cm	0.56 mg/L	-62.5 mV	1.59 m	250.00 ml/min

Samples

Sample ID:	Description:

BH635S	

Low-Flow Test Report:

Test Date / Time: 18/01/2022 12:07:46
Project: Mobuoy
Operator Name: JC

Location Name: BH635D **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 2 m** **Top of Screen: 6 m** **Total Depth: 8.66 m** **Initial Depth to Water: 3.44 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 7 m** **Estimated Total Volume Pumped: 3000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.43 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
18/01/2022 12:07	00:00	6.53 pH	8.44 °C	1,321.6 µS/cm	7.47 mg/L	-61.0 mV	3.44 m	250.00 ml/min
18/01/2022 12:08	01:00	6.51 pH	8.40 °C	1,332.1 µS/cm	4.16 mg/L	-62.6 mV	3.44 m	250.00 ml/min
18/01/2022 12:09	02:00	6.49 pH	8.35 °C	1,335.7 µS/cm	2.67 mg/L	-64.3 mV	3.44 m	250.00 ml/min
18/01/2022 12:10	03:00	6.49 pH	8.37 °C	1,338.2 µS/cm	1.77 mg/L	-65.9 mV	3.44 m	250.00 ml/min
18/01/2022 12:11	04:00	6.49 pH	8.36 °C	1,350.1 µS/cm	1.35 mg/L	-67.3 mV	3.44 m	250.00 ml/min
18/01/2022 12:12	05:00	6.49 pH	8.36 °C	1,356.4 µS/cm	1.10 mg/L	-68.7 mV	3.44 m	250.00 ml/min
18/01/2022 12:13	06:00	6.49 pH	8.37 °C	1,355.7 µS/cm	0.95 mg/L	-69.8 mV	3.44 m	250.00 ml/min
18/01/2022 12:14	07:00	6.49 pH	8.36 °C	1,356.8 µS/cm	0.84 mg/L	-70.8 mV	3.44 m	250.00 ml/min
18/01/2022 12:15	08:00	6.49 pH	8.38 °C	1,357.9 µS/cm	0.74 mg/L	-71.7 mV	3.44 m	250.00 ml/min
18/01/2022 12:16	09:00	6.48 pH	8.37 °C	1,357.7 µS/cm	0.70 mg/L	-72.3 mV	3.44 m	250.00 ml/min
18/01/2022 12:17	10:00	6.48 pH	8.39 °C	1,356.3 µS/cm	0.66 mg/L	-72.7 mV	3.44 m	250.00 ml/min
18/01/2022 12:18	11:00	6.48 pH	8.39 °C	1,357.3 µS/cm	0.60 mg/L	-73.0 mV	3.44 m	250.00 ml/min
18/01/2022 12:19	12:00	6.48 pH	8.41 °C	1,355.0 µS/cm	0.58 mg/L	-73.5 mV	3.44 m	250.00 ml/min

Samples

Sample ID:	Description:
BH635D	

Low-Flow Test Report:

Test Date / Time: 15/02/2022 11:06:07
Project: Mobuoy
Operator Name: James Scott

Location Name: BH636 **Well Diameter: 5 cm** **Screen Length: 2 m** **Top of Screen: 11.5 m** **Total Depth: 13.51 m** **Initial Depth to Water: 3.02 m**	**Pump Type: Peristaltic** **Tubing Type: Watera** **Pump Intake From TOC: 1 m** **Estimated Total Volume Pumped: 4900 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 0 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:
BH636D

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 10	+/- 10		
15/02/2022 11:06	00:00	7.54 pH	8.40 °C	451.04 µS/cm	10.16 mg/L		30.7 mV	3.02 m	350.00 ml/min
15/02/2022 11:07	01:00	7.63 pH	9.00 °C	442.84 µS/cm	6.46 mg/L		-48.9 mV	3.02 m	350.00 ml/min
15/02/2022 11:08	02:00	7.66 pH	9.28 °C	439.22 µS/cm	4.19 mg/L		-85.2 mV	3.02 m	350.00 ml/min
15/02/2022 11:09	03:00	7.66 pH	9.41 °C	438.63 µS/cm	3.00 mg/L		-102.4 mV	3.02 m	350.00 ml/min
15/02/2022 11:10	04:00	7.67 pH	9.47 °C	439.32 µS/cm	2.34 mg/L		-115.3 mV	3.02 m	350.00 ml/min
15/02/2022 11:11	05:00	7.67 pH	9.52 °C	439.67 µS/cm	1.92 mg/L		-124.6 mV	3.02 m	350.00 ml/min
15/02/2022 11:12	06:00	7.65 pH	9.50 °C	442.28 µS/cm	1.70 mg/L		-125.1 mV	3.02 m	350.00 ml/min
15/02/2022 11:13	07:00	7.64 pH	9.56 °C	444.01 µS/cm	1.58 mg/L		-128.5 mV	3.02 m	350.00 ml/min
15/02/2022 11:14	08:00	7.63 pH	9.59 °C	444.54 µS/cm	1.45 mg/L		-135.8 mV	3.02 m	350.00 ml/min
15/02/2022 11:15	09:00	7.63 pH	9.67 °C	445.17 µS/cm	1.38 mg/L		-140.8 mV	3.02 m	350.00 ml/min
15/02/2022 11:16	10:00	7.64 pH	9.67 °C	445.72 µS/cm	1.35 mg/L		-145.8 mV	3.02 m	350.00 ml/min
15/02/2022 11:17	11:00	7.65 pH	9.73 °C	445.49 µS/cm	1.32 mg/L		-150.4 mV	3.02 m	350.00 ml/min
15/02/2022 11:18	12:00	7.66 pH	9.69 °C	445.81 µS/cm	1.28 mg/L		-153.4 mV	3.02 m	350.00 ml/min

15/02/2022 11:19	13:00	7.67 pH	9.80 °C	446.78 µS/cm	1.20 mg/L		-157.6 mV	3.02 m	350.00 ml/min
15/02/2022 11:20	14:00	7.68 pH	9.78 °C	447.23 µS/cm	1.14 mg/L		-162.8 mV	3.02 m	350.00 ml/min

Samples

Sample ID:	Description:

Low-Flow Test Report:

Test Date / Time: 18/01/2022 10:53:54
Project: Mobuoy
Operator Name: JC

Location Name: BH637
Well Diameter: 5 cm
Casing Type: Plastic
Screen Length: 2.1 m
Top of Screen: 8 m
Total Depth: 6.12 m
Initial Depth to Water: 3.1 m

Pump Type: Perastaltic
Tubing Type: HDPE
Pump Intake From TOC: 4.6 m
Estimated Total Volume Pumped: 2250 ml
Flow Cell Volume: 130 ml
Final Flow Rate: 250 ml/min
Final Draw Down: 3.1 m

Instrument Used: Aqua TROLL 500
Serial Number: 791283

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
18/01/2022 10:53	00:00	6.82 pH	9.03 °C	756.24 µS/cm	7.82 mg/L	127.6 mV	3.10 m	250.00 ml/min
18/01/2022 10:54	01:00	6.80 pH	9.26 °C	762.08 µS/cm	4.30 mg/L	22.7 mV	3.10 m	250.00 ml/min
18/01/2022 10:55	02:00	6.85 pH	9.37 °C	741.65 µS/cm	2.94 mg/L	-32.6 mV	3.10 m	250.00 ml/min
18/01/2022 10:56	03:00	6.84 pH	9.43 °C	742.20 µS/cm	2.44 mg/L	-55.0 mV	3.10 m	250.00 ml/min
18/01/2022 10:57	04:00	6.84 pH	9.51 °C	746.78 µS/cm	2.22 mg/L	-67.8 mV	3.10 m	250.00 ml/min
18/01/2022 10:58	05:00	6.82 pH	9.55 °C	760.90 µS/cm	2.10 mg/L	-74.3 mV	3.10 m	250.00 ml/min
18/01/2022 10:59	06:00	6.82 pH	9.55 °C	766.72 µS/cm	2.02 mg/L	-79.5 mV	3.10 m	250.00 ml/min
18/01/2022 11:00	07:00	6.82 pH	9.57 °C	774.86 µS/cm	1.97 mg/L	-83.2 mV	3.10 m	250.00 ml/min
18/01/2022 11:01	08:00	6.83 pH	9.58 °C	769.94 µS/cm	1.95 mg/L	-85.9 mV	3.10 m	250.00 ml/min
18/01/2022 11:02	09:00	6.83 pH	9.58 °C	781.39 µS/cm	1.92 mg/L	-88.4 mV	3.10 m	250.00 ml/min

Samples

Sample ID:	Description:

BH637	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 18/01/2022 10:12:18
Project: Mobuoy
Operator Name: JC

Location Name: BH638
Well Diameter: 5 cm
Casing Type: Plastic
Screen Length: 4.5 m
Top of Screen: 0.5 m
Total Depth: 5.67 m
Initial Depth to Water: 0.66 m

Pump Type: Perastaltic
Tubing Type: HDPE
Pump Intake From TOC: 3.5 m
Estimated Total Volume Pumped: 3000 ml
Flow Cell Volume: 130 ml
Final Flow Rate: 250 ml/min
Final Draw Down: 1.12 m

Instrument Used: Aqua TROLL 500
Serial Number: 791283

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
18/01/2022 10:12	00:00	7.12 pH	8.37 °C	504.28 µS/cm	4.87 mg/L	166.7 mV	0.66 m	250.00 ml/min
18/01/2022 10:13	01:00	7.11 pH	8.20 °C	498.38 µS/cm	3.06 mg/L	175.7 mV	0.66 m	250.00 ml/min
18/01/2022 10:14	02:00	7.24 pH	8.13 °C	497.26 µS/cm	2.25 mg/L	171.5 mV	0.66 m	250.00 ml/min
18/01/2022 10:15	03:00	7.27 pH	8.07 °C	496.17 µS/cm	1.65 mg/L	174.5 mV	0.66 m	250.00 ml/min
18/01/2022 10:16	04:00	7.24 pH	7.99 °C	496.78 µS/cm	1.44 mg/L	178.7 mV	0.66 m	250.00 ml/min
18/01/2022 10:17	05:00	7.32 pH	7.99 °C	496.27 µS/cm	1.39 mg/L	175.3 mV	0.66 m	250.00 ml/min
18/01/2022 10:18	06:00	7.32 pH	8.00 °C	496.25 µS/cm	1.11 mg/L	175.6 mV	0.66 m	250.00 ml/min
18/01/2022 10:19	07:00	7.33 pH	7.97 °C	495.87 µS/cm	0.94 mg/L	177.6 mV	0.66 m	250.00 ml/min
18/01/2022 10:20	08:00	7.34 pH	7.97 °C	495.84 µS/cm	0.82 mg/L	176.8 mV	0.66 m	250.00 ml/min
18/01/2022 10:21	09:00	7.34 pH	7.97 °C	496.16 µS/cm	0.73 mg/L	177.9 mV	0.66 m	250.00 ml/min
18/01/2022 10:22	10:00	7.34 pH	7.98 °C	496.19 µS/cm	0.67 mg/L	177.5 mV	0.66 m	250.00 ml/min
18/01/2022 10:23	11:00	7.36 pH	7.97 °C	496.73 µS/cm	0.63 mg/L	177.3 mV	0.66 m	250.00 ml/min
18/01/2022 10:24	12:00	7.36 pH	7.97 °C	496.93 µS/cm	0.62 mg/L	177.0 mV	0.66 m	250.00 ml/min

Samples

Sample ID:	Description:
BH638	

Low-Flow Test Report:

Test Date / Time: 17/01/2022 14:30:54
Project: Mobuoy
Operator Name: JC

Location Name: BH634 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 2.6 m** **Top of Screen: 5.7 m** **Total Depth: 8.64 m** **Initial Depth to Water: 5.12 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 6.9 m** **Estimated Total Volume Pumped: 2000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 5.15 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
17/01/2022 14:30	00:00	6.39 pH	9.76 °C	1,291.6 µS/cm	3.70 mg/L	62.1 mV	5.12 m	250.00 ml/min
17/01/2022 14:31	01:00	6.33 pH	9.52 °C	1,285.2 µS/cm	2.33 mg/L	56.4 mV	5.12 m	250.00 ml/min
17/01/2022 14:32	02:00	6.32 pH	9.41 °C	1,295.8 µS/cm	2.25 mg/L	55.2 mV	5.12 m	250.00 ml/min
17/01/2022 14:33	03:00	6.32 pH	9.40 °C	1,294.5 µS/cm	2.60 mg/L	54.4 mV	5.12 m	250.00 ml/min
17/01/2022 14:34	04:00	6.32 pH	9.42 °C	1,300.7 µS/cm	2.79 mg/L	53.7 mV	5.12 m	250.00 ml/min
17/01/2022 14:35	05:00	6.33 pH	9.53 °C	1,308.3 µS/cm	2.85 mg/L	52.0 mV	5.12 m	250.00 ml/min
17/01/2022 14:36	06:00	6.33 pH	9.58 °C	1,309.8 µS/cm	2.87 mg/L	50.7 mV	5.12 m	250.00 ml/min
17/01/2022 14:37	07:00	6.32 pH	9.54 °C	1,313.9 µS/cm	2.88 mg/L	49.9 mV	5.12 m	250.00 ml/min
17/01/2022 14:38	08:00	6.32 pH	9.53 °C	1,316.9 µS/cm	2.91 mg/L	48.7 mV	5.12 m	250.00 ml/min

Samples

Sample ID:	Description:
BH644	

Low-Flow Test Report:

Test Date / Time: 17/01/2022 15:13:31
Project: Mobuoy
Operator Name: JB

Location Name: BH645 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 6 m** **Top of Screen: 0.8 m** **Total Depth: 7.27 m** **Initial Depth to Water: 4.33 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 5.8 m** **Estimated Total Volume Pumped: 1750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 4.34 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
17/01/2022 15:13	00:00	6.81 pH	9.02 °C	5,502.0 µS/cm	3.39 mg/L	117.82 NTU	-96.5 mV	433.00 cm	250.00 ml/min
17/01/2022 15:14	01:00	6.80 pH	9.37 °C	5,458.5 µS/cm	1.14 mg/L	102.56 NTU	-106.6 mV	433.00 cm	250.00 ml/min
17/01/2022 15:15	02:00	6.81 pH	9.48 °C	5,440.1 µS/cm	0.77 mg/L	106.39 NTU	-112.3 mV	433.00 cm	250.00 ml/min
17/01/2022 15:16	03:00	6.80 pH	9.52 °C	5,426.7 µS/cm	0.60 mg/L	85.30 NTU	-116.6 mV	433.00 cm	250.00 ml/min
17/01/2022 15:17	04:00	6.80 pH	9.57 °C	5,419.3 µS/cm	0.48 mg/L	95.70 NTU	-119.7 mV	433.00 cm	250.00 ml/min
17/01/2022 15:18	05:00	6.80 pH	9.54 °C	5,405.3 µS/cm	0.46 mg/L	97.28 NTU	-122.5 mV	433.00 cm	250.00 ml/min
17/01/2022 15:19	06:00	6.80 pH	9.46 °C	5,395.7 µS/cm	0.42 mg/L	98.23 NTU	-124.1 mV	433.00 cm	250.00 ml/min
17/01/2022 15:20	07:00	6.80 pH	9.37 °C	5,391.5 µS/cm	0.40 mg/L	83.83 NTU	-125.9 mV	433.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH645	

Low-Flow Test Report:

Test Date / Time: 17/01/2022 14:15:42
Project: Mobuoy
Operator Name: JB

Location Name: BH646 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 6 m** **Top of Screen: 1 m** **Total Depth: 5.11 m** **Initial Depth to Water: 4.32 m**	**Pump Type: Peristaltic - geopump** **Tubing Type: HDPE** **Pump Intake From TOC: 4.7 m** **Estimated Total Volume Pumped: 1250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 4.36 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 754810**

Test Notes:
Base of well silted up to 5.11m bgl

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 1	+/- 20	+/- 5	
17/01/2022 14:15	00:00	6.81 pH	9.40 °C	4,928.8 µS/cm	1.29 mg/L	787.56 NTU	-102.8 mV	432.00 cm	250.00 ml/min
17/01/2022 14:16	01:00	6.81 pH	9.90 °C	4,964.8 µS/cm	0.47 mg/L	685.57 NTU	-119.7 mV	432.00 cm	250.00 ml/min
17/01/2022 14:17	02:00	6.82 pH	10.06 °C	4,980.9 µS/cm	0.46 mg/L	770.62 NTU	-124.3 mV	432.00 cm	250.00 ml/min
17/01/2022 14:18	03:00	6.82 pH	10.09 °C	5,042.9 µS/cm	0.51 mg/L	544.97 NTU	-127.6 mV	432.00 cm	250.00 ml/min
17/01/2022 14:19	04:00	6.82 pH	10.13 °C	5,099.4 µS/cm	0.45 mg/L	659.68 NTU	-130.7 mV	432.00 cm	250.00 ml/min
17/01/2022 14:20	05:00	6.82 pH	10.17 °C	5,146.2 µS/cm	0.41 mg/L	636.21 NTU	-133.5 mV	432.00 cm	250.00 ml/min

Samples

Sample ID:	Description:
BH646 and DUP2	

Low-Flow Test Report:

Test Date / Time: 17/01/2022 15:26:01
Project: Mobuoy
Operator Name: JC

Location Name: BH651 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 2 m** **Top of Screen: 6 m** **Total Depth: 8.08 m** **Initial Depth to Water: 4.47 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 6.5 m** **Estimated Total Volume Pumped: 5500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 4.5 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
17/01/2022 15:26	00:00	6.88 pH	9.06 °C	1,898.4 µS/cm	9.30 mg/L	9.5 mV	4.47 m	250.00 ml/min
17/01/2022 15:27	01:00	7.00 pH	9.02 °C	1,886.8 µS/cm	6.52 mg/L	-11.7 mV	4.47 m	250.00 ml/min
17/01/2022 15:28	02:00	7.05 pH	8.89 °C	1,881.0 µS/cm	6.08 mg/L	-22.1 mV	4.47 m	250.00 ml/min
17/01/2022 15:29	03:00	7.08 pH	8.72 °C	1,881.2 µS/cm	6.22 mg/L	-29.1 mV	4.47 m	250.00 ml/min
17/01/2022 15:30	04:00	7.11 pH	8.57 °C	1,881.5 µS/cm	6.44 mg/L	-34.0 mV	4.47 m	250.00 ml/min
17/01/2022 15:31	05:00	7.13 pH	8.45 °C	1,881.0 µS/cm	6.66 mg/L	-37.3 mV	4.47 m	250.00 ml/min
17/01/2022 15:32	06:00	7.15 pH	8.34 °C	1,880.1 µS/cm	6.89 mg/L	-40.0 mV	4.47 m	250.00 ml/min
17/01/2022 15:33	07:00	7.17 pH	8.23 °C	1,879.8 µS/cm	7.10 mg/L	-42.1 mV	4.47 m	250.00 ml/min
17/01/2022 15:34	08:00	7.18 pH	8.14 °C	1,879.0 µS/cm	7.26 mg/L	-43.8 mV	4.47 m	250.00 ml/min
17/01/2022 15:35	09:00	7.20 pH	8.05 °C	1,877.7 µS/cm	7.43 mg/L	-45.3 mV	4.47 m	250.00 ml/min
17/01/2022 15:36	10:00	7.21 pH	7.97 °C	1,877.2 µS/cm	7.61 mg/L	-46.4 mV	4.47 m	250.00 ml/min
17/01/2022 15:37	11:00	7.23 pH	7.88 °C	1,876.3 µS/cm	7.77 mg/L	-47.5 mV	4.47 m	250.00 ml/min
17/01/2022 15:38	12:00	7.24 pH	7.80 °C	1,875.9 µS/cm	7.91 mg/L	-48.6 mV	4.47 m	250.00 ml/min

17/01/2022 15:39	13:00	7.26 pH	7.72 °C	1,874.8 µS/cm	8.06 mg/L	-49.5 mV	4.47 m	250.00 ml/min
17/01/2022 15:40	14:00	7.27 pH	7.64 °C	1,873.7 µS/cm	8.21 mg/L	-50.3 mV	4.47 m	250.00 ml/min
17/01/2022 15:41	15:00	7.28 pH	7.56 °C	1,873.4 µS/cm	8.35 mg/L	-51.2 mV	4.47 m	250.00 ml/min
17/01/2022 15:42	16:00	7.30 pH	7.48 °C	1,872.4 µS/cm	8.49 mg/L	-51.9 mV	4.47 m	250.00 ml/min
17/01/2022 15:43	17:00	7.31 pH	7.40 °C	1,871.9 µS/cm	8.60 mg/L	-52.6 mV	4.47 m	250.00 ml/min
17/01/2022 15:44	18:00	7.32 pH	7.32 °C	1,870.9 µS/cm	8.72 mg/L	-53.3 mV	4.47 m	250.00 ml/min
17/01/2022 15:45	19:00	7.34 pH	7.25 °C	1,870.3 µS/cm	8.82 mg/L	-53.9 mV	4.47 m	250.00 ml/min
17/01/2022 15:46	20:00	7.35 pH	7.17 °C	1,869.4 µS/cm	8.88 mg/L	-54.5 mV	4.47 m	250.00 ml/min
17/01/2022 15:47	21:00	7.36 pH	7.10 °C	1,869.0 µS/cm	8.93 mg/L	-54.9 mV	4.47 m	250.00 ml/min
17/01/2022 15:48	22:00	7.37 pH	7.03 °C	1,868.4 µS/cm	8.99 mg/L	-55.3 mV	4.47 m	250.00 ml/min

Samples

Sample ID:	Description:
BH651	

Low-Flow Test Report:

Test Date / Time: 20/01/2022 11:30:28
Project: Mobuoy
Operator Name: JC

Location Name: BH653 **Well Diameter: 5 cm** **Casing Type: Plastic** **Total Depth: 8.32 m** **Initial Depth to Water: 0.9 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5 m** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 0.93 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
20/01/2022 11:30	00:00	6.86 pH	8.66 °C	1,300.5 µS/cm	8.14 mg/L	-70.2 mV	0.90 m	250.00 ml/min
20/01/2022 11:31	01:00	6.71 pH	8.61 °C	1,293.1 µS/cm	4.48 mg/L	-57.6 mV	0.90 m	250.00 ml/min
20/01/2022 11:32	02:00	6.66 pH	8.31 °C	1,295.6 µS/cm	2.81 mg/L	-52.6 mV	0.90 m	250.00 ml/min
20/01/2022 11:33	03:00	6.63 pH	8.16 °C	1,303.4 µS/cm	1.99 mg/L	-48.3 mV	0.90 m	250.00 ml/min
20/01/2022 11:34	04:00	6.62 pH	8.13 °C	1,308.0 µS/cm	1.53 mg/L	-45.2 mV	0.90 m	250.00 ml/min
20/01/2022 11:35	05:00	6.61 pH	8.08 °C	1,312.6 µS/cm	1.28 mg/L	-42.5 mV	0.90 m	250.00 ml/min
20/01/2022 11:36	06:00	6.61 pH	8.00 °C	1,320.0 µS/cm	1.16 mg/L	-40.3 mV	0.90 m	250.00 ml/min
20/01/2022 11:37	07:00	6.60 pH	7.96 °C	1,326.8 µS/cm	1.08 mg/L	-38.3 mV	0.90 m	250.00 ml/min
20/01/2022 11:38	08:00	6.60 pH	7.93 °C	1,335.1 µS/cm	1.02 mg/L	-36.2 mV	0.90 m	250.00 ml/min
20/01/2022 11:39	09:00	6.60 pH	7.94 °C	1,345.2 µS/cm	1.01 mg/L	-34.5 mV	0.90 m	250.00 ml/min

Samples

Sample ID:	Description:

BH653	

Low-Flow Test Report:

Test Date / Time: 19/01/2022 14:02:38
Project: Mobuoy
Operator Name: JC

Location Name: BH654D **Well Diameter: 5 cm** **Casing Type: Plastic** **Total Depth: 7.68 m** **Initial Depth to Water: 3.33 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5.5 m** **Estimated Total Volume Pumped: 2750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.32 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
19/01/2022 14:02	00:00	7.11 pH	9.64 °C	1,350.9 µS/cm	8.11 mg/L	-32.3 mV	3.33 m	250.00 ml/min
19/01/2022 14:03	01:00	7.04 pH	9.72 °C	1,394.6 µS/cm	6.87 mg/L	-31.7 mV	3.33 m	250.00 ml/min
19/01/2022 14:04	02:00	7.04 pH	9.71 °C	1,409.7 µS/cm	5.90 mg/L	-32.4 mV	3.33 m	250.00 ml/min
19/01/2022 14:05	03:00	7.06 pH	9.62 °C	1,416.8 µS/cm	5.86 mg/L	-33.2 mV	3.33 m	250.00 ml/min
19/01/2022 14:06	04:00	7.08 pH	9.54 °C	1,416.4 µS/cm	6.20 mg/L	-34.3 mV	3.33 m	250.00 ml/min
19/01/2022 14:07	05:00	7.09 pH	9.44 °C	1,419.9 µS/cm	6.65 mg/L	-35.6 mV	3.33 m	250.00 ml/min
19/01/2022 14:08	06:00	7.10 pH	9.37 °C	1,422.6 µS/cm	7.01 mg/L	-36.7 mV	3.33 m	250.00 ml/min
19/01/2022 14:09	07:00	7.10 pH	9.25 °C	1,427.8 µS/cm	7.24 mg/L	-37.6 mV	3.33 m	250.00 ml/min
19/01/2022 14:10	08:00	7.10 pH	9.16 °C	1,429.3 µS/cm	7.36 mg/L	-38.5 mV	3.33 m	250.00 ml/min
19/01/2022 14:11	09:00	7.10 pH	9.08 °C	1,432.5 µS/cm	7.41 mg/L	-39.3 mV	3.33 m	250.00 ml/min
19/01/2022 14:12	10:00	7.10 pH	9.04 °C	1,433.9 µS/cm	7.44 mg/L	-39.9 mV	3.33 m	250.00 ml/min
19/01/2022 14:13	11:00	7.10 pH	9.03 °C	1,434.4 µS/cm	7.42 mg/L	-40.5 mV	3.33 m	250.00 ml/min

Samples

Sample ID:	Description:
BH354D	

Low-Flow Test Report:

Test Date / Time: 19/01/2022 14:34:27
Project: Mobuoy
Operator Name: JC

Location Name: BH654S **Well Diameter: 5 cm** **Casing Type: Plastic** **Total Depth: 4.38 m** **Initial Depth to Water: 3.32 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 3.9 m** **Estimated Total Volume Pumped: 3750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.35 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
19/01/2022 14:34	00:00	7.21 pH	9.60 °C	815.98 µS/cm	4.14 mg/L	-45.4 mV	3.32 m	250.00 ml/min
19/01/2022 14:35	01:00	7.18 pH	9.48 °C	816.64 µS/cm	2.59 mg/L	-46.3 mV	3.32 m	250.00 ml/min
19/01/2022 14:36	02:00	7.16 pH	9.45 °C	820.67 µS/cm	1.66 mg/L	-46.0 mV	3.32 m	250.00 ml/min
19/01/2022 14:37	03:00	7.15 pH	9.41 °C	819.43 µS/cm	1.23 mg/L	-46.5 mV	3.32 m	250.00 ml/min
19/01/2022 14:38	04:00	7.14 pH	9.38 °C	819.74 µS/cm	1.04 mg/L	-47.1 mV	3.32 m	250.00 ml/min
19/01/2022 14:39	05:00	7.17 pH	9.37 °C	815.67 µS/cm	0.94 mg/L	-47.1 mV	3.32 m	250.00 ml/min
19/01/2022 14:40	06:00	7.13 pH	9.37 °C	816.06 µS/cm	0.88 mg/L	-47.9 mV	3.32 m	250.00 ml/min
19/01/2022 14:41	07:00	7.12 pH	9.38 °C	816.28 µS/cm	0.81 mg/L	-48.7 mV	3.32 m	250.00 ml/min
19/01/2022 14:42	08:00	7.11 pH	9.37 °C	816.09 µS/cm	0.75 mg/L	-49.6 mV	3.32 m	250.00 ml/min
19/01/2022 14:43	09:00	7.11 pH	9.35 °C	817.32 µS/cm	0.67 mg/L	-50.7 mV	3.32 m	250.00 ml/min
19/01/2022 14:44	10:00	7.11 pH	9.34 °C	817.03 µS/cm	0.61 mg/L	-52.0 mV	3.32 m	250.00 ml/min
19/01/2022 14:45	11:00	7.10 pH	9.36 °C	818.63 µS/cm	0.56 mg/L	-52.7 mV	3.32 m	250.00 ml/min
19/01/2022 14:46	12:00	7.09 pH	9.38 °C	819.26 µS/cm	0.52 mg/L	-53.7 mV	3.32 m	250.00 ml/min

19/01/2022 14:47	13:00	7.09 pH	9.43 °C	820.05 µS/cm	0.48 mg/L	-54.4 mV	3.32 m	250.00 ml/min
19/01/2022 14:48	14:00	7.10 pH	9.47 °C	820.45 µS/cm	0.48 mg/L	-55.9 mV	3.32 m	250.00 ml/min
19/01/2022 14:49	15:00	7.10 pH	9.48 °C	820.72 µS/cm	0.47 mg/L	-56.4 mV	3.32 m	250.00 ml/min

Samples

Sample ID:	Description:
BH654	

APPENDIX 4 - GROUNDWATER SAMPLING LOW FLOW REPORT (ROUND 2)

Low-Flow Test Report:

Test Date / Time: 24/03/2022 10:06:34
Project: Mobuoy
Operator Name: JB

Location Name: BH121 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 2 m** **Top of Screen: 3 m** **Total Depth: 5.43 m** **Initial Depth to Water: 2.05 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 4 m** **Estimated Total Volume Pumped: 4200 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 2.05 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
24/03/2022 10:06	00:00	6.50 pH	10.21 °C	369.75 µS/cm	7.24 mg/L		132.9 mV	205.00 cm	350.00 ml/min
24/03/2022 10:07	01:00	6.33 pH	10.39 °C	370.49 µS/cm	5.29 mg/L		138.7 mV	205.00 cm	350.00 ml/min
24/03/2022 10:08	02:00	6.23 pH	10.29 °C	370.69 µS/cm	4.01 mg/L		141.2 mV	205.00 cm	350.00 ml/min
24/03/2022 10:09	03:00	6.18 pH	10.21 °C	370.71 µS/cm	3.12 mg/L		145.3 mV	205.00 cm	350.00 ml/min
24/03/2022 10:10	04:00	6.15 pH	10.18 °C	372.27 µS/cm	2.51 mg/L		147.1 mV	205.00 cm	350.00 ml/min
24/03/2022 10:11	05:00	6.13 pH	10.12 °C	372.36 µS/cm	2.04 mg/L		149.2 mV	205.00 cm	350.00 ml/min
24/03/2022 10:12	06:00	6.11 pH	10.11 °C	372.17 µS/cm	1.69 mg/L		151.1 mV	205.00 cm	350.00 ml/min
24/03/2022 10:13	07:00	6.09 pH	10.10 °C	373.07 µS/cm	1.44 mg/L		152.6 mV	205.00 cm	350.00 ml/min
24/03/2022 10:14	08:00	6.09 pH	10.08 °C	372.56 µS/cm	1.24 mg/L		154.0 mV	205.00 cm	350.00 ml/min
24/03/2022 10:15	09:00	6.08 pH	10.07 °C	373.00 µS/cm	1.08 mg/L		155.4 mV	205.00 cm	350.00 ml/min
24/03/2022 10:16	10:00	6.07 pH	10.06 °C	372.95 µS/cm	0.96 mg/L		156.7 mV	205.00 cm	350.00 ml/min
24/03/2022 10:17	11:00	6.06 pH	10.07 °C	373.14 µS/cm	0.86 mg/L		158.2 mV	205.00 cm	350.00 ml/min
24/03/2022 10:18	12:00	6.05 pH	10.07 °C	373.54 µS/cm	0.78 mg/L		159.0 mV	205.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 28/03/2022 10:23:04
Project: Mobuoy
Operator Name: JC

Location Name: BH201 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 1 m** **Top of Screen: 6.5 m** **Total Depth: 8.46 m** **Initial Depth to Water: 3.31 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 7 m** **Estimated Total Volume Pumped: 3000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.32 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
28/03/2022 10:23	00:00	6.94 pH	9.96 °C	2,846.2 µS/cm	5.98 mg/L	34.6 mV	3.31 m	250.00 ml/min
28/03/2022 10:24	01:00	6.97 pH	9.73 °C	2,865.6 µS/cm	4.81 mg/L	23.9 mV	3.31 m	250.00 ml/min
28/03/2022 10:25	02:00	6.98 pH	9.69 °C	2,872.3 µS/cm	3.86 mg/L	14.9 mV	3.31 m	250.00 ml/min
28/03/2022 10:26	03:00	6.99 pH	9.61 °C	2,878.3 µS/cm	3.13 mg/L	7.6 mV	3.31 m	250.00 ml/min
28/03/2022 10:27	04:00	7.00 pH	9.54 °C	2,881.6 µS/cm	2.61 mg/L	1.8 mV	3.31 m	250.00 ml/min
28/03/2022 10:28	05:00	7.00 pH	9.53 °C	2,887.4 µS/cm	2.19 mg/L	-3.4 mV	3.31 m	250.00 ml/min
28/03/2022 10:29	06:00	7.01 pH	9.53 °C	2,893.5 µS/cm	1.87 mg/L	-8.0 mV	3.31 m	250.00 ml/min
28/03/2022 10:30	07:00	7.01 pH	9.52 °C	2,894.7 µS/cm	1.64 mg/L	-11.8 mV	3.31 m	250.00 ml/min
28/03/2022 10:31	08:00	7.02 pH	9.52 °C	2,896.9 µS/cm	1.47 mg/L	-15.4 mV	3.31 m	250.00 ml/min
28/03/2022 10:32	09:00	7.02 pH	9.51 °C	2,901.6 µS/cm	1.38 mg/L	-18.5 mV	3.31 m	250.00 ml/min
28/03/2022 10:33	10:00	7.02 pH	9.50 °C	2,908.0 µS/cm	1.32 mg/L	-21.4 mV	3.31 m	250.00 ml/min
28/03/2022 10:34	11:00	7.02 pH	9.46 °C	2,910.8 µS/cm	1.22 mg/L	-24.1 mV	3.31 m	250.00 ml/min
28/03/2022 10:35	12:00	7.03 pH	9.48 °C	2,911.8 µS/cm	1.17 mg/L	-26.5 mV	3.31 m	250.00 ml/min

Samples

Sample ID:	Description:
BH201	

Low-Flow Test Report:

Test Date / Time: 22/03/2022 13:24:26
Project: Mobuoy
Operator Name: JB

Location Name: BH206 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 3 m** **Top of Screen: 4 m** **Total Depth: 7.15 m** **Initial Depth to Water: 5 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 6 m** **Estimated Total Volume Pumped: 6300 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 5.02 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
22/03/2022 13:24	00:00	6.67 pH	17.05 °C	0.44 µS/cm	8.73 mg/L		108.9 mV	500.00 cm	350.00 ml/min
22/03/2022 13:25	01:00	6.80 pH	14.84 °C	8.45 µS/cm	6.40 mg/L		123.4 mV	500.00 cm	350.00 ml/min
22/03/2022 13:26	02:00	6.81 pH	14.05 °C	13.16 µS/cm	4.83 mg/L		118.0 mV	500.00 cm	350.00 ml/min
22/03/2022 13:27	03:00	6.81 pH	13.50 °C	10.16 µS/cm	3.98 mg/L		109.3 mV	500.00 cm	350.00 ml/min
22/03/2022 13:28	04:00	6.80 pH	13.27 °C	6.93 µS/cm	3.34 mg/L		99.7 mV	500.00 cm	350.00 ml/min
22/03/2022 13:29	05:00	6.83 pH	13.01 °C	17.23 µS/cm	3.29 mg/L		90.2 mV	500.00 cm	350.00 ml/min
22/03/2022 13:30	06:00	6.80 pH	12.77 °C	8.39 µS/cm	2.89 mg/L		81.4 mV	500.00 cm	350.00 ml/min
22/03/2022 13:31	07:00	6.81 pH	12.57 °C	14.36 µS/cm	2.75 mg/L		74.0 mV	500.00 cm	350.00 ml/min
22/03/2022 13:32	08:00	6.84 pH	12.41 °C	24.44 µS/cm	2.71 mg/L		67.2 mV	500.00 cm	350.00 ml/min
22/03/2022 13:33	09:00	6.86 pH	12.43 °C	11.05 µS/cm	2.65 mg/L		61.4 mV	500.00 cm	350.00 ml/min
22/03/2022 13:34	10:00	6.87 pH	12.23 °C	11.81 µS/cm	2.68 mg/L		56.1 mV	500.00 cm	350.00 ml/min
22/03/2022 13:35	11:00	6.86 pH	12.21 °C	11.31 µS/cm	2.66 mg/L		51.7 mV	500.00 cm	350.00 ml/min
22/03/2022 13:36	12:00	6.88 pH	12.14 °C	15.53 µS/cm	2.60 mg/L		47.2 mV	500.00 cm	350.00 ml/min
22/03/2022 13:37	13:00	6.88 pH	12.14 °C	10.46 µS/cm	2.43 mg/L		43.7 mV	500.00 cm	350.00 ml/min
22/03/2022 13:38	14:00	6.89 pH	12.15 °C	10.50 µS/cm	2.30 mg/L		40.8 mV	500.00 cm	350.00 ml/min

22/03/2022 13:39	15:00	6.89 pH	12.09 °C	13.76 µS/cm	2.21 mg/L		37.3 mV	500.00 cm	350.00 ml/min
22/03/2022 13:40	16:00	6.88 pH	12.11 °C	9.74 µS/cm	2.07 mg/L		34.4 mV	500.00 cm	350.00 ml/min
22/03/2022 13:41	17:00	6.87 pH	12.05 °C	11.80 µS/cm	1.92 mg/L		31.1 mV	500.00 cm	350.00 ml/min
22/03/2022 13:42	18:00	6.85 pH	12.10 °C	10.58 µS/cm	1.83 mg/L		27.7 mV	500.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 24/03/2022 10:39:22
Project: Mobuoy
Operator Name: JB

Location Name: BH208 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 1.9 m** **Top of Screen: 0.7 m** **Total Depth: 3.26 m** **Initial Depth to Water: 1.93 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 2.5 m** **Estimated Total Volume Pumped: 4200 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 1.99 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
24/03/2022 10:39	00:00	6.10 pH	10.63 °C	422.90 µS/cm	7.66 mg/L		195.4 mV	193.00 cm	350.00 ml/min
24/03/2022 10:40	01:00	6.04 pH	10.70 °C	425.83 µS/cm	5.40 mg/L		198.7 mV	193.00 cm	350.00 ml/min
24/03/2022 10:41	02:00	6.02 pH	10.73 °C	426.47 µS/cm	3.99 mg/L		199.7 mV	193.00 cm	350.00 ml/min
24/03/2022 10:42	03:00	6.00 pH	10.70 °C	426.66 µS/cm	2.96 mg/L		200.2 mV	193.00 cm	350.00 ml/min
24/03/2022 10:43	04:00	5.99 pH	10.70 °C	426.92 µS/cm	2.26 mg/L		199.6 mV	193.00 cm	350.00 ml/min
24/03/2022 10:44	05:00	5.99 pH	10.66 °C	426.98 µS/cm	1.79 mg/L		198.9 mV	193.00 cm	350.00 ml/min
24/03/2022 10:45	06:00	5.98 pH	10.67 °C	428.25 µS/cm	1.45 mg/L		197.9 mV	193.00 cm	350.00 ml/min
24/03/2022 10:46	07:00	5.97 pH	10.68 °C	430.03 µS/cm	1.20 mg/L		197.3 mV	193.00 cm	350.00 ml/min
24/03/2022 10:47	08:00	5.97 pH	10.70 °C	429.92 µS/cm	1.02 mg/L		196.2 mV	193.00 cm	350.00 ml/min
24/03/2022 10:48	09:00	5.97 pH	10.72 °C	431.35 µS/cm	0.88 mg/L		195.7 mV	193.00 cm	350.00 ml/min
24/03/2022 10:49	10:00	5.97 pH	10.69 °C	432.69 µS/cm	0.76 mg/L		195.0 mV	193.00 cm	350.00 ml/min
24/03/2022 10:50	11:00	5.96 pH	10.69 °C	433.12 µS/cm	0.68 mg/L		194.1 mV	193.00 cm	350.00 ml/min
24/03/2022 10:51	12:00	5.96 pH	10.70 °C	433.02 µS/cm	0.61 mg/L		193.6 mV	193.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 23/03/2022 11:43:39
Project: Mobuoy
Operator Name: JB

Location Name: BH214
Well Diameter: 50 cm
Casing Type: Plastic
Screen Length: 8.4 m
Top of Screen: 1 m
Total Depth: 9.11 m
Initial Depth to Water: 6.85 m

Pump Type: Peristaltic
Tubing Type: HDPE
Pump Intake From TOC: 8 m
Estimated Total Volume Pumped: 3500 ml
Flow Cell Volume: 130 ml
Final Flow Rate: 350 ml/min
Final Draw Down: 6.85 m

Instrument Used: Aqua TROLL 500
Serial Number: 791283

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
23/03/2022 11:43	00:00	6.97 pH	15.06 °C	11,345 µS/cm	5.89 mg/L		65.7 mV	685.00 cm	350.00 ml/min
23/03/2022 11:44	01:00	6.99 pH	14.80 °C	11,428 µS/cm	3.75 mg/L		28.3 mV	685.00 cm	350.00 ml/min
23/03/2022 11:45	02:00	6.99 pH	14.67 °C	11,468 µS/cm	2.43 mg/L		-6.2 mV	685.00 cm	350.00 ml/min
23/03/2022 11:46	03:00	7.00 pH	14.53 °C	11,473 µS/cm	1.66 mg/L		-27.9 mV	685.00 cm	350.00 ml/min
23/03/2022 11:47	04:00	7.00 pH	14.34 °C	11,508 µS/cm	1.21 mg/L		-41.4 mV	685.00 cm	350.00 ml/min
23/03/2022 11:48	05:00	7.00 pH	14.29 °C	11,504 µS/cm	0.90 mg/L		-51.3 mV	685.00 cm	350.00 ml/min
23/03/2022 11:49	06:00	7.01 pH	14.26 °C	11,496 µS/cm	0.69 mg/L		-58.7 mV	685.00 cm	350.00 ml/min
23/03/2022 11:50	07:00	7.01 pH	14.32 °C	11,472 µS/cm	0.54 mg/L		-64.0 mV	685.00 cm	350.00 ml/min
23/03/2022 11:51	08:00	7.01 pH	14.35 °C	11,493 µS/cm	0.43 mg/L		-68.5 mV	685.00 cm	350.00 ml/min
23/03/2022 11:52	09:00	7.01 pH	14.39 °C	11,496 µS/cm	0.36 mg/L		-72.1 mV	685.00 cm	350.00 ml/min
23/03/2022 11:53	10:00	7.01 pH	14.32 °C	11,481 µS/cm	0.32 mg/L		-75.2 mV	685.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 23/03/2022 10:51:25
Project: Mobuoy
Operator Name: JB

Location Name: BH215 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 10.5 m** **Top of Screen: 1 m** **Total Depth: 9.3 m** **Initial Depth to Water: 2.08 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5.5 m** **Estimated Total Volume Pumped: 3150 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 2.96 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
23/03/2022 10:51	00:00	6.67 pH	12.36 °C	4,261.3 µS/cm	3.83 mg/L		88.8 mV	208.00 cm	350.00 ml/min
23/03/2022 10:52	01:00	6.69 pH	12.44 °C	4,272.7 µS/cm	2.55 mg/L		55.6 mV	208.00 cm	350.00 ml/min
23/03/2022 10:53	02:00	6.70 pH	12.46 °C	4,260.2 µS/cm	1.82 mg/L		30.7 mV	208.00 cm	350.00 ml/min
23/03/2022 10:54	03:00	6.70 pH	12.21 °C	4,269.5 µS/cm	1.36 mg/L		12.3 mV	208.00 cm	350.00 ml/min
23/03/2022 10:55	04:00	6.70 pH	12.11 °C	4,267.9 µS/cm	1.05 mg/L		-0.3 mV	208.00 cm	350.00 ml/min
23/03/2022 10:56	05:00	6.70 pH	12.07 °C	4,260.2 µS/cm	0.84 mg/L		-9.2 mV	208.00 cm	350.00 ml/min
23/03/2022 10:57	06:00	6.70 pH	11.97 °C	4,267.1 µS/cm	0.68 mg/L		-16.4 mV	208.00 cm	350.00 ml/min
23/03/2022 10:58	07:00	6.70 pH	11.91 °C	4,259.6 µS/cm	0.55 mg/L		-22.2 mV	208.00 cm	350.00 ml/min
23/03/2022 10:59	08:00	6.71 pH	11.91 °C	4,262.9 µS/cm	0.47 mg/L		-26.6 mV	208.00 cm	350.00 ml/min
23/03/2022 11:00	09:00	6.71 pH	11.98 °C	4,256.5 µS/cm	0.42 mg/L		-30.5 mV	208.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 30/03/2022 12:54:55
Project: Mobuoy
Operator Name: JC

Location Name: BH301
Well Diameter: 5 cm
Casing Type: Plastic
Screen Length: 9 m
Top of Screen: 3 m
Total Depth: 12.34 m
Initial Depth to Water: 7.88 m

Pump Type: Perastaltic
Tubing Type: HDPE
Pump Intake From TOC: 9 m
Estimated Total Volume Pumped: 3750 ml
Flow Cell Volume: 130 ml
Final Flow Rate: 250 ml/min
Final Draw Down: 7.81 m

Instrument Used: Aqua TROLL 500
Serial Number: 791283

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
30/03/2022 12:54	00:00	6.67 pH	11.12 °C	903.69 µS/cm	6.19 mg/L	64.7 mV	7.88 m	250.00 ml/min
30/03/2022 12:55	01:00	6.67 pH	11.14 °C	902.10 µS/cm	5.63 mg/L	64.0 mV	7.88 m	250.00 ml/min
30/03/2022 12:56	02:00	6.67 pH	11.16 °C	904.67 µS/cm	5.24 mg/L	63.0 mV	7.88 m	250.00 ml/min
30/03/2022 12:57	03:00	6.66 pH	11.15 °C	903.30 µS/cm	4.85 mg/L	62.0 mV	7.88 m	250.00 ml/min
30/03/2022 12:58	04:00	6.66 pH	11.12 °C	900.99 µS/cm	4.53 mg/L	61.1 mV	7.88 m	250.00 ml/min
30/03/2022 12:59	05:00	6.66 pH	11.13 °C	902.36 µS/cm	4.27 mg/L	60.1 mV	7.88 m	250.00 ml/min
30/03/2022 13:00	06:00	6.66 pH	11.05 °C	902.43 µS/cm	4.08 mg/L	59.8 mV	7.88 m	250.00 ml/min
30/03/2022 13:01	07:00	6.66 pH	11.07 °C	900.75 µS/cm	3.92 mg/L	59.5 mV	7.88 m	250.00 ml/min
30/03/2022 13:02	08:00	6.66 pH	11.02 °C	900.95 µS/cm	3.76 mg/L	59.2 mV	7.88 m	250.00 ml/min
30/03/2022 13:03	09:00	6.66 pH	10.94 °C	897.24 µS/cm	3.64 mg/L	58.6 mV	7.88 m	250.00 ml/min
30/03/2022 13:04	10:00	6.65 pH	10.81 °C	899.63 µS/cm	3.53 mg/L	57.3 mV	7.88 m	250.00 ml/min
30/03/2022 13:05	11:00	6.65 pH	10.86 °C	899.97 µS/cm	3.42 mg/L	57.4 mV	7.88 m	250.00 ml/min
30/03/2022 13:06	12:00	6.64 pH	10.84 °C	899.59 µS/cm	3.32 mg/L	57.0 mV	7.88 m	250.00 ml/min

30/03/2022 13:07	13:00	6.64 pH	10.78 °C	897.64 µS/cm	3.25 mg/L	55.9 mV	7.88 m	250.00 ml/min
30/03/2022 13:08	14:00	6.64 pH	10.78 °C	897.98 µS/cm	3.16 mg/L	54.9 mV	7.88 m	250.00 ml/min
30/03/2022 13:09	15:00	6.64 pH	10.77 °C	897.32 µS/cm	3.09 mg/L	53.9 mV	7.88 m	250.00 ml/min

Samples

Sample ID:	Description:
BH301	

Low-Flow Test Report:

Test Date / Time: 22/03/2022 08:57:34
Project: Mobuoy
Operator Name: JB

Location Name: BH401 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 2 m** **Top of Screen: 7.9 m** **Total Depth: 9.56 m** **Initial Depth to Water: 5.07 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 8.5 m** **Estimated Total Volume Pumped: 1400 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 5.08 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
22/03/2022 08:57	00:00	6.24 pH	11.20 °C	1,291.2 µS/cm	0.39 mg/L		14.6 mV	507.00 cm	350.00 ml/min
22/03/2022 08:58	01:00	6.23 pH	11.20 °C	1,288.3 µS/cm	0.37 mg/L		13.6 mV	507.00 cm	350.00 ml/min
22/03/2022 08:59	02:00	6.22 pH	11.25 °C	1,294.9 µS/cm	0.34 mg/L		11.1 mV	507.00 cm	350.00 ml/min
22/03/2022 09:00	03:00	6.21 pH	11.28 °C	1,298.4 µS/cm	0.31 mg/L		9.0 mV	507.00 cm	350.00 ml/min
22/03/2022 09:01	04:00	6.21 pH	11.32 °C	1,303.3 µS/cm	0.29 mg/L		7.5 mV	507.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 22/03/2022 10:01:51
Project: Mobuoy
Operator Name: JB

Location Name: BH402S **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 2 m** **Top of Screen: 2.5 m** **Total Depth: 4.55 m** **Initial Depth to Water: 3.16 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 3.5 m** **Estimated Total Volume Pumped: 3850 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 4.13 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
22/03/2022 10:01	00:00	6.39 pH	13.08 °C	1,274.0 µS/cm	4.42 mg/L		80.1 mV	316.00 cm	350.00 ml/min
22/03/2022 10:02	01:00	6.42 pH	12.25 °C	1,604.0 µS/cm	2.88 mg/L		72.8 mV	316.00 cm	350.00 ml/min
22/03/2022 10:03	02:00	6.43 pH	11.91 °C	1,601.5 µS/cm	1.82 mg/L		61.9 mV	316.00 cm	350.00 ml/min
22/03/2022 10:04	03:00	6.43 pH	11.59 °C	1,403.0 µS/cm	1.25 mg/L		52.5 mV	316.00 cm	350.00 ml/min
22/03/2022 10:05	04:00	6.44 pH	11.36 °C	1,411.5 µS/cm	0.96 mg/L		44.1 mV	316.00 cm	350.00 ml/min
22/03/2022 10:06	05:00	6.44 pH	11.37 °C	1,416.3 µS/cm	0.74 mg/L		36.9 mV	316.00 cm	350.00 ml/min
22/03/2022 10:07	06:00	6.45 pH	11.50 °C	1,407.8 µS/cm	0.58 mg/L		30.7 mV	316.00 cm	350.00 ml/min
22/03/2022 10:08	07:00	6.45 pH	11.58 °C	1,609.4 µS/cm	0.50 mg/L		25.0 mV	316.00 cm	350.00 ml/min
22/03/2022 10:09	08:00	6.44 pH	11.63 °C	1,609.9 µS/cm	0.46 mg/L		20.0 mV	316.00 cm	350.00 ml/min
22/03/2022 10:10	09:00	6.44 pH	11.56 °C	1,610.8 µS/cm	0.44 mg/L		15.6 mV	316.00 cm	350.00 ml/min
22/03/2022 10:11	10:00	6.45 pH	11.57 °C	1,607.7 µS/cm	0.42 mg/L		12.0 mV	316.00 cm	350.00 ml/min
22/03/2022 10:12	11:00	6.45 pH	11.57 °C	1,608.7 µS/cm	0.38 mg/L		8.7 mV	316.00 cm	350.00 ml/min

Samples

Sample ID:	Description:

GW	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 22/03/2022 10:27:57
Project: Mobuoy
Operator Name: JB

Location Name: BH402D **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 1.5 m** **Top of Screen: 8.5 m** **Total Depth: 10.4 m** **Initial Depth to Water: 4.46 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 8 m** **Estimated Total Volume Pumped: 5250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 4.47 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
22/03/2022 10:27	00:00	6.43 pH	14.10 °C	1,592.8 µS/cm	0.44 mg/L		-18.8 mV	446.00 cm	350.00 ml/min
22/03/2022 10:28	01:00	6.47 pH	12.29 °C	1,628.9 µS/cm	0.77 mg/L		-17.5 mV	446.00 cm	350.00 ml/min
22/03/2022 10:29	02:00	6.47 pH	11.97 °C	1,643.3 µS/cm	0.68 mg/L		-18.7 mV	446.00 cm	350.00 ml/min
22/03/2022 10:30	03:00	6.47 pH	11.83 °C	1,653.9 µS/cm	0.58 mg/L		-18.2 mV	446.00 cm	350.00 ml/min
22/03/2022 10:31	04:00	6.47 pH	11.75 °C	1,651.9 µS/cm	0.51 mg/L		-18.0 mV	446.00 cm	350.00 ml/min
22/03/2022 10:32	05:00	6.47 pH	11.82 °C	1,647.4 µS/cm	0.48 mg/L		-17.1 mV	446.00 cm	350.00 ml/min
22/03/2022 10:33	06:00	6.46 pH	11.85 °C	1,647.9 µS/cm	0.45 mg/L		-16.6 mV	446.00 cm	350.00 ml/min
22/03/2022 10:34	07:00	6.46 pH	11.84 °C	1,284.0 µS/cm	0.41 mg/L		-15.7 mV	446.00 cm	350.00 ml/min
22/03/2022 10:35	08:00	6.46 pH	11.83 °C	1,422.5 µS/cm	0.38 mg/L		-15.3 mV	446.00 cm	350.00 ml/min
22/03/2022 10:36	09:00	6.46 pH	11.74 °C	1,424.2 µS/cm	0.39 mg/L		-14.8 mV	446.00 cm	350.00 ml/min
22/03/2022 10:37	10:00	6.46 pH	11.74 °C	1,427.2 µS/cm	0.38 mg/L		-14.4 mV	446.00 cm	350.00 ml/min
22/03/2022 10:38	11:00	6.46 pH	11.70 °C	1,654.5 µS/cm	0.37 mg/L		-13.9 mV	446.00 cm	350.00 ml/min
22/03/2022 10:39	12:00	6.46 pH	11.70 °C	1,648.3 µS/cm	0.36 mg/L		-13.5 mV	446.00 cm	350.00 ml/min
22/03/2022 10:40	13:00	6.46 pH	11.71 °C	1,648.3 µS/cm	0.34 mg/L		-13.0 mV	446.00 cm	350.00 ml/min
22/03/2022 10:41	14:00	6.46 pH	11.70 °C	1,652.7 µS/cm	0.33 mg/L		-12.6 mV	446.00 cm	350.00 ml/min

22/03/2022 10:42	15:00	6.46 pH	11.69 °C	1,648.5 µS/cm	0.32 mg/L		-12.3 mV	446.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 22/03/2022 15:11:14
Project: Mobuoy
Operator Name: JB

Location Name: BH404 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 10 m** **Top of Screen: 6 m** **Total Depth: 15.25 m** **Initial Depth to Water: 6.35 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 10.5 m** **Estimated Total Volume Pumped: 5250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 6.38 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
22/03/2022 15:11	00:00	6.73 pH	13.88 °C	1,376.2 µS/cm	4.88 mg/L		82.1 mV	635.00 cm	350.00 ml/min
22/03/2022 15:12	01:00	6.72 pH	13.47 °C	1,212.4 µS/cm	3.47 mg/L		81.5 mV	635.00 cm	350.00 ml/min
22/03/2022 15:13	02:00	6.71 pH	13.36 °C	1,264.0 µS/cm	2.64 mg/L		76.5 mV	635.00 cm	350.00 ml/min
22/03/2022 15:14	03:00	6.71 pH	13.18 °C	1,272.8 µS/cm	2.13 mg/L		69.9 mV	635.00 cm	350.00 ml/min
22/03/2022 15:15	04:00	6.71 pH	13.11 °C	1,279.2 µS/cm	1.79 mg/L		62.9 mV	635.00 cm	350.00 ml/min
22/03/2022 15:16	05:00	6.71 pH	12.99 °C	1,600.4 µS/cm	1.54 mg/L		56.4 mV	635.00 cm	350.00 ml/min
22/03/2022 15:17	06:00	6.70 pH	12.94 °C	1,550.2 µS/cm	1.34 mg/L		50.1 mV	635.00 cm	350.00 ml/min
22/03/2022 15:18	07:00	6.70 pH	12.90 °C	1,512.1 µS/cm	1.26 mg/L		44.8 mV	635.00 cm	350.00 ml/min
22/03/2022 15:19	08:00	6.69 pH	12.89 °C	1,473.0 µS/cm	1.14 mg/L		40.0 mV	635.00 cm	350.00 ml/min
22/03/2022 15:20	09:00	6.69 pH	12.87 °C	1,414.1 µS/cm	1.04 mg/L		35.7 mV	635.00 cm	350.00 ml/min
22/03/2022 15:21	10:00	6.68 pH	12.86 °C	1,373.7 µS/cm	0.96 mg/L		31.7 mV	635.00 cm	350.00 ml/min
22/03/2022 15:22	11:00	6.69 pH	12.83 °C	1,356.1 µS/cm	0.90 mg/L		28.3 mV	635.00 cm	350.00 ml/min
22/03/2022 15:23	12:00	6.69 pH	12.80 °C	1,329.1 µS/cm	0.85 mg/L		25.1 mV	635.00 cm	350.00 ml/min
22/03/2022 15:24	13:00	6.69 pH	12.76 °C	1,341.6 µS/cm	0.80 mg/L		22.0 mV	635.00 cm	350.00 ml/min
22/03/2022 15:25	14:00	6.69 pH	12.73 °C	1,356.8 µS/cm	0.77 mg/L		19.4 mV	635.00 cm	350.00 ml/min

22/03/2022 15:26	15:00	6.69 pH	12.76 °C	1,472.3 µS/cm	0.77 mg/L		17.0 mV	635.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 22/03/2022 11:37:04
Project: Mobuoy
Operator Name: JB

Location Name: BH409 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 1 m** **Top of Screen: 7.5 m** **Total Depth: 8.85 m** **Initial Depth to Water: 5.24 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 7 m** **Estimated Total Volume Pumped: 5950 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 5.24 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
22/03/2022 11:37	00:00	6.55 pH	13.64 °C	1,841.5 µS/cm	6.45 mg/L		31.5 mV	524.00 cm	350.00 ml/min
22/03/2022 11:38	01:00	6.45 pH	12.65 °C	1,874.4 µS/cm	4.24 mg/L		43.5 mV	524.00 cm	350.00 ml/min
22/03/2022 11:39	02:00	6.42 pH	12.34 °C	1,887.1 µS/cm	3.03 mg/L		46.5 mV	524.00 cm	350.00 ml/min
22/03/2022 11:40	03:00	6.42 pH	12.01 °C	1,889.9 µS/cm	2.33 mg/L		47.2 mV	524.00 cm	350.00 ml/min
22/03/2022 11:41	04:00	6.41 pH	12.07 °C	1,896.1 µS/cm	1.95 mg/L		46.1 mV	524.00 cm	350.00 ml/min
22/03/2022 11:42	05:00	6.41 pH	12.05 °C	1,893.0 µS/cm	1.70 mg/L		45.0 mV	524.00 cm	350.00 ml/min
22/03/2022 11:43	06:00	6.41 pH	12.08 °C	1,897.0 µS/cm	1.46 mg/L		43.1 mV	524.00 cm	350.00 ml/min
22/03/2022 11:44	07:00	6.41 pH	12.04 °C	1,891.4 µS/cm	1.30 mg/L		41.1 mV	524.00 cm	350.00 ml/min
22/03/2022 11:45	08:00	6.41 pH	11.92 °C	1,888.3 µS/cm	1.20 mg/L		39.0 mV	524.00 cm	350.00 ml/min
22/03/2022 11:46	09:00	6.41 pH	11.79 °C	1,888.9 µS/cm	1.18 mg/L		36.4 mV	524.00 cm	350.00 ml/min
22/03/2022 11:47	10:00	6.41 pH	11.73 °C	1,892.9 µS/cm	1.32 mg/L		34.1 mV	524.00 cm	350.00 ml/min
22/03/2022 11:48	11:00	6.41 pH	11.70 °C	1,895.9 µS/cm	1.52 mg/L		32.1 mV	524.00 cm	350.00 ml/min
22/03/2022 11:49	12:00	6.41 pH	11.63 °C	1,905.7 µS/cm	1.26 mg/L		30.2 mV	524.00 cm	350.00 ml/min
22/03/2022 11:50	13:00	6.40 pH	11.61 °C	1,932.3 µS/cm	0.95 mg/L		29.0 mV	524.00 cm	350.00 ml/min
22/03/2022 11:51	14:00	6.39 pH	11.55 °C	1,958.3 µS/cm	0.72 mg/L		27.7 mV	524.00 cm	350.00 ml/min

22/03/2022 11:52	15:00	6.39 pH	11.58 °C	1,976.7 µS/cm	0.57 mg/L		26.4 mV	524.00 cm	350.00 ml/min
22/03/2022 11:53	16:00	6.39 pH	11.54 °C	1,979.6 µS/cm	0.49 mg/L		25.1 mV	524.00 cm	350.00 ml/min
22/03/2022 11:54	17:00	6.38 pH	11.54 °C	1,986.0 µS/cm	0.44 mg/L		23.8 mV	524.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 22/03/2022 11:03:39
Project: Mobuoy
Operator Name: JB

Location Name: BH410 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 1.5 m** **Top of Screen: 7.8 m** **Total Depth: 10.26 m** **Initial Depth to Water: 5.17 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 8 m** **Estimated Total Volume Pumped: 3150 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 5.17 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
22/03/2022 11:03	00:00	6.48 pH	11.96 °C	2,042.6 µS/cm	4.43 mg/L		11.1 mV	517.00 cm	350.00 ml/min
22/03/2022 11:04	01:00	6.48 pH	11.97 °C	2,023.0 µS/cm	2.77 mg/L		9.3 mV	517.00 cm	350.00 ml/min
22/03/2022 11:05	02:00	6.48 pH	11.85 °C	2,027.3 µS/cm	1.90 mg/L		7.3 mV	517.00 cm	350.00 ml/min
22/03/2022 11:06	03:00	6.48 pH	11.80 °C	2,014.6 µS/cm	1.46 mg/L		5.1 mV	517.00 cm	350.00 ml/min
22/03/2022 11:07	04:00	6.48 pH	11.74 °C	2,007.5 µS/cm	1.19 mg/L		3.1 mV	517.00 cm	350.00 ml/min
22/03/2022 11:08	05:00	6.48 pH	11.72 °C	2,262.2 µS/cm	1.02 mg/L		1.3 mV	517.00 cm	350.00 ml/min
22/03/2022 11:09	06:00	6.48 pH	11.71 °C	2,247.8 µS/cm	0.94 mg/L		0.0 mV	517.00 cm	350.00 ml/min
22/03/2022 11:10	07:00	6.48 pH	11.64 °C	2,241.8 µS/cm	0.90 mg/L		-1.4 mV	517.00 cm	350.00 ml/min
22/03/2022 11:11	08:00	6.49 pH	11.64 °C	2,246.6 µS/cm	0.87 mg/L		-2.7 mV	517.00 cm	350.00 ml/min
22/03/2022 11:12	09:00	6.49 pH	11.68 °C	2,238.7 µS/cm	0.88 mg/L		-3.5 mV	517.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 23/03/2022 09:26:38
Project: Mobuoy
Operator Name: JB

Location Name: BH411 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 3.3 m** **Top of Screen: 3 m** **Total Depth: 6.99 m** **Initial Depth to Water: 3.19 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5 m** **Estimated Total Volume Pumped: 3500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 3.19 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
23/03/2022 09:26	00:00	7.38 pH	10.10 °C	642.81 µS/cm	5.48 mg/L		-21.5 mV	319.00 cm	350.00 ml/min
23/03/2022 09:27	01:00	7.23 pH	10.17 °C	648.80 µS/cm	3.91 mg/L		-12.2 mV	319.00 cm	350.00 ml/min
23/03/2022 09:28	02:00	7.14 pH	10.19 °C	647.43 µS/cm	2.97 mg/L		-6.0 mV	319.00 cm	350.00 ml/min
23/03/2022 09:29	03:00	7.08 pH	10.22 °C	647.97 µS/cm	2.28 mg/L		-0.6 mV	319.00 cm	350.00 ml/min
23/03/2022 09:30	04:00	7.03 pH	10.24 °C	651.52 µS/cm	1.80 mg/L		3.5 mV	319.00 cm	350.00 ml/min
23/03/2022 09:31	05:00	7.00 pH	10.25 °C	651.41 µS/cm	1.48 mg/L		6.2 mV	319.00 cm	350.00 ml/min
23/03/2022 09:32	06:00	6.99 pH	10.28 °C	650.94 µS/cm	1.24 mg/L		8.7 mV	319.00 cm	350.00 ml/min
23/03/2022 09:33	07:00	6.97 pH	10.31 °C	650.34 µS/cm	1.07 mg/L		11.2 mV	319.00 cm	350.00 ml/min
23/03/2022 09:34	08:00	6.96 pH	10.30 °C	649.08 µS/cm	0.95 mg/L		11.6 mV	319.00 cm	350.00 ml/min
23/03/2022 09:35	09:00	6.95 pH	10.32 °C	649.18 µS/cm	0.84 mg/L		13.3 mV	319.00 cm	350.00 ml/min
23/03/2022 09:36	10:00	6.94 pH	10.34 °C	649.16 µS/cm	0.75 mg/L		15.0 mV	319.00 cm	350.00 ml/min

Samples

Sample ID:	**Description:**
GW	

Low-Flow Test Report:

Test Date / Time: 24/03/2022 09:14:59
Project: Mobuoy
Operator Name: JB

Location Name: BH617 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 3 m** **Total Depth: 8.43 m** **Initial Depth to Water: 2.75 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5.5 m** **Estimated Total Volume Pumped: 4550 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 2.75 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
24/03/2022 09:14	00:00	6.73 pH	10.74 °C	1,124.2 µS/cm	8.84 mg/L		212.5 mV	275.00 cm	350.00 ml/min
24/03/2022 09:15	01:00	6.48 pH	10.76 °C	1,134.6 µS/cm	6.51 mg/L		208.6 mV	275.00 cm	350.00 ml/min
24/03/2022 09:16	02:00	6.39 pH	10.65 °C	1,126.6 µS/cm	4.79 mg/L		200.2 mV	275.00 cm	350.00 ml/min
24/03/2022 09:17	03:00	6.35 pH	10.59 °C	1,113.4 µS/cm	3.63 mg/L		191.0 mV	275.00 cm	350.00 ml/min
24/03/2022 09:18	04:00	6.32 pH	10.58 °C	1,110.5 µS/cm	2.86 mg/L		182.8 mV	275.00 cm	350.00 ml/min
24/03/2022 09:19	05:00	6.30 pH	10.56 °C	1,105.5 µS/cm	2.25 mg/L		174.4 mV	275.00 cm	350.00 ml/min
24/03/2022 09:20	06:00	6.29 pH	10.52 °C	1,095.5 µS/cm	1.83 mg/L		166.0 mV	275.00 cm	350.00 ml/min
24/03/2022 09:21	07:00	6.28 pH	10.55 °C	1,107.1 µS/cm	1.52 mg/L		158.9 mV	275.00 cm	350.00 ml/min
24/03/2022 09:22	08:00	6.28 pH	10.61 °C	1,106.6 µS/cm	1.30 mg/L		152.0 mV	275.00 cm	350.00 ml/min
24/03/2022 09:23	09:00	6.27 pH	10.63 °C	1,097.8 µS/cm	1.14 mg/L		145.8 mV	275.00 cm	350.00 ml/min
24/03/2022 09:24	10:00	6.27 pH	10.61 °C	1,083.7 µS/cm	1.03 mg/L		139.6 mV	275.00 cm	350.00 ml/min
24/03/2022 09:25	11:00	6.26 pH	10.62 °C	1,079.5 µS/cm	0.93 mg/L		133.7 mV	275.00 cm	350.00 ml/min
24/03/2022 09:26	12:00	6.26 pH	10.64 °C	1,071.7 µS/cm	0.85 mg/L		128.5 mV	275.00 cm	350.00 ml/min
24/03/2022 09:27	13:00	6.26 pH	10.64 °C	1,055.9 µS/cm	0.78 mg/L		123.6 mV	275.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 28/03/2022 09:42:39
Project: Mobuoy
Operator Name: JC

Location Name: BH625 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 3 m** **Total Depth: 8.07 m** **Initial Depth to Water: 2.34 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5 m** **Estimated Total Volume Pumped: 3500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.34 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
28/03/2022 09:42	00:00	6.58 pH	8.78 °C	1,893.6 µS/cm	6.55 mg/L	127.0 mV	2.34 m	250.00 ml/min
28/03/2022 09:43	01:00	6.57 pH	8.77 °C	1,893.7 µS/cm	5.16 mg/L	126.5 mV	2.34 m	250.00 ml/min
28/03/2022 09:44	02:00	6.56 pH	8.78 °C	1,893.4 µS/cm	4.11 mg/L	122.6 mV	2.34 m	250.00 ml/min
28/03/2022 09:45	03:00	6.56 pH	8.79 °C	1,891.5 µS/cm	3.29 mg/L	116.9 mV	2.34 m	250.00 ml/min
28/03/2022 09:46	04:00	6.55 pH	8.83 °C	1,889.1 µS/cm	2.68 mg/L	112.4 mV	2.34 m	250.00 ml/min
28/03/2022 09:47	05:00	6.55 pH	8.87 °C	1,887.2 µS/cm	2.21 mg/L	107.6 mV	2.34 m	250.00 ml/min
28/03/2022 09:48	06:00	6.54 pH	8.89 °C	1,883.2 µS/cm	1.81 mg/L	100.8 mV	2.34 m	250.00 ml/min
28/03/2022 09:49	07:00	6.54 pH	8.89 °C	1,880.6 µS/cm	1.54 mg/L	95.6 mV	2.34 m	250.00 ml/min
28/03/2022 09:50	08:00	6.53 pH	8.91 °C	1,881.0 µS/cm	1.35 mg/L	89.4 mV	2.34 m	250.00 ml/min
28/03/2022 09:51	09:00	6.52 pH	8.96 °C	1,881.6 µS/cm	1.19 mg/L	83.5 mV	2.34 m	250.00 ml/min
28/03/2022 09:52	10:00	6.52 pH	8.98 °C	1,879.6 µS/cm	1.07 mg/L	77.7 mV	2.34 m	250.00 ml/min
28/03/2022 09:53	11:00	6.51 pH	9.00 °C	1,880.1 µS/cm	0.98 mg/L	72.2 mV	2.34 m	250.00 ml/min
28/03/2022 09:54	12:00	6.50 pH	9.00 °C	1,879.6 µS/cm	0.89 mg/L	67.1 mV	2.34 m	250.00 ml/min

28/03/2022 09:55	13:00	6.50 pH	9.01 °C	1,877.0 µS/cm	0.83 mg/L	62.6 mV	2.34 m	250.00 ml/min
28/03/2022 09:56	14:00	6.49 pH	9.04 °C	1,878.6 µS/cm	0.77 mg/L	58.4 mV	2.34 m	250.00 ml/min

Samples

Sample ID:	Description:
BH625	

Low-Flow Test Report:

Test Date / Time: 24/03/2022 16:01:58
Project: Mobuoy
Operator Name: JB

Location Name: BH626 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 6 m** **Top of Screen: 2 m** **Total Depth: 7.94 m** **Initial Depth to Water: 1.4 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 4.5 m** **Estimated Total Volume Pumped: 4200 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 1.41 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
24/03/2022 16:01	00:00	6.41 pH	9.82 °C	853.12 µS/cm	7.46 mg/L		111.7 mV	140.00 cm	350.00 ml/min
24/03/2022 16:02	01:00	6.46 pH	9.53 °C	863.45 µS/cm	5.41 mg/L		99.7 mV	140.00 cm	350.00 ml/min
24/03/2022 16:03	02:00	6.47 pH	9.55 °C	871.33 µS/cm	3.98 mg/L		90.3 mV	140.00 cm	350.00 ml/min
24/03/2022 16:04	03:00	6.48 pH	9.87 °C	870.29 µS/cm	2.96 mg/L		82.2 mV	140.00 cm	350.00 ml/min
24/03/2022 16:05	04:00	6.49 pH	9.93 °C	874.00 µS/cm	2.26 mg/L		76.1 mV	140.00 cm	350.00 ml/min
24/03/2022 16:06	05:00	6.50 pH	9.88 °C	881.15 µS/cm	1.80 mg/L		70.5 mV	140.00 cm	350.00 ml/min
24/03/2022 16:07	06:00	6.50 pH	9.92 °C	884.87 µS/cm	1.44 mg/L		64.7 mV	140.00 cm	350.00 ml/min
24/03/2022 16:08	07:00	6.51 pH	9.88 °C	889.99 µS/cm	1.18 mg/L		60.1 mV	140.00 cm	350.00 ml/min
24/03/2022 16:09	08:00	6.51 pH	9.85 °C	891.30 µS/cm	0.99 mg/L		56.0 mV	140.00 cm	350.00 ml/min
24/03/2022 16:10	09:00	6.51 pH	9.85 °C	892.40 µS/cm	0.83 mg/L		52.1 mV	140.00 cm	350.00 ml/min
24/03/2022 16:11	10:00	6.52 pH	9.83 °C	894.82 µS/cm	0.70 mg/L		48.5 mV	140.00 cm	350.00 ml/min
24/03/2022 16:12	11:00	6.52 pH	9.83 °C	899.01 µS/cm	0.61 mg/L		46.0 mV	140.00 cm	350.00 ml/min
24/03/2022 16:13	12:00	6.52 pH	9.86 °C	898.36 µS/cm	0.54 mg/L		44.1 mV	140.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 24/03/2022 15:29:23
Project: Mobuoy
Operator Name: JB

Location Name: BH627
Well Diameter: 50 cm
Casing Type: Plastic
Screen Length: 6 m
Top of Screen: 2 m
Total Depth: 7.27 m
Initial Depth to Water: 1.62 m

Pump Type: Peristaltic
Tubing Type: HDPE
Pump Intake From TOC: 4.5 m
Estimated Total Volume Pumped: 5244.167 ml
Flow Cell Volume: 130 ml
Final Flow Rate: 350 ml/min
Final Draw Down: 1.63 m

Instrument Used: Aqua TROLL 500
Serial Number: 791283

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
24/03/2022 15:29	00:00	6.46 pH	10.17 °C	550.40 µS/cm	7.22 mg/L		210.2 mV	162.00 cm	350.00 ml/min
24/03/2022 15:30	01:00	6.52 pH	10.05 °C	544.84 µS/cm	5.32 mg/L		203.6 mV	162.00 cm	350.00 ml/min
24/03/2022 15:31	02:00	6.56 pH	10.00 °C	533.35 µS/cm	3.97 mg/L		196.1 mV	162.00 cm	350.00 ml/min
24/03/2022 15:32	03:00	6.60 pH	9.99 °C	523.60 µS/cm	2.97 mg/L		186.1 mV	162.00 cm	350.00 ml/min
24/03/2022 15:33	04:00	6.62 pH	9.94 °C	513.96 µS/cm	2.29 mg/L		174.9 mV	162.00 cm	350.00 ml/min
24/03/2022 15:34	05:00	6.64 pH	9.87 °C	505.38 µS/cm	1.81 mg/L		163.4 mV	162.00 cm	350.00 ml/min
24/03/2022 15:35	06:00	6.65 pH	9.78 °C	502.87 µS/cm	1.46 mg/L		150.4 mV	162.00 cm	350.00 ml/min
24/03/2022 15:36	07:00	6.66 pH	9.76 °C	502.12 µS/cm	1.20 mg/L		136.5 mV	162.00 cm	350.00 ml/min
24/03/2022 15:37	08:00	6.67 pH	9.73 °C	498.43 µS/cm	1.00 mg/L		123.2 mV	162.00 cm	350.00 ml/min
24/03/2022 15:38	09:00	6.67 pH	9.78 °C	498.27 µS/cm	0.83 mg/L		110.0 mV	162.00 cm	350.00 ml/min
24/03/2022 15:39	10:00	6.68 pH	9.77 °C	499.71 µS/cm	0.71 mg/L		97.5 mV	162.00 cm	350.00 ml/min
24/03/2022 15:40	11:00	6.68 pH	9.75 °C	497.15 µS/cm	0.62 mg/L		86.5 mV	162.00 cm	350.00 ml/min
24/03/2022 15:41	12:00	6.69 pH	9.72 °C	494.70 µS/cm	0.56 mg/L		76.6 mV	162.00 cm	350.00 ml/min
24/03/2022 15:42	13:00	6.69 pH	9.71 °C	498.83 µS/cm	0.51 mg/L		67.6 mV	162.00 cm	350.00 ml/min
24/03/2022 15:43	14:00	6.69 pH	9.74 °C	498.25 µS/cm	0.47 mg/L		60.0 mV	162.00 cm	350.00 ml/min

24/03/2022 15:44	14:59	6.69 pH	9.74 °C	499.25 µS/cm	0.44 mg/L		53.2 mV	162.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 24/03/2022 14:54:07
Project: Mobuoy
Operator Name: JB

Location Name: BH628 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 3 m** **Total Depth: 7.64 m** **Initial Depth to Water: 2.55 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5 m** **Estimated Total Volume Pumped: 4200 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 2.58 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
24/03/2022 14:54	00:00	6.43 pH	10.48 °C	332.47 µS/cm	7.02 mg/L		174.7 mV	255.00 cm	350.00 ml/min
24/03/2022 14:55	01:00	6.44 pH	10.48 °C	336.67 µS/cm	5.14 mg/L		173.0 mV	255.00 cm	350.00 ml/min
24/03/2022 14:56	02:00	6.44 pH	10.25 °C	337.39 µS/cm	3.80 mg/L		170.8 mV	255.00 cm	350.00 ml/min
24/03/2022 14:57	03:00	6.44 pH	10.21 °C	337.61 µS/cm	2.86 mg/L		169.2 mV	255.00 cm	350.00 ml/min
24/03/2022 14:58	04:00	6.44 pH	10.11 °C	337.80 µS/cm	2.22 mg/L		166.9 mV	255.00 cm	350.00 ml/min
24/03/2022 14:59	05:00	6.44 pH	10.10 °C	337.68 µS/cm	1.74 mg/L		164.8 mV	255.00 cm	350.00 ml/min
24/03/2022 15:00	06:00	6.46 pH	10.12 °C	338.14 µS/cm	1.41 mg/L		162.0 mV	255.00 cm	350.00 ml/min
24/03/2022 15:01	07:00	6.45 pH	10.11 °C	337.96 µS/cm	1.19 mg/L		160.8 mV	255.00 cm	350.00 ml/min
24/03/2022 15:02	08:00	6.44 pH	10.16 °C	338.39 µS/cm	0.99 mg/L		160.3 mV	255.00 cm	350.00 ml/min
24/03/2022 15:03	09:00	6.44 pH	10.21 °C	338.72 µS/cm	0.85 mg/L		159.3 mV	255.00 cm	350.00 ml/min
24/03/2022 15:04	10:00	6.44 pH	10.24 °C	338.14 µS/cm	0.74 mg/L		158.5 mV	255.00 cm	350.00 ml/min
24/03/2022 15:05	11:00	6.44 pH	10.20 °C	338.07 µS/cm	0.65 mg/L		158.2 mV	255.00 cm	350.00 ml/min
24/03/2022 15:06	12:00	6.44 pH	10.18 °C	337.83 µS/cm	0.58 mg/L		157.5 mV	255.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 24/03/2022 13:41:23
Project: Mobuoy
Operator Name: JB

Location Name: BH629 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 3 m** **Total Depth: 7.16 m** **Initial Depth to Water: 1.9 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 4 m** **Estimated Total Volume Pumped: 5600 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 1.93 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
24/03/2022 13:41	00:00	6.81 pH	12.59 °C	1,216.4 µS/cm	5.36 mg/L		218.8 mV	190.00 cm	350.00 ml/min
24/03/2022 13:42	01:00	6.88 pH	11.80 °C	1,233.8 µS/cm	3.97 mg/L		205.6 mV	190.00 cm	350.00 ml/min
24/03/2022 13:43	02:00	6.90 pH	11.39 °C	1,239.5 µS/cm	2.94 mg/L		191.6 mV	190.00 cm	350.00 ml/min
24/03/2022 13:44	03:00	6.93 pH	11.00 °C	1,248.1 µS/cm	2.26 mg/L		176.0 mV	190.00 cm	350.00 ml/min
24/03/2022 13:45	04:00	6.94 pH	10.93 °C	1,246.3 µS/cm	1.78 mg/L		160.6 mV	190.00 cm	350.00 ml/min
24/03/2022 13:46	05:00	6.96 pH	10.74 °C	1,247.9 µS/cm	1.43 mg/L		144.0 mV	190.00 cm	350.00 ml/min
24/03/2022 13:47	06:00	6.97 pH	10.77 °C	1,243.6 µS/cm	1.18 mg/L		127.1 mV	190.00 cm	350.00 ml/min
24/03/2022 13:48	07:00	6.97 pH	10.68 °C	1,241.4 µS/cm	1.00 mg/L		112.0 mV	190.00 cm	350.00 ml/min
24/03/2022 13:49	08:00	6.98 pH	10.62 °C	1,242.5 µS/cm	0.86 mg/L		95.8 mV	190.00 cm	350.00 ml/min
24/03/2022 13:50	09:00	6.97 pH	10.67 °C	1,241.5 µS/cm	0.73 mg/L		81.3 mV	190.00 cm	350.00 ml/min
24/03/2022 13:51	10:00	6.99 pH	10.54 °C	1,236.6 µS/cm	0.64 mg/L		67.5 mV	190.00 cm	350.00 ml/min
24/03/2022 13:52	11:00	6.98 pH	10.54 °C	1,235.4 µS/cm	0.56 mg/L		55.5 mV	190.00 cm	350.00 ml/min
24/03/2022 13:53	12:00	6.99 pH	10.48 °C	1,233.4 µS/cm	0.50 mg/L		44.1 mV	190.00 cm	350.00 ml/min
24/03/2022 13:54	13:00	6.98 pH	10.52 °C	1,233.0 µS/cm	0.45 mg/L		35.2 mV	190.00 cm	350.00 ml/min
24/03/2022 13:55	14:00	7.00 pH	10.40 °C	1,233.2 µS/cm	0.41 mg/L		26.3 mV	190.00 cm	350.00 ml/min

24/03/2022 13:56	15:00	7.01 pH	10.44 °C	1,232.9 µS/cm	0.38 mg/L		20.2 mV	190.00 cm	350.00 ml/min
24/03/2022 13:57	16:00	7.00 pH	10.31 °C	1,235.8 µS/cm	0.38 mg/L		16.5 mV	190.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 24/03/2022 14:19:21
Project: Mobuoy
Operator Name: JB

Location Name: BH630 **Well Diameter: 50 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 3 m** **Total Depth: 7.6 m** **Initial Depth to Water: 2.04 m**	**Pump Type: Peristaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 4.5 m** **Estimated Total Volume Pumped: 5600 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 350 ml/min** **Final Draw Down: 2.05 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.3	+/- 1	+/- 20	+/- 5	
24/03/2022 14:19	00:00	6.68 pH	11.50 °C	401.69 µS/cm	5.73 mg/L		91.8 mV	204.00 cm	350.00 ml/min
24/03/2022 14:20	01:00	6.54 pH	11.41 °C	402.20 µS/cm	4.36 mg/L		94.8 mV	204.00 cm	350.00 ml/min
24/03/2022 14:21	02:00	6.46 pH	11.39 °C	405.27 µS/cm	3.44 mg/L		97.0 mV	204.00 cm	350.00 ml/min
24/03/2022 14:22	03:00	6.40 pH	11.72 °C	408.96 µS/cm	2.87 mg/L		98.2 mV	204.00 cm	350.00 ml/min
24/03/2022 14:23	04:00	6.36 pH	12.08 °C	411.95 µS/cm	2.45 mg/L		99.4 mV	204.00 cm	350.00 ml/min
24/03/2022 14:24	05:00	6.33 pH	12.44 °C	414.03 µS/cm	2.15 mg/L		101.2 mV	204.00 cm	350.00 ml/min
24/03/2022 14:25	06:00	6.31 pH	12.76 °C	415.26 µS/cm	1.94 mg/L		103.0 mV	204.00 cm	350.00 ml/min
24/03/2022 14:26	07:00	6.30 pH	13.03 °C	416.10 µS/cm	1.80 mg/L		104.0 mV	204.00 cm	350.00 ml/min
24/03/2022 14:27	08:00	6.25 pH	13.45 °C	419.84 µS/cm	1.69 mg/L		103.5 mV	204.00 cm	350.00 ml/min
24/03/2022 14:28	09:00	6.26 pH	12.75 °C	391.67 µS/cm	1.34 mg/L		106.1 mV	204.00 cm	350.00 ml/min
24/03/2022 14:29	10:00	6.23 pH	11.36 °C	398.94 µS/cm	1.17 mg/L		108.4 mV	204.00 cm	350.00 ml/min
24/03/2022 14:30	11:00	6.22 pH	10.84 °C	401.00 µS/cm	1.02 mg/L		108.7 mV	204.00 cm	350.00 ml/min
24/03/2022 14:31	12:00	6.22 pH	10.53 °C	402.80 µS/cm	0.87 mg/L		108.6 mV	204.00 cm	350.00 ml/min
24/03/2022 14:32	13:00	6.21 pH	10.43 °C	403.51 µS/cm	0.76 mg/L		109.0 mV	204.00 cm	350.00 ml/min
24/03/2022 14:33	14:00	6.22 pH	10.39 °C	403.34 µS/cm	0.66 mg/L		108.4 mV	204.00 cm	350.00 ml/min

24/03/2022 14:34	15:00	6.22 pH	10.29 °C	408.83 µS/cm	0.59 mg/L		108.9 mV	204.00 cm	350.00 ml/min
24/03/2022 14:35	16:00	6.24 pH	10.33 °C	410.36 µS/cm	0.54 mg/L		108.5 mV	204.00 cm	350.00 ml/min

Samples

Sample ID:	Description:
GW	

Low-Flow Test Report:

Test Date / Time: 28/03/2022 11:06:44
Project: Mobuoy
Operator Name: JC

Location Name: BH632 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 6 m** **Top of Screen: 4 m** **Total Depth: 10.1 m** **Initial Depth to Water: 0.91 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5 m** **Estimated Total Volume Pumped: 3750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.14 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
28/03/2022 11:06	00:00	6.78 pH	10.37 °C	1,587.3 µS/cm	7.52 mg/L	51.2 mV	0.91 m	250.00 ml/min
28/03/2022 11:07	01:00	6.68 pH	10.30 °C	1,588.9 µS/cm	5.83 mg/L	55.2 mV	0.91 m	250.00 ml/min
28/03/2022 11:08	02:00	6.64 pH	10.20 °C	1,594.5 µS/cm	4.54 mg/L	56.4 mV	0.91 m	250.00 ml/min
28/03/2022 11:09	03:00	6.62 pH	10.40 °C	1,595.5 µS/cm	3.60 mg/L	56.2 mV	0.91 m	250.00 ml/min
28/03/2022 11:10	04:00	6.60 pH	10.27 °C	1,601.9 µS/cm	2.93 mg/L	55.6 mV	0.91 m	250.00 ml/min
28/03/2022 11:11	05:00	6.61 pH	10.26 °C	1,602.9 µS/cm	2.42 mg/L	56.9 mV	0.91 m	250.00 ml/min
28/03/2022 11:12	06:00	6.61 pH	10.25 °C	1,600.6 µS/cm	2.03 mg/L	56.2 mV	0.91 m	250.00 ml/min
28/03/2022 11:13	07:00	6.60 pH	10.24 °C	1,598.5 µS/cm	1.73 mg/L	55.8 mV	0.91 m	250.00 ml/min
28/03/2022 11:14	08:00	6.60 pH	10.23 °C	1,597.7 µS/cm	1.49 mg/L	56.3 mV	0.91 m	250.00 ml/min
28/03/2022 11:15	09:00	6.60 pH	10.20 °C	1,593.6 µS/cm	1.31 mg/L	56.1 mV	0.91 m	250.00 ml/min
28/03/2022 11:16	10:00	6.60 pH	10.20 °C	1,590.7 µS/cm	1.16 mg/L	55.5 mV	0.91 m	250.00 ml/min
28/03/2022 11:17	11:00	6.59 pH	10.18 °C	1,588.7 µS/cm	1.03 mg/L	55.4 mV	0.91 m	250.00 ml/min
28/03/2022 11:18	12:00	6.59 pH	10.23 °C	1,589.1 µS/cm	0.93 mg/L	55.4 mV	0.91 m	250.00 ml/min

28/03/2022 11:19	13:00	6.59 pH	10.28 °C	1,583.4 µS/cm	0.83 mg/L	54.8 mV	0.91 m	250.00 ml/min
28/03/2022 11:20	14:00	6.59 pH	10.15 °C	1,580.0 µS/cm	0.77 mg/L	54.0 mV	0.91 m	250.00 ml/min
28/03/2022 11:21	15:00	6.58 pH	10.11 °C	1,581.6 µS/cm	0.73 mg/L	53.9 mV	0.91 m	250.00 ml/min

Samples

Sample ID:	Description:
BH632	

Low-Flow Test Report:

Test Date / Time: 05/04/2022 15:11:26
Project: Mobuoy
Operator Name: JC

Location Name: BH656 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 0.5 m** **Total Depth: 5.84 m** **Initial Depth to Water: 5.41 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 5.7 m** **Estimated Total Volume Pumped: 4250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 5.41 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
05/04/2022 15:11	00:00	6.73 pH	10.47 °C	2,841.0 µS/cm	9.64 mg/L	160.5 mV	5.41 m	250.00 ml/min
05/04/2022 15:12	01:00	6.74 pH	10.48 °C	2,846.1 µS/cm	7.74 mg/L	149.2 mV	5.41 m	250.00 ml/min
05/04/2022 15:13	02:00	6.75 pH	10.50 °C	2,841.4 µS/cm	6.37 mg/L	140.5 mV	5.41 m	250.00 ml/min
05/04/2022 15:14	03:00	6.75 pH	10.48 °C	2,835.2 µS/cm	5.28 mg/L	131.2 mV	5.41 m	250.00 ml/min
05/04/2022 15:15	04:00	6.75 pH	10.46 °C	2,821.6 µS/cm	4.46 mg/L	121.4 mV	5.41 m	250.00 ml/min
05/04/2022 15:16	05:00	6.75 pH	10.45 °C	2,819.5 µS/cm	3.84 mg/L	111.3 mV	5.41 m	250.00 ml/min
05/04/2022 15:17	06:00	6.75 pH	10.46 °C	2,812.4 µS/cm	3.33 mg/L	100.0 mV	5.41 m	250.00 ml/min
05/04/2022 15:18	07:00	6.75 pH	10.48 °C	2,802.4 µS/cm	2.93 mg/L	88.3 mV	5.41 m	250.00 ml/min
05/04/2022 15:19	08:00	6.75 pH	10.50 °C	2,800.2 µS/cm	2.62 mg/L	77.2 mV	5.41 m	250.00 ml/min
05/04/2022 15:20	09:00	6.75 pH	10.52 °C	2,791.9 µS/cm	2.35 mg/L	66.0 mV	5.41 m	250.00 ml/min
05/04/2022 15:21	10:00	6.75 pH	10.54 °C	2,789.1 µS/cm	2.14 mg/L	55.7 mV	5.41 m	250.00 ml/min
05/04/2022 15:22	11:00	6.75 pH	10.57 °C	2,795.1 µS/cm	1.98 mg/L	46.6 mV	5.41 m	250.00 ml/min
05/04/2022 15:23	12:00	6.75 pH	10.55 °C	2,784.6 µS/cm	1.84 mg/L	38.4 mV	5.41 m	250.00 ml/min

05/04/2022 15:24	13:00	6.75 pH	10.49 °C	2,780.5 µS/cm	1.73 mg/L	31.0 mV	5.41 m	250.00 ml/min
05/04/2022 15:25	14:00	6.75 pH	10.51 °C	2,781.7 µS/cm	1.63 mg/L	24.7 mV	5.41 m	250.00 ml/min
05/04/2022 15:26	15:00	6.75 pH	10.54 °C	2,780.9 µS/cm	1.54 mg/L	18.8 mV	5.41 m	250.00 ml/min
05/04/2022 15:27	16:00	6.75 pH	10.57 °C	2,779.5 µS/cm	1.46 mg/L	13.7 mV	5.41 m	250.00 ml/min
05/04/2022 15:28	17:00	6.75 pH	10.62 °C	2,780.9 µS/cm	1.38 mg/L	9.6 mV	5.41 m	250.00 ml/min

Samples

Sample ID:	Description:
BH656	

Low-Flow Test Report:

Test Date / Time: 05/04/2022 14:10:38
Project: Mobuoy (4)
Operator Name: JC

Location Name: BH657 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 3 m** **Top of Screen: 0.9 m** **Total Depth: 4.19 m** **Initial Depth to Water: 3.55 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 3.8 m** **Estimated Total Volume Pumped: 5250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 3.55 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
05/04/2022 14:10	00:00	7.03 pH	10.74 °C	377.70 µS/cm	10.57 mg/L	108.3 mV	3.55 m	250.00 ml/min
05/04/2022 14:11	01:00	6.94 pH	10.10 °C	398.64 µS/cm	10.82 mg/L	110.2 mV	3.55 m	250.00 ml/min
05/04/2022 14:12	02:00	6.86 pH	10.07 °C	316.02 µS/cm	10.78 mg/L	112.8 mV	3.55 m	250.00 ml/min
05/04/2022 14:13	03:00	6.78 pH	10.13 °C	274.97 µS/cm	10.64 mg/L	115.4 mV	3.55 m	250.00 ml/min
05/04/2022 14:14	04:00	6.73 pH	10.22 °C	220.44 µS/cm	10.53 mg/L	117.6 mV	3.55 m	250.00 ml/min
05/04/2022 14:15	05:00	6.70 pH	10.25 °C	130.11 µS/cm	10.41 mg/L	119.5 mV	3.55 m	250.00 ml/min
05/04/2022 14:16	06:00	6.67 pH	10.27 °C	132.34 µS/cm	10.28 mg/L	121.4 mV	3.55 m	250.00 ml/min
05/04/2022 14:17	07:00	6.64 pH	10.24 °C	97.11 µS/cm	10.15 mg/L	122.9 mV	3.55 m	250.00 ml/min
05/04/2022 14:18	08:00	6.62 pH	10.18 °C	63.17 µS/cm	10.06 mg/L	124.2 mV	3.55 m	250.00 ml/min
05/04/2022 14:19	09:00	6.61 pH	10.13 °C	16.48 µS/cm	9.98 mg/L	125.4 mV	3.55 m	250.00 ml/min
05/04/2022 14:20	10:00	6.60 pH	10.08 °C	11.40 µS/cm	9.88 mg/L	126.6 mV	3.55 m	250.00 ml/min
05/04/2022 14:21	11:00	6.60 pH	10.02 °C	13.54 µS/cm	9.79 mg/L	127.6 mV	3.55 m	250.00 ml/min
05/04/2022 14:22	12:00	6.60 pH	9.99 °C	8.54 µS/cm	9.68 mg/L	128.7 mV	3.55 m	250.00 ml/min

05/04/2022 14:23	13:00	6.60 pH	9.95 °C	7.93 µS/cm	9.60 mg/L	129.7 mV	3.55 m	250.00 ml/min
05/04/2022 14:24	14:00	6.61 pH	10.01 °C	6.07 µS/cm	9.49 mg/L	130.4 mV	3.55 m	250.00 ml/min
05/04/2022 14:25	15:00	6.61 pH	10.06 °C	5.24 µS/cm	9.40 mg/L	131.2 mV	3.55 m	250.00 ml/min
05/04/2022 14:26	16:00	6.62 pH	10.09 °C	5.40 µS/cm	9.31 mg/L	131.9 mV	3.55 m	250.00 ml/min
05/04/2022 14:27	17:00	6.62 pH	10.11 °C	5.01 µS/cm	9.24 mg/L	132.5 mV	3.55 m	250.00 ml/min
05/04/2022 14:28	18:00	6.62 pH	10.13 °C	5.08 µS/cm	9.17 mg/L	133.2 mV	3.55 m	250.00 ml/min
05/04/2022 14:29	19:00	6.62 pH	10.14 °C	4.72 µS/cm	9.10 mg/L	133.9 mV	3.55 m	250.00 ml/min
05/04/2022 14:30	20:00	6.62 pH	10.15 °C	4.87 µS/cm	9.04 mg/L	134.4 mV	3.55 m	250.00 ml/min
05/04/2022 14:31	21:00	6.62 pH	10.16 °C	4.30 µS/cm	8.96 mg/L	135.0 mV	3.55 m	250.00 ml/min

Samples

Sample ID:	Description:
BH657	

Low-Flow Test Report:

Test Date / Time: 05/04/2022 12:20:25
Project: Mobuoy
Operator Name: JC

Location Name: BH658 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 4.5 m** **Top of Screen: 5.5 m** **Total Depth: 10.06 m** **Initial Depth to Water: 2.58 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 7.8 m** **Estimated Total Volume Pumped: 4912.5 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.59 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
05/04/2022 12:20	00:00	6.55 pH	9.80 °C	839.04 µS/cm	9.53 mg/L	139.0 mV	2.58 m	250.00 ml/min
05/04/2022 12:21	01:00	6.65 pH	9.81 °C	854.96 µS/cm	7.83 mg/L	115.9 mV	2.58 m	250.00 ml/min
05/04/2022 12:22	02:00	6.67 pH	9.78 °C	860.15 µS/cm	6.37 mg/L	99.0 mV	2.58 m	250.00 ml/min
05/04/2022 12:23	03:00	6.69 pH	9.80 °C	862.18 µS/cm	5.21 mg/L	85.7 mV	2.58 m	250.00 ml/min
05/04/2022 12:24	04:00	6.71 pH	9.80 °C	861.90 µS/cm	4.27 mg/L	73.9 mV	2.58 m	250.00 ml/min
05/04/2022 12:25	05:00	6.72 pH	9.79 °C	862.51 µS/cm	3.58 mg/L	65.2 mV	2.58 m	250.00 ml/min
05/04/2022 12:26	06:00	6.73 pH	9.81 °C	863.26 µS/cm	3.02 mg/L	57.2 mV	2.58 m	250.00 ml/min
05/04/2022 12:27	07:00	6.74 pH	9.80 °C	863.16 µS/cm	2.57 mg/L	50.3 mV	2.58 m	250.00 ml/min
05/04/2022 12:28	08:00	6.74 pH	9.82 °C	863.86 µS/cm	2.22 mg/L	44.8 mV	2.58 m	250.00 ml/min
05/04/2022 12:29	09:00	6.74 pH	9.83 °C	864.03 µS/cm	1.93 mg/L	40.0 mV	2.58 m	250.00 ml/min
05/04/2022 12:30	10:00	6.74 pH	9.81 °C	863.39 µS/cm	1.70 mg/L	35.8 mV	2.58 m	250.00 ml/min
05/04/2022 12:31	11:00	6.75 pH	9.79 °C	863.73 µS/cm	1.53 mg/L	32.3 mV	2.58 m	250.00 ml/min
05/04/2022 12:32	12:00	6.75 pH	9.78 °C	863.82 µS/cm	1.38 mg/L	28.8 mV	2.58 m	250.00 ml/min

05/04/2022 12:36	15:39	6.75 pH	9.67 °C	864.19 µS/cm	1.02 mg/L	19.6 mV	2.58 m	250.00 ml/min
05/04/2022 12:37	16:39	6.76 pH	9.68 °C	865.37 µS/cm	0.94 mg/L	16.8 mV	2.58 m	250.00 ml/min
05/04/2022 12:38	17:39	6.76 pH	9.76 °C	865.63 µS/cm	0.89 mg/L	14.9 mV	2.58 m	250.00 ml/min
05/04/2022 12:39	18:39	6.76 pH	9.80 °C	864.94 µS/cm	0.85 mg/L	13.2 mV	2.58 m	250.00 ml/min
05/04/2022 12:40	19:39	6.76 pH	9.80 °C	864.88 µS/cm	0.82 mg/L	11.4 mV	2.58 m	250.00 ml/min

Samples

Sample ID:	Description:
BH658	

Low-Flow Test Report:

Test Date / Time: 05/04/2022 10:11:56
Project: Mobuoy
Operator Name: JC

Location Name: BH661 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5.5 m** **Top of Screen: 4.5 m** **Total Depth: 7.28 m** **Initial Depth to Water: 1.74 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 6 m** **Estimated Total Volume Pumped: 2750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 1.76 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
05/04/2022 10:11	00:00	6.94 pH	9.42 °C	1,325.4 µS/cm	6.69 mg/L	124.1 mV	1.74 m	250.00 ml/min
05/04/2022 10:12	01:00	6.92 pH	9.43 °C	1,323.0 µS/cm	5.81 mg/L	113.0 mV	1.74 m	250.00 ml/min
05/04/2022 10:13	02:00	6.91 pH	9.39 °C	1,321.1 µS/cm	5.12 mg/L	101.1 mV	1.74 m	250.00 ml/min
05/04/2022 10:14	03:00	6.90 pH	9.37 °C	1,320.5 µS/cm	4.62 mg/L	87.0 mV	1.74 m	250.00 ml/min
05/04/2022 10:15	04:00	6.91 pH	9.33 °C	1,320.4 µS/cm	4.25 mg/L	74.9 mV	1.74 m	250.00 ml/min
05/04/2022 10:16	05:00	6.91 pH	9.37 °C	1,320.9 µS/cm	3.98 mg/L	65.4 mV	1.74 m	250.00 ml/min
05/04/2022 10:17	06:00	6.92 pH	9.42 °C	1,319.7 µS/cm	3.79 mg/L	55.0 mV	1.74 m	250.00 ml/min
05/04/2022 10:18	07:00	6.93 pH	9.41 °C	1,318.5 µS/cm	3.66 mg/L	45.2 mV	1.74 m	250.00 ml/min
05/04/2022 10:19	08:00	6.92 pH	9.40 °C	1,317.3 µS/cm	3.54 mg/L	38.1 mV	1.74 m	250.00 ml/min
05/04/2022 10:20	09:00	6.91 pH	9.42 °C	1,317.1 µS/cm	3.47 mg/L	32.2 mV	1.74 m	250.00 ml/min
05/04/2022 10:21	10:00	6.92 pH	9.41 °C	1,315.5 µS/cm	3.50 mg/L	27.4 mV	1.74 m	250.00 ml/min
05/04/2022 10:22	11:00	6.92 pH	9.40 °C	1,315.9 µS/cm	3.57 mg/L	24.0 mV	1.74 m	250.00 ml/min

Samples

Sample ID:	Description:
BH661	

Low-Flow Test Report:

Test Date / Time: 05/04/2022 11:32:10
Project: Mobuoy
Operator Name: JC

Location Name: BH662 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 5 m** **Top of Screen: 2 m** **Total Depth: 5.21 m** **Initial Depth to Water: 2.17 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 3.5 m** **Estimated Total Volume Pumped: 4000 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 2.65 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
05/04/2022 11:32	00:00	6.36 pH	9.06 °C	400.53 µS/cm	9.98 mg/L	141.8 mV	2.17 m	250.00 ml/min
05/04/2022 11:33	01:00	6.40 pH	8.94 °C	405.62 µS/cm	8.07 mg/L	138.6 mV	2.17 m	250.00 ml/min
05/04/2022 11:34	02:00	6.40 pH	8.92 °C	406.01 µS/cm	6.44 mg/L	138.1 mV	2.17 m	250.00 ml/min
05/04/2022 11:35	03:00	6.43 pH	8.91 °C	403.86 µS/cm	5.20 mg/L	134.8 mV	2.17 m	250.00 ml/min
05/04/2022 11:36	04:00	6.46 pH	8.91 °C	403.09 µS/cm	4.29 mg/L	131.9 mV	2.17 m	250.00 ml/min
05/04/2022 11:37	05:00	6.46 pH	8.87 °C	400.49 µS/cm	3.55 mg/L	130.1 mV	2.17 m	250.00 ml/min
05/04/2022 11:38	06:00	6.49 pH	8.92 °C	399.84 µS/cm	2.99 mg/L	128.0 mV	2.17 m	250.00 ml/min
05/04/2022 11:39	07:00	6.49 pH	8.92 °C	399.19 µS/cm	2.60 mg/L	126.5 mV	2.17 m	250.00 ml/min
05/04/2022 11:40	08:00	6.48 pH	8.93 °C	397.32 µS/cm	2.27 mg/L	125.4 mV	2.17 m	250.00 ml/min
05/04/2022 11:41	09:00	6.48 pH	8.92 °C	393.65 µS/cm	2.00 mg/L	124.0 mV	2.17 m	250.00 ml/min
05/04/2022 11:42	10:00	6.48 pH	8.92 °C	392.13 µS/cm	1.78 mg/L	123.2 mV	2.17 m	250.00 ml/min
05/04/2022 11:43	11:00	6.47 pH	8.92 °C	392.57 µS/cm	1.60 mg/L	122.5 mV	2.17 m	250.00 ml/min
05/04/2022 11:44	12:00	6.45 pH	8.91 °C	387.70 µS/cm	1.45 mg/L	122.6 mV	2.17 m	250.00 ml/min

05/04/2022 11:45	13:00	6.47 pH	8.91 °C	383.28 µS/cm	1.34 mg/L	121.1 mV	2.17 m	250.00 ml/min
05/04/2022 11:46	14:00	6.46 pH	8.91 °C	381.02 µS/cm	1.26 mg/L	120.1 mV	2.17 m	250.00 ml/min
05/04/2022 11:47	15:00	6.43 pH	8.90 °C	377.45 µS/cm	1.19 mg/L	120.6 mV	2.17 m	250.00 ml/min
05/04/2022 11:48	16:00	6.44 pH	8.90 °C	378.07 µS/cm	1.14 mg/L	119.4 mV	2.17 m	250.00 ml/min

Samples

Sample ID:	Description:
BH662	

Low-Flow Test Report:

Test Date / Time: 05/04/2022 10:54:38
Project: Mobuoy
Operator Name: JC

Location Name: BH664 **Well Diameter: 5 cm** **Casing Type: Plastic** **Screen Length: 4 m** **Top of Screen: 2 m** **Total Depth: 5.88 m** **Initial Depth to Water: 0.98 m**	**Pump Type: Perastaltic** **Tubing Type: HDPE** **Pump Intake From TOC: 3.5 m** **Estimated Total Volume Pumped: 3500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 0.98 m**	**Instrument Used: Aqua TROLL 500** **Serial Number: 791283**

Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 0.2	+/- 0.2	+/- 3 %	+/- 0.2	+/- 20		
05/04/2022 10:54	00:00	7.29 pH	8.82 °C	223.28 µS/cm	9.81 mg/L	26.4 mV	0.98 m	250.00 ml/min
05/04/2022 10:55	01:00	7.11 pH	8.92 °C	213.44 µS/cm	8.87 mg/L	29.6 mV	0.98 m	250.00 ml/min
05/04/2022 10:56	02:00	6.93 pH	8.85 °C	208.87 µS/cm	8.21 mg/L	36.3 mV	0.98 m	250.00 ml/min
05/04/2022 10:57	03:00	6.78 pH	8.78 °C	206.12 µS/cm	7.65 mg/L	42.6 mV	0.98 m	250.00 ml/min
05/04/2022 10:58	04:00	6.67 pH	8.76 °C	204.82 µS/cm	7.20 mg/L	48.6 mV	0.98 m	250.00 ml/min
05/04/2022 10:59	05:00	6.59 pH	8.71 °C	202.98 µS/cm	6.88 mg/L	55.4 mV	0.98 m	250.00 ml/min
05/04/2022 11:00	06:00	6.52 pH	8.70 °C	202.64 µS/cm	6.60 mg/L	61.6 mV	0.98 m	250.00 ml/min
05/04/2022 11:01	07:00	6.44 pH	8.66 °C	202.38 µS/cm	6.40 mg/L	67.9 mV	0.98 m	250.00 ml/min
05/04/2022 11:02	08:00	6.40 pH	8.65 °C	202.24 µS/cm	6.21 mg/L	73.3 mV	0.98 m	250.00 ml/min
05/04/2022 11:03	09:00	6.35 pH	8.62 °C	203.06 µS/cm	6.07 mg/L	79.1 mV	0.98 m	250.00 ml/min
05/04/2022 11:04	10:00	6.31 pH	8.61 °C	202.71 µS/cm	5.96 mg/L	84.8 mV	0.98 m	250.00 ml/min
05/04/2022 11:05	11:00	6.29 pH	8.60 °C	202.26 µS/cm	5.86 mg/L	89.5 mV	0.98 m	250.00 ml/min
05/04/2022 11:06	12:00	6.26 pH	8.57 °C	202.28 µS/cm	5.78 mg/L	94.2 mV	0.98 m	250.00 ml/min

05/04/2022 11:07	13:00	6.24 pH	8.59 °C	202.06 µS/cm	5.72 mg/L	98.3 mV	0.98 m	250.00 ml/min
05/04/2022 11:08	14:00	6.22 pH	8.59 °C	201.77 µS/cm	5.66 mg/L	102.2 mV	0.98 m	250.00 ml/min

Samples

Sample ID:	Description:
BH664	

Created using VuSitu from In-Situ, Inc.

APPENDIX 5 – GROUNDWATER SAMPLING FIELD CALIBRATION REPORTS

Calibration Report

Instrument	Aqua TROLL 500
Serial Number	791283
Created	18/01/2022

Sensor	**RDO**
Serial Number	782457
Last Calibrated	10/01/2022

Calibration Details

Slope	0.9554015
Offset	0.00 mg/L

Calibration point 100%

Concentration	10.19 mg/L
Pre Measurement	120.05 %Sat
Post Measurement	100.00 %Sat
Temperature	16.49 °C
Barometric Pressure	1,009.7 mbar

Pre Measurement

RDO Concentration	8.52 mg/L

Post Measurement

RDO Concentration	10.00 mg/L

Sensor	**pH/ORP**
Serial Number	758648

Last Calibrated	18/01/2022

Calibration Details

Calibration Point 1

pH of Buffer	7.04 pH
pH mV	-26.2 mV
Temperature	8.52 °C

Pre Measurement

pH	7.38 pH
pH mV	-27.0 mV

Post Measurement

pH	7.04 pH
pH mV	-24.7 mV

Slope and Offset 1

Slope	-55.89 mV/pH
Offset	-23.9 mV

ORP

ORP Solution	Quick-Cal
Offset	8.5 mV
Temperature	8.52 °C
Pre Measurement	263.0 mV
Post Measurement	248.4 mV

Sensor	**Conductivity**

Serial Number	780112
Last Calibrated	18/01/2022

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	1.02
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	4,525.0 µS/cm
Specific Conductivity	6,603.8 µS/cm

Post Measurement

Actual Conductivity	5,481.7 µS/cm
Specific Conductivity	8,000.0 µS/cm

Calibration Report

Instrument	Aqua TROLL 500
Serial Number	791283
Created	10/01/2022

Sensor	**RDO**
Serial Number	782457
Last Calibrated	10/01/2022

Calibration Details

Slope	0.9554015
Offset	0.00 mg/L

Calibration point 100%

Concentration	10.19 mg/L
Pre Measurement	120.05 %Sat
Post Measurement	100.00 %Sat
Temperature	16.49 °C
Barometric Pressure	1,009.7 mbar

Pre Measurement

RDO Concentration	8.52 mg/L

Post Measurement

RDO Concentration	10.00 mg/L

Sensor	**pH/ORP**
Serial Number	758648
Last Calibrated	10/03/2021

Calibration Details

Calibration Point 1

pH of Buffer	7.02 pH
pH mV	-7.3 mV
Temperature	21.06 °C

Pre Measurement

pH	7.02 pH
pH mV	-7.2 mV

Post Measurement

pH	7.02 pH
pH mV	-7.2 mV

Slope and Offset 1

Slope	-58.38 mV/pH
Offset	-6.1 mV

ORP

ORP Solution	ZoBell's
Offset	26.9 mV
Temperature	21.41 °C
Pre Measurement	218.6 mV
Post Measurement	233.8 mV

Sensor	**Conductivity**
Serial Number	780112
Last Calibrated	10/03/2021

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	0.843
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	216,337 µS/cm
Specific Conductivity	236,546 µS/cm

Post Measurement

Actual Conductivity	182,914 µS/cm

Specific Conductivity	200,000 µS/cm

Calibration Report

Instrument	Aqua TROLL 500
Serial Number	791283
Created	04/04/2022

Sensor	**RDO**
Serial Number	782457
Last Calibrated	10/01/2022

Calibration Details

Slope	0.9554015
Offset	0.00 mg/L

Calibration point 100%

Concentration	10.19 mg/L
Pre Measurement	120.05 %Sat
Post Measurement	100.00 %Sat
Temperature	16.49 °C
Barometric Pressure	1,009.7 mbar

Pre Measurement

RDO Concentration	8.52 mg/L

Post Measurement

RDO Concentration	10.00 mg/L

Sensor	**pH/ORP**
Serial Number	758648
Last Calibrated	04/04/2022

Calibration Details

Calibration Point 1

pH of Buffer	7.03 pH
pH mV	-32.4 mV
Temperature	10.84 °C

Pre Measurement

pH	7.03 pH
pH mV	-33.2 mV

Post Measurement

pH	7.03 pH
pH mV	-30.8 mV

Slope and Offset 1

Slope	-56.35 mV/pH
Offset	-30.7 mV

ORP

ORP Solution	Quick-Cal
Offset	42.0 mV
Temperature	10.84 °C
Pre Measurement	299.7 mV
Post Measurement	244.9 mV

Sensor	**Conductivity**
Serial Number	780112
Last Calibrated	04/04/2022

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	1.02
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	5,941.8 µS/cm
Specific Conductivity	8,145.1 µS/cm

Post Measurement

Actual Conductivity	5,835.9 µS/cm
Specific Conductivity	8,000.0 µS/cm

Calibration Report

Instrument	Aqua TROLL 500
Serial Number	791283
Created	01/04/2022

Sensor	**RDO**
Serial Number	782457

Last Calibrated	10/01/2022

Calibration Details

Slope	0.9554015
Offset	0.00 mg/L

Calibration point 100%

Concentration	10.19 mg/L
Pre Measurement	120.05 %Sat
Post Measurement	100.00 %Sat
Temperature	16.49 °C
Barometric Pressure	1,009.7 mbar

Pre Measurement

RDO Concentration	8.52 mg/L

Post Measurement

RDO Concentration	10.00 mg/L

Sensor	**pH/ORP**
Serial Number	758648
Last Calibrated	01/04/2022

Calibration Details

Calibration Point 1

pH of Buffer	7.04 pH
pH mV	-33.4 mV
Temperature	5.63 °C

Pre Measurement

pH	7.12 pH
pH mV	-33.7 mV

Post Measurement

pH	7.04 pH
pH mV	-31.2 mV

Slope and Offset 1

Slope	-55.32 mV/pH
Offset	-31.2 mV

ORP

ORP Solution	Quick-Cal
Offset	97.5 mV
Temperature	5.63 °C
Pre Measurement	208.3 mV
Post Measurement	252.7 mV

Sensor	**Conductivity**
Serial Number	780112
Last Calibrated	01/04/2022

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	1.106
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	4,575.6 µS/cm

Specific Conductivity	7,263.6 µS/cm

Post Measurement

Actual Conductivity	5,039.5 µS/cm
Specific Conductivity	8,000.0 µS/cm

Calibration Report

Instrument	Aqua TROLL 500
Serial Number	791283
Created	22/03/2022

Sensor	**RDO**
Serial Number	782457
Last Calibrated	10/01/2022

Calibration Details

Slope	0.9554015
Offset	0.00 mg/L

Calibration point 100%

Concentration	10.19 mg/L
Pre Measurement	120.05 %Sat
Post Measurement	100.00 %Sat
Temperature	16.49 °C
Barometric Pressure	1,009.7 mbar

Pre Measurement

RDO Concentration	8.52 mg/L

Post Measurement

RDO Concentration	10.00 mg/L

Sensor	**pH/ORP**
Serial Number	758648
Last Calibrated	22/03/2022

Calibration Details

Calibration Point 1

pH of Buffer	7.03 pH
pH mV	-29.4 mV
Temperature	12.28 °C

Pre Measurement

pH	7.11 pH
pH mV	-30.2 mV

Post Measurement

pH	7.03 pH
pH mV	-28.1 mV

Slope and Offset 1

Slope	-56.64 mV/pH
Offset	-27.7 mV

ORP

ORP Solution	Quick-Cal
Offset	56.3 mV

Temperature	12.28 °C
Pre Measurement	193.3 mV
Post Measurement	242.7 mV

Sensor	**Conductivity**
Serial Number	780112
Last Calibrated	22/03/2022

Calibration Details

TDS Conversion Factor (ppm)	0.65
Cell Constant	1.003
Reference Temperature	25.00 °C

Pre Measurement

Actual Conductivity	6,123.4 µS/cm
Specific Conductivity	8,087.9 µS/cm

Post Measurement

Actual Conductivity	6,056.8 µS/cm
Specific Conductivity	8,000.0 µS/cm

APPENDIX 6 – SOILS ASSESSMENT SUMMARY

Contaminant GAC	Public Open Space - Park (1% SOM)	BH601R	BH601R	BH601R	BH602R	BH602R	BH602R	BH603	BH603	BH603R	BH603R	BH607
	Depth (m)	**1.00**	**4.00**	**5.50**	**1.00**	**3.00**	**4.00**	**1.00**	**2.00**	**3.00**	**6.00**	**0.20**
Heavy Metals	**mg/kg**											
Inorganic Arsenic	**170**	2.7	1.7	9.3	2.3	6.9	10	12	9.8	2.2	8.8	1.3
Cadmium	**532**	< 0.10	< 0.10	< 0.10	< 0.10	0.14	< 0.10	0.12	0.12	< 0.10	< 0.10	< 0.10
Boron	**46000**	3.3	2.3	0.46	5.9	7.7	1.2	< 0.40	< 0.40	1.2	1.8	< 0.40
Chromium (total)	**33000**	-	-	-	-	-	-	-	-	-	-	14
Copper	**44000**	13	15	27	15	34	35	44	39	110	34	38
Inorganic Mercury	**240**	< 0.05	< 0.05	< 0.05	0.05	0.08	< 0.05	< 0.10	< 0.10	< 0.05	< 0.05	< 0.10
Nickel	**800**	9.9	9.1	20	11	41	30	31	27	9.9	41	31
Lead	**1300**	10	11	12	18	82	15	25	23	12	19	9.6
Selenium	**1800**	0.35	0.37	0.92	< 0.25	0.57	0.56	< 0.20	< 0.20	< 0.25	0.65	< 0.20
Zinc	**170000**	72	120	51	240	160	86	75	67	54	100	59
Chromium (Trivalent)		6.3	8.8	15	3.6	11	20	21	19	7.7	21	-
Chromium VI	**220**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese		170	150	570	40	170	510	780	660	150	360	-
Magnesium (Water Soluble)		< 20	< 20	< 20	42	56	24	< 20	< 20	< 20	< 20	-
Iron (Available)		37000	44000	16000	80000	58000	19000	9800	15000	23000	12000	-
Beryllium		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 1.0	< 0.5	< 0.5	-
Vanadium		4.4	4.3	12	18	66	17	16	13	6.4	17	-
Organics	**mg/kg**											
Phenol	**440**	-	-	-	-	-	-	-	-	-	-	-
Resorcinol		-	-	-	-	-	-	-	-	-	-	-
Cresols		-	-	-	-	-	-	-	-	-	-	-
Xylenols		-	-	-	-	-	-	-	-	-	-	-
1-Naphthol		-	-	-	-	-	-	-	-	-	-	-
Trimethylphenols		-	-	-	-	-	-	-	-	-	-	-
Total Phenols		0.56	0.42	< 0.10	< 0.10	< 0.10	< 0.10	0.29	< 0.10	< 0.10	< 0.10	< 0.10
Total Petroleum Hydrocarbons	**mg/kg**											
Aliphatics												
EC>C5-C6	**95000**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-
EC>C6-C8	**150000**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-
EC>C8-C10	**14000**	< 0.10	80	< 0.10	< 0.10	7.2	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-
EC>C10-C12	**21000**	110	320	< 0.10	< 0.10	32	< 0.10	< 0.10	< 0.10	23	< 0.10	-
EC>C12-C16	**25000**	210	540	< 0.10	< 0.10	36	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-
EC>C16-C21	**450000**	76	< 0.10	< 0.10	< 0.10	140	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-
EC>C21-C35	**450000**	3200	4300	< 0.10	190	1200	170	< 0.10	< 0.10	420	< 0.10	-
EC>C35-C44	**450000**	< 0.10	200	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-
Total aliphatics	**NA**	3600	5500	< 1.0	190	1400	170	< 1.0	< 1.0	450	< 1.0	-
Aromatics												
EC 5-7 (benzene)	**76000**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-
EC>C7-C8 (toluene)	**87000**	67	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-
EC>C8-C10	**7200**	150	2800	< 0.10	< 0.10	36	< 0.10	< 0.10	< 0.10	120	< 0.10	-
EC>C10-C12	**9200**	59	340	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	710	< 0.10	-
EC>C12-C16	**10000**	470	63	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1400	< 0.10	-
EC>C16-C21	**7600**	220	83	< 0.10	< 0.10	55	< 0.10	< 0.10	< 0.10	710	< 0.10	-
EC>C21-C35	**7800**	7000	2300	< 0.10	130	930	< 0.10	< 0.10	< 0.10	860	< 0.10	-
EC>C35-C44	**7800**	< 0.10	370	< 0.10	< 0.10	24	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-
Total aromatics		8000	6000	< 1.0	130	1000	< 1.0	< 1.0	< 1.0	3800	< 1.0	-
Total Aliphatics and Aromatics		12000	11000	< 2.0	320	2400	170	< 2.0	< 2.0	4200	< 2.0	-
TPH >C6-C8		-	-	-	-	-	-	-	-	-	-	< 1.0
TPH >C8-C10		-	-	-	-	-	-	-	-	-	-	< 1.0
TPH >C10-C12		-	-	-	-	-	-	-	-	-	-	< 1.0
TPH >C12-C16		-	-	-	-	-	-	-	-	-	-	< 1.0
TPH >C16-C21		-	-	-	-	-	-	-	-	-	-	< 1.0
TPH >C21-C25		-	-	-	-	-	-	-	-	-	-	< 1.0
TPH >C25-C35		-	-	-	-	-	-	-	-	-	-	< 1.0
TPH >C35-C40		-	-	-	-	-	-	-	-	-	-	< 1.0
Total TPH >C6-C40		-	-	-	-	-	-	-	-	-	-	< 10
Total TPH >C10-C40		-	-	-	-	-	-	-	-	-	-	-
Total TPH >C5-C10		-	-	-	-	-	-	-	-	-	-	-
BTEX & MTBE	**mg/kg**											
Benzene	**90**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0055	0.15	< 0.0010	-
Toluene	**87000**	0.014	0.0082	< 0.0010	< 0.0010	0.021	< 0.0010	0.0015	0.02	0.2	< 0.0010	-
Ethylbenzene	**17000**	0.047	0.026	< 0.0010	< 0.0010	0.044	< 0.0010	0.0024	0.032	0.17	< 0.0010	-
m&p-xylene	**170000**	0.14	0.052	< 0.0010	< 0.0010	0.075	< 0.0010	0.0056	0.049	0.093	< 0.0010	-
o-xylene	**17000**	0.15	0.093	< 0.0010	< 0.0010	0.042	< 0.0010	0.0025	0.031	0.068	< 0.0010	-
MTBE	**NA**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-
Polycyclic Aromatic Hydrocarbons	**mg/kg**											
Naphthalene	**1200**	< 0.010	1	< 0.010	6.5	3.4	1.3	< 0.010	< 0.010	35	3.4	< 0.010
Acenaphthylene	**29000**	< 0.010	0.87	< 0.010	2	1.7	0.81	< 0.010	< 0.010	280	2.6	< 0.010
Acenaphthene	**29000**	< 0.010	0.24	< 0.010	0.41	0.4	0.19	< 0.010	< 0.010	42	0.82	< 0.010
Fluorene	**20000**	< 0.010	0.48	< 0.010	0.34	0.49	0.33	< 0.010	< 0.010	110	2.3	< 0.010
Phenanthrene	**6200**	0.61	1.2	< 0.010	0.4	0.77	1.1	< 0.010	< 0.010	300	6.8	< 0.010
Anthracene	**150000**	0.085	0.27	< 0.010	0.087	0.16	0.15	< 0.010	< 0.010	44	0.72	< 0.010
Fluoranthene	**6300**	0.43	1	0.13	0.29	0.3	0.47	< 0.010	< 0.010	140	3.5	0.19
Pyrene	**15000**	0.52	1.3	0.15	0.39	0.39	0.75	< 0.010	< 0.010	220	5.4	0.16
Benz(a)anthracene	**49**	0.094	0.23	< 0.010	0.19	0.1	0.11	< 0.010	< 0.010	24	0.62	< 0.010
Chrysene	**93**	0.1	0.23	< 0.010	0.23	0.13	0.11	< 0.010	< 0.010	25	0.55	< 0.010
Benzo(b)fluoranthene	**13**	< 0.010	0.39	< 0.010	0.25	0.22	0.16	< 0.010	< 0.010	**29**	0.68	< 0.010
Benzo(k)fluoranthene	**370**	< 0.010	0.15	< 0.010	0.12	0.085	0.051	< 0.010	< 0.010	9	0.21	< 0.010
Benzo(a)pyrene	**11**	< 0.010	0.56	< 0.010	0.17	0.12	0.13	< 0.010	< 0.010	**44**	1	< 0.010
Indeno(123cd)pyrene	**150**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	25	< 0.010	< 0.010
Dibenz(a,h)anthracene	**1.1**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1	< 0.010	< 0.010
Benzo(ghi)perylene	**1400**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	35	< 0.010	< 0.010
Coronene	**NA**	-	-	-	11	8.3	5.7	-	-	1400	29	-
PAH 16 Total	**NA**	1.8	7.9	0.28	-	-	-	< 0.20	< 0.20	-	-	0.35
Total Of 17 PAH's		-	-	-	11	8.3	5.7	-	-	1400	29	-
PCB's	**mg/kg**											
PCB 81		-	-	-	-	-	-	-	-	-	-	-
PCB 77		-	-	-	-	-	-	-	-	-	-	-
PCB 105		-	-	-	-	-	-	-	-	-	-	-
PCB 114		-	-	-	-	-	-	-	-	-	-	-
PCB 118		-	-	-	-	-	-	-	-	-	-	-
PCB 123		-	-	-	-	-	-	-	-	-	-	-
PCB 126		-	-	-	-	-	-	-	-	-	-	-
PCB 156		-	-	-	-	-	-	-	-	-	-	-
PCB 157		-	-	-	-	-	-	-	-	-	-	-
PCB 167		-	-	-	-	-	-	-	-	-	-	-
PCB 169		-	-	-	-	-	-	-	-	-	-	-
PCB 189		-	-	-	-	-	-	-	-	-	-	-
Total PCBs (12 Congeners)		-	-	-	-	-	-	-	-	-	-	-
Inorganics												
Fraction of Organic Carbon	**NA**	0.022	0.033	0.0014	0.14	0.17	0.0021	0.0022	0.0024	0.019	0.0018	-
Organic Matter	**NA**	-	-	-	-	-	-	-	-	-	-	-
Moisture	**NA**	< 0.020	46	12	30	42	11	16	23	37	17	3.2
Free Cyanide	**24**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (2:1 Water Soluble) as SO4 mg/l	**NA**	360	380	170	850	260	160	38	47	65	350	0.026
pH (pH Units)	**pH (<5, >9)**	8.5	8.4	8.8	8	7.5	8	7.9	7.9	8.1	**9.7**	8.5
Chloride (Extractable)		1100	960	130	300	1900	720	< 20	22	260	560	-
Potassium (Total)		270	370	410	200	62	60	550	540	670	64	-
Asbestos Screening												
Asbestos Identification	**Present / Absent**	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	-
ACM Type	**NA**	-	-	-	-	-	-	-	-	-	-	-
Asbestos by Gravimetry	**NA**	-	-	-	-	-	-	-	-	-	-	-
Total Asbestos		-	-	-	-	-	-	-	-	-	-	-

Contaminant GAC	Public Open Space - Park (1% SOM)	BH607	BH608	BH609	BH639	BH640	BH641	BH642	BH642	BH643	BH643	BH656
	Depth (m)	**0.50**	**0.20**	**0.20**	**0.50**	**1**	**0.50**	**2**	**7**	**2**	**3**	**1.0**
Heavy Metals	**mg/kg**											
Inorganic Arsenic	**170**	< 1.0	8	4.3	14	11	11	1.1	5.2	8.8	9.5	12
Cadmium	**532**	< 0.10	< 0.10	< 0.10	0.24	0.26	0.22	< 0.10	< 0.10	0.21	0.2	0.21
Boron	**46000**	< 0.40	< 0.40	< 0.40	2.9	0.45	< 0.40	< 0.40	< 0.40	0.5	< 0.40	< 0.40
Chromium (total)	**33000**	14	19	26	-	-	-	-	-	-	-	-
Copper	**44000**	50	43	46	64	26	33	29	44	25	28	36
Inorganic Mercury	**240**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	**800**	31	45	50	58	26	23	24	22	27	27	29
Lead	**1300**	1.7	23	8.3	35	29	24	10	12	22	26	22
Selenium	**1800**	< 0.20	< 0.20	< 0.20	< 0.20	0.28	0.26	< 0.20	< 0.20	< 0.20	0.31	< 0.20
Zinc	**170000**	46	55	63	120	91	82	54	49	86	99	77
Chromium (Trivalent)		-	-	-	38	24	25	19	15	24	27	19
Chromium VI	**220**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese		-	-	-	1500	1200	1500	450	550	1200	1000	1000
Magnesium (Water Soluble)		-	-	-	< 20	< 20	< 20	< 20	< 20	< 20	28	< 20
Iron (Available)		-	-	-	2900	22000	21000	13000	6400	10000	6200	14000
Beryllium		-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium		-	-	-	33	28	24	13	9.3	24	28	25
Organics	**mg/kg**											
Phenol	**440**	-	-	-	-	-	-	-	-	-	-	-
Resorcinol		-	-	-	-	-	-	-	-	-	-	-
Cresols		-	-	-	-	-	-	-	-	-	-	-
Xylenols		-	-	-	-	-	-	-	-	-	-	-
1-Naphthol		-	-	-	-	-	-	-	-	-	-	-
Trimethylphenols		-	-	-	-	-	-	-	-	-	-	-
Total Phenols		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Petroleum Hydrocarbons	**mg/kg**											
Aliphatics												
EC>C5-C6	**95000**	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C6-C8	**150000**	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C8-C10	**14000**	-	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	10
EC>C10-C12	**21000**	-	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	19
EC>C12-C16	**25000**	-	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	36
EC>C16-C21	**450000**	-	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	28
EC>C21-C35	**450000**	-	-	-	< 0.10	95	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	66
EC>C35-C44	**450000**	-	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total aliphatics	**NA**	-	-	-	< 1.0	95	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	160
Aromatics												
EC 5-7 (benzene)	**76000**	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C7-C8 (toluene)	**87000**	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C8-C10	**7200**	-	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**9200**	-	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**10000**	-	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21	**7600**	-	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35	**7800**	-	-	-	< 0.10	6.8	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	110
EC>C35-C44	**7800**	-	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	4.7
Total aromatics		-	-	-	< 1.0	6.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	120
Total Aliphatics and Aromatics		-	-	-	< 2.0	100	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	270
TPH >C6-C8		< 1.0	< 1.0	< 1.0	-	-	-	-	-	-	-	-
TPH >C8-C10		< 1.0	2	< 1.0	-	-	-	-	-	-	-	-
TPH >C10-C12		< 1.0	12	< 1.0	-	-	-	-	-	-	-	-
TPH >C12-C16		< 1.0	27	< 1.0	-	-	-	-	-	-	-	-
TPH >C16-C21		< 1.0	21	< 1.0	-	-	-	-	-	-	-	-
TPH >C21-C25		< 1.0	13	< 1.0	-	-	-	-	-	-	-	-
TPH >C25-C35		< 1.0	10	< 1.0	-	-	-	-	-	-	-	-
TPH >C35-C40		< 1.0	< 1.0	< 1.0	-	-	-	-	-	-	-	-
Total TPH >C6-C40		< 10	85	< 10	-	-	-	-	-	-	-	-
Total TPH >C10-C40		-	-	-	-	-	-	-	-	-	-	-
Total TPH >C5-C10		-	-	-	-	-	-	-	-	-	-	-
BTEX & MTBE	**mg/kg**											
Benzene	**90**	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Toluene	**87000**	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Ethylbenzene	**17000**	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
m&p-xylene	**170000**	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
o-xylene	**17000**	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
MTBE	**NA**	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Polycyclic Aromatic Hydrocarbons	**mg/kg**											
Naphthalene	**1200**	< 0.010	< 0.010	< 0.010	< 0.010	0.064	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	3.3
Acenaphthylene	**29000**	< 0.010	< 0.010	< 0.010	< 0.010	0.018	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.9
Acenaphthene	**29000**	< 0.010	< 0.010	< 0.010	< 0.010	0.035	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.4
Fluorene	**20000**	< 0.010	< 0.010	< 0.010	< 0.010	0.022	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.29
Phenanthrene	**6200**	< 0.010	< 0.010	< 0.010	< 0.010	0.13	0.099	0.037	< 0.010	0.093	0.045	0.41
Anthracene	**150000**	< 0.010	< 0.010	< 0.010	< 0.010	0.02	0.069	< 0.010	< 0.010	0.027	0.019	0.11
Fluoranthene	**6300**	< 0.010	< 0.010	< 0.010	0.33	0.11	0.16	0.06	0.043	0.12	0.056	0.24
Pyrene	**15000**	< 0.010	< 0.010	< 0.010	0.34	0.11	0.15	0.059	0.14	0.12	0.049	0.23
Benz(a)anthracene	**49**	< 0.010	< 0.010	< 0.010	0.19	0.051	< 0.010	< 0.010	< 0.010	0.073	< 0.010	0.35
Chrysene	**93**	< 0.010	< 0.010	< 0.010	0.24	0.059	< 0.010	< 0.010	< 0.010	0.051	< 0.010	0.12
Benzo(b)fluoranthene	**13**	< 0.010	< 0.010	< 0.010	0.28	0.05	< 0.010	< 0.010	< 0.010	0.1	< 0.010	0.14
Benzo(k)fluoranthene	**370**	< 0.010	< 0.010	< 0.010	0.18	0.03	< 0.010	< 0.010	< 0.010	0.016	< 0.010	0.096
Benzo(a)pyrene	**11**	< 0.010	< 0.010	< 0.010	0.26	0.076	< 0.010	< 0.010	< 0.010	0.043	< 0.010	0.34
Indeno(123cd)pyrene	**150**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.22
Dibenz(a,h)anthracene	**1.1**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.12
Benzo(ghi)perylene	**1400**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.29
Coronene	**NA**	-	-	-	-	-	-	-	-	-	-	-
PAH 16 Total	**NA**	< 0.20	< 0.20	< 0.20	1.8	0.78	0.48	< 0.20	< 0.20	0.64	< 0.20	8.6
Total Of 17 PAH's		-	-	-	-	-	-	-	-	-	-	-
PCB's	**mg/kg**											
PCB 81		-	-	-	-	-	-	-	-	-	-	-
PCB 77		-	-	-	-	-	-	-	-	-	-	-
PCB 105		-	-	-	-	-	-	-	-	-	-	-
PCB 114		-	-	-	-	-	-	-	-	-	-	-
PCB 118		-	-	-	-	-	-	-	-	-	-	-
PCB 123		-	-	-	-	-	-	-	-	-	-	-
PCB 126		-	-	-	-	-	-	-	-	-	-	-
PCB 156		-	-	-	-	-	-	-	-	-	-	-
PCB 157		-	-	-	-	-	-	-	-	-	-	-
PCB 167		-	-	-	-	-	-	-	-	-	-	-
PCB 169		-	-	-	-	-	-	-	-	-	-	-
PCB 189		-	-	-	-	-	-	-	-	-	-	-
Total PCBs (12 Congeners)		-	-	-	-	-	-	-	-	-	-	-
Inorganics												
Fraction of Organic Carbon	**NA**	-	-	-	0.0047	0.0086	0.0071	0.0036	0.0025	0.0079	0.0043	0.0035
Organic Matter	**NA**	-	-	-	-	-	-	-	-	-	-	-
Moisture	**NA**	4	9.6	8.9	17	21	23	9.2	9.3	74	19	20
Free Cyanide	**24**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (2:1 Water Soluble) as SO4 mg/l	**NA**	0.046	0.053	0.049	440	48	35	62	38	530	460	73
pH (pH Units)	**pH (<5, >9)**	**9.1**	8.8	8.7	8.5	7.1	7.8	8.1	7.9	7.2	7.1	8.3
Chloride (Extractable)		-	-	-	< 20	28	< 20	34	28	34	36	140
Potassium (Total)		-	-	-	730	740	620	650	530	780	660	700
Asbestos Screening												
Asbestos Identification	**Present / Absent**	-	-	-	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Type	**NA**	-	-	-	-	-	-	-	-	-	-	-
Asbestos by Gravimetry	**NA**	-	-	-	-	-	-	-	-	-	-	-
Total Asbestos		-	-	-	-	-	-	-	-	-	-	-

Contaminant GAC	Public Open Space - Park (1% SOM)	BH656	BH656	BH656	BH657	BH657	BH658	BH658	BH658	BH659	BH659	BH659
	Depth (m)	**2.5**	**4.0**	**5.9**	**1.0**	**4.0**	**1.0**	**3.0**	**6.4**	**1.0**	**3.0**	**5.0**
Heavy Metals	**mg/kg**											
Inorganic Arsenic	**170**	2.9	27	9.8	4.5	3.2	2.7	15	12	5.4	6.2	8
Cadmium	**532**	0.1	2.6	0.22	< 0.10	< 0.10	< 0.10	2.4	2.1	0.1	0.21	0.14
Boron	**46000**	8.1	11	2	< 0.40	< 0.40	0.89	1.2	< 0.40	< 0.40	3.8	0.84
Chromium (total)	**33000**	-	-	-	-	-	-	-	-	-	-	-
Copper	**44000**	34	97	35	17	8.3	21	46	37	17	48	30
Inorganic Mercury	**240**	< 0.10	< 0.10	0.1	< 0.10	< 0.10	< 0.10	0.1	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	**800**	9	55	28	9.7	6.4	16	67	54	19	36	37
Lead	**1300**	22	88	71	4.5	4	10	27	21	9.8	43	14
Selenium	**1800**	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.77	0.63	< 0.20	< 0.20	< 0.20
Zinc	**170000**	50	320	200	26	17	42	140	110	39	260	89
Chromium (Trivalent)		5.9	38	16	7.3	5.2	13	28	21	13	26	19
Chromium VI	**220**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese		88	1300	360	160	130	370	1500	1200	620	420	440
Magnesium (Water Soluble)		30	36	< 20	< 20	< 20	< 20	< 20	< 20	< 20	22	< 20
Iron (Available)		31000	27000	22000	4400	5100	950	17000	23000	4300	38000	18000
Beryllium		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium		13	14	24	13	9.3	8.6	33	26	17	20	23
Organics	**mg/kg**											
Phenol	**440**	-	-	-	-	-	-	-	-	-	-	< 0.020
Resorcinol		-	-	-	-	-	-	-	-	-	-	< 0.020
Cresols		-	-	-	-	-	-	-	-	-	-	< 0.020
Xylenols		-	-	-	-	-	-	-	-	-	-	< 0.020
1-Naphthol		-	-	-	-	-	-	-	-	-	-	< 0.020
Trimethylphenols		-	-	-	-	-	-	-	-	-	-	< 0.020
Total Phenols		0.22	1.5	< 0.10	< 0.10	< 0.10	0.38	< 0.10	< 0.10	< 0.10	0.32	< 0.10
Total Petroleum Hydrocarbons	**mg/kg**											
Aliphatics												
EC>C5-C6	**95000**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C6-C8	**150000**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C8-C10	**14000**	< 0.10	14	< 0.10	5.9	< 0.10	< 0.10	< 0.10	< 0.10	2.2	24	9.7
EC>C10-C12	**21000**	8.3	38	< 0.10	11	< 0.10	< 0.10	< 0.10	< 0.10	10	35	6.2
EC>C12-C16	**25000**	43	85	< 0.10	21	< 0.10	< 0.10	< 0.10	< 0.10	20	67	26
EC>C16-C21	**450000**	120	180	< 0.10	16	< 0.10	< 0.10	< 0.10	< 0.10	18	140	9.4
EC>C21-C35	**450000**	850	1000	< 0.10	33	< 0.10	< 0.10	< 0.10	< 0.10	160	920	88
EC>C35-C44	**450000**	20	120	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	22	< 0.10
Total aliphatics	**NA**	1000	1400	< 1.0	86	< 1.0	< 1.0	< 1.0	< 1.0	210	1200	140
Aromatics												
EC 5-7 (benzene)	**76000**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C7-C8 (toluene)	**87000**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C8-C10	**7200**	19	210	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	8.8	5.6
EC>C10-C12	**9200**	< 0.10	230	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**10000**	< 0.10	160	< 0.10	< 0.10	< 0.10	15	< 0.10	< 0.10	< 0.10	6	< 0.10
EC>C16-C21	**7600**	89	280	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	12	96	32
EC>C21-C35	**7800**	510	1100	< 0.10	53	< 0.10	41	< 0.10	< 0.10	360	420	100
EC>C35-C44	**7800**	15	44	< 0.10	4.3	< 0.10	< 0.10	< 0.10	< 0.10	18	41	6.1
Total aromatics		630	2000	< 1.0	57	< 1.0	56	< 1.0	< 1.0	390	570	150
Total Aliphatics and Aromatics		1700	3400	< 2.0	140	< 2.0	56	< 2.0	< 2.0	600	1800	290
TPH >C6-C8		-	-	-	-	-	-	-	-	-	-	-
TPH >C8-C10		-	-	-	-	-	-	-	-	-	-	-
TPH >C10-C12		-	-	-	-	-	-	-	-	-	-	-
TPH >C12-C16		-	-	-	-	-	-	-	-	-	-	-
TPH >C16-C21		-	-	-	-	-	-	-	-	-	-	-
TPH >C21-C25		-	-	-	-	-	-	-	-	-	-	-
TPH >C25-C35		-	-	-	-	-	-	-	-	-	-	-
TPH >C35-C40		-	-	-	-	-	-	-	-	-	-	-
Total TPH >C6-C40		-	-	-	-	-	-	-	-	-	-	-
Total TPH >C10-C40		-	-	-	-	-	-	-	-	-	-	-
Total TPH >C5-C10		-	-	-	-	-	-	-	-	-	-	-
BTEX & MTBE	**mg/kg**											
Benzene	**90**	0.0037	0.0052	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0022	< 0.0010	0.0041	0.016	< 0.0010
Toluene	**87000**	0.0057	0.0037	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0031	< 0.0010	0.002	3.1	< 0.0010
Ethylbenzene	**17000**	0.0063	0.01	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.069	< 0.0010	0.013	0.29	< 0.0010
m&p-xylene	**170000**	0.0073	0.081	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.057	< 0.0010	0.16	3	< 0.0010
o-xylene	**17000**	0.0045	0.0055	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.013	< 0.0010	0.0065	0.11	< 0.0010
MTBE	**NA**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Polycyclic Aromatic Hydrocarbons	**mg/kg**											
Naphthalene	**1200**	8.3	13	1.6	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.34	0.8
Acenaphthylene	**29000**	1.3	0.75	0.62	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.39	0.32
Acenaphthene	**29000**	0.31	0.47	0.18	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.26	0.46
Fluorene	**20000**	0.25	0.56	0.27	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.32	0.44
Phenanthrene	**6200**	0.45	0.93	0.58	0.48	0.68	0.13	0.24	0.11	0.47	0.87	1.7
Anthracene	**150000**	0.24	0.19	0.15	0.26	0.23	0.037	0.043	0.039	0.23	0.26	0.46
Fluoranthene	**6300**	0.44	0.62	1	0.66	0.88	0.18	0.22	0.34	0.61	0.69	1.6
Pyrene	**15000**	0.44	0.51	0.99	0.53	0.74	0.17	0.21	0.29	0.57	0.82	1.7
Benz(a)anthracene	**49**	0.12	0.14	0.63	0.34	0.36	< 0.010	0.073	0.19	0.33	0.25	0.62
Chrysene	**93**	0.3	0.15	0.54	0.21	0.32	< 0.010	0.069	0.19	0.34	0.2	0.52
Benzo(b)fluoranthene	**13**	0.29	0.19	0.69	0.26	0.4	< 0.010	< 0.010	0.35	0.34	0.3	0.81
Benzo(k)fluoranthene	**370**	0.096	0.088	0.34	0.16	0.29	< 0.010	< 0.010	0.12	0.21	0.11	0.4
Benzo(a)pyrene	**11**	0.42	0.24	0.85	0.42	0.44	< 0.010	< 0.010	0.3	0.39	0.29	0.77
Indeno(123cd)pyrene	**150**	0.13	0.14	0.61	< 0.010	0.38	< 0.010	< 0.010	0.25	0.24	< 0.010	0.55
Dibenz(a,h)anthracene	**1.1**	0.13	0.035	0.086	< 0.010	0.15	< 0.010	< 0.010	0.046	0.11	< 0.010	0.15
Benzo(ghi)perylene	**1400**	0.17	0.22	0.69	< 0.010	0.26	< 0.010	< 0.010	0.23	0.28	< 0.010	0.59
Coronene	**NA**	-	-	-	-	-	-	-	-	-	-	-
PAH 16 Total	**NA**	13	18	9.8	3.3	5.1	0.52	0.86	2.5	4.1	5.1	12
Total Of 17 PAH's		-	-	-	-	-	-	-	-	-	-	-
PCB's	**mg/kg**											
PCB 81		-	-	-	-	-	-	-	-	-	-	-
PCB 77		-	-	-	-	-	-	-	-	-	-	-
PCB 105		-	-	-	-	-	-	-	-	-	-	-
PCB 114		-	-	-	-	-	-	-	-	-	-	-
PCB 118		-	-	-	-	-	-	-	-	-	-	-
PCB 123		-	-	-	-	-	-	-	-	-	-	-
PCB 126		-	-	-	-	-	-	-	-	-	-	-
PCB 156		-	-	-	-	-	-	-	-	-	-	-
PCB 157		-	-	-	-	-	-	-	-	-	-	-
PCB 167		-	-	-	-	-	-	-	-	-	-	-
PCB 169		-	-	-	-	-	-	-	-	-	-	-
PCB 189		-	-	-	-	-	-	-	-	-	-	-
Total PCBs (12 Congeners)		-	-	-	-	-	-	-	-	-	-	-
Inorganics												
Fraction of Organic Carbon	**NA**	0.15	0.089	0.02	0.0013	0.0026	0.0075	0.012	0.0086	0.0062	0.045	0.0085
Organic Matter	**NA**	-	-	-	-	-	-	-	-	-	-	-
Moisture	**NA**	27	34	11	13	6.3	14	16	17	12	40	15
Free Cyanide	**24**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (2:1 Water Soluble) as SO4 mg/l	**NA**	510	830	150	41	47	180	220	43	44	700	640
pH (pH Units)	**pH (<5, >9)**	8.4	8.2	8.6	8.6	8.6	8.3	8.1	8.3	8.6	8.4	**10.6**
Chloride (Extractable)		1900	1100	190	< 20	< 20	62	120	28	< 20	700	200
Potassium (Total)		310	530	780	320	140	120	360	270	270	880	650
Asbestos Screening												
Asbestos Identification	**Present / Absent**	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Type	**NA**	-	-	-	-	-	-	-	-	-	-	-
Asbestos by Gravimetry	**NA**	-	-	-	-	-	-	-	-	-	-	-
Total Asbestos		-	-	-	-	-	-	-	-	-	-	-

GACs are the LQM S4ULs with 1% SOM with the exception of those listed below:-

1. The GAC for lead is the C4SL derived using a Low Level of Toxicological Concern (LLTC) of 3.5ug/dL blood lead.

2. Free Cyanide - WYG derived using CLEA. See WYG Technical Memorandum: Derivation of a SSV.

Contaminant GAC	Public Open Space - Park (1% SOM)	BH659	BH659	BH659	BH659	BH659	BH659	BH659	BH660	BH660	BH660	BH660	BH660	BH660A	BH660A	BH660A	BH660A	BH661	BH661	BH662	BH662	BH663	BH664	BH664	BH665	BH665	BH665	BH665	BH665	BH665	BH665	BH665	BH666	BH666
	Depth (m)	7.0	8.0	9.0	11.0	12.0	13.0	14	2.00	6.00	7.00	8.00	9.00	9.00	10.00	12.0	13.0	1.00	5.00	1.00	3.00	2.00	0.50	1.00	1.00	3.00	4.00	7.0	8.0	10.0	11.0	12.0	0.50	2.00
Heavy Metals	mg/kg																																	
Inorganic Arsenic	170	6.7	-	11	13	-	12	-	7.5	4.3	10	8.5	5.7	1.9	2.6	5.7	5.5	18	< 1.0	31	110	55	20	18	10	10	-	21	16	25	4.9	20	13	4.3
Cadmium	532	0.15	-	0.27	0.84	-	< 0.10	-	0.21	0.18	0.78	0.27	0.13	0.16	0.11	0.1	0.13	0.17	< 0.10	0.19	0.26	0.11	0.21	0.2	0.25	0.24	-	0.46	0.58	1.5	1	2.7	0.12	0.12
Boron	46000	0.69	-	0.73	3.5	-	3.5	-	7.6	8.6	7.9	3	3.5	1.2	1.2	0.68	1.3	1.1	1	< 0.40	1.5	< 0.40	0.51	0.42	4.2	8.3	-	5	7.3	0.93	< 0.40	0.72	0.64	1.1
Chromium (total)	33000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	44000	26	-	48	85	-	160	-	61	37	130	27	45	1000	26	18	16	84	16	30	51	28	75	65	44	50	-	61	170	150	19	27	40	26
Inorganic Mercury	240	< 0.10	-	< 0.10	0.14	-	0.19	-	< 0.10	< 0.10	1.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.05	< 0.05	0.13	< 0.10	0.68	5.3	1.8	< 0.10	< 0.10	0.25	< 0.10	-	0.21	0.39	1.4	0.15	< 0.10	< 0.10	< 0.10
Nickel	800	26	-	46	55	-	33	-	51	25	31	33	29	13	10	15	14	65	20	17	15	9.4	50	37	40	43	-	82	89	79	39	26	36	38
Lead	1300	16	-	32	120	-	170	-	48	25	130	44	28	10	8.2	17	14	77	5.6	370	130	53	53	46	31	39	-	36	230	180	17	76	25	16
Selenium	1800	< 0.20	-	< 0.20	< 0.20	-	< 0.20	-	0.2	< 0.20	0.22	0.41	< 0.20	< 0.20	< 0.20	0.45	0.38	0.21	2.2	0.4	0.69	0.38	0.35	0.25	< 0.20	< 0.20	-	0.25	0.39	< 0.20	< 0.20	0.45	< 0.20	< 0.20
Zinc	170000	99	-	200	270	-	380	-	220	130	260	87	180	93	31	56	57	220	17	59	93	47	130	110	170	210	-	130	540	590	76	220	120	95
Chromium (Trivalent)		18	-	32	34	-	34	-	30	15	31	43	17	7.3	5.6	14	13	33	8.7	17	20	7.7	29	24	31	26	-	21	62	55	14	18	20	21
Chromium VI	220	< 0.50	-	< 0.50	< 0.50	-	< 0.50	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese		360	-	510	440	-	-	400	640	320	460	340	420	210	90	320	300	760	250	240	570	250	1900	1700	770	700	-	550	930	780	780	670	660	390
Magnesium (Water Soluble)		< 20	-	< 20	< 20	-	< 20	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	56	48	< 20	< 20	< 20	< 20	< 20
Iron (Available)		23000	-	35000	35000	-	25000	-	47000	36000	32000	15000	9000	10000	4900	12000	100000	11000	21000	10000	26000	6900	3200	3300	34000	49000	-	74000	84000	86000	110000	77000	56000	44000
Beryllium		< 1.0	-	< 1.0	< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.5	< 0.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.3	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium		21	-	29	34		30		35	21	25	41	24	11	10	13	11	43	7	29	30	8.6	32	21	26	24	-	19	74	54	14	21	16	17
Organics	mg/kg																																	
Phenol	440	< 0.020	-	< 0.020	< 0.020	< 0.020	-	< 0.020	-	-	-	-	-	-	-	0.16	< 0.020	-	-	-	-	-	-	-	-	-	< 0.020	-	< 0.020	5.1	< 0.020	< 0.020	-	-
Resorcinol		< 0.020	-	< 0.020	< 0.020	< 0.020	-	< 0.020	-	-	-	-	-	-	-	< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	< 0.020	-	< 0.020	< 0.020	< 0.020	< 0.020	-	-
Cresols		< 0.020	-	< 0.020	< 0.020	< 0.020	-	< 0.020	-	-	-	-	-	-	-	0.067	< 0.020	-	-	-	-	-	-	-	-	-	0.14	-	0.11	8.3	< 0.020	< 0.020	-	-
Xylenols		< 0.020	-	< 0.020	< 0.020	< 0.020	-	0.17	-	-	-	-	-	-	-	0.27	< 0.020	-	-	-	-	-	-	-	-	-	< 0.020	-	0.67	24	< 0.020	< 0.020	-	-
1-Naphthol		< 0.020	-	< 0.020	< 0.020	< 0.020	-	< 0.020	-	-	-	-	-	-	-	< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	< 0.020	-	< 0.020	< 0.020	< 0.020	< 0.020	-	-
Trimethylphenols		< 0.020	-	< 0.020	< 0.020	< 0.020	-	< 0.020	-	-	-	-	-	-	-	0.17	< 0.020	-	-	-	-	-	-	-	-	-	< 0.020	-	< 0.020	11	< 0.020	< 0.020	-	-
Total Phenols		< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	0.17	0.97	< 0.10	< 0.10	< 0.10	< 0.10	1.6	14	0.67	< 0.10	0.58	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.26	0.14	< 0.10	0.77	49	< 0.10	< 0.10	< 0.10	0.26
Total Petroleum Hydrocarbons	mg/kg																																	
Aliphatics																																		
EC>C5-C6	95000	< 0.010	-	< 0.010	< 0.010	<1.0	< 0.010	<1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C6-C8	150000	< 0.010	-	< 0.010	< 0.010	<1.0	<0.010	<1.0	< 0.010	< 0.010	< 0.010	< 0.010	11	6.5	3.1	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	16	< 0.010	< 0.010	< 0.010
EC>C8-C10	14000	51	-	< 0.10	5.1	<1.0	<0.10	<1.0	< 0.10	< 0.10	< 0.10	< 0.10	850	69	180	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1200	840	< 0.10	< 0.10	74
EC>C10-C12	21000	43	-	8.4	15	8.3	6.6	6	< 0.10	< 0.10	< 0.10	< 0.10	1500	130	310	9.8	11	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	2200	1500	< 0.10	5.4	180
EC>C12-C16	25000	19	-	10	22	15	12	15	< 0.10	< 0.10	< 0.10	< 0.10	2100	170	330	13	18	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	2400	1500	< 0.10	5.6	310
EC>C16-C21	450000	19	-	3.7	14	<1.0	<0.10	<1.0	< 0.10	< 0.10	< 0.10	< 0.10	1200	100	190	4.5	29	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1500	900	< 0.10	< 0.10	310
EC>C21-C35	450000	48	-	37	150	140	30	93	< 0.10	550	490	< 0.10	1300	140	270	130	160	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	260	130	170	< 0.10	1100	1300	1000	130	24	880
EC>C35-C44	450000	< 0.10	-	< 0.10	< 0.10	<1.0	<0.10	<1.0	< 0.10	< 0.10	< 0.10	< 0.10	89	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	460	390	< 0.10	< 0.10	28
Total aliphatics	NA	180	-	60	200	160	47	110	< 1.0	550	490	< 1.0	7100	630	1300	160	220	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	260	130	170	< 1.0	1100	9100	6200	130	35	1800
Aromatics																																		
EC 5-7 (benzene)	76000	< 0.010	-	< 0.010	< 0.010	<1.0	<0.010	<1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	22	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	59	62	< 0.010	< 0.010	< 0.010
EC>C7-C8 (toluene)	87000	< 0.010	-	< 0.010	< 0.010	<1.0	<0.010	<1.0	< 0.010	< 0.010	< 0.010	< 0.010	190	17	74	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	120	120	< 0.010	< 0.010	5.9
EC>C8-C10	7200	4.1	-	< 0.10	5.1	7	<0.10	<1.0	< 0.10	< 0.10	12	< 0.10	2400	180	520	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	4300	3100	< 0.10	< 0.10	110
EC>C10-C12	9200	< 0.10	-	5.7	100	63	23	6.4	< 0.10	< 0.10	12	< 0.10	24000	1800	3600	7.1	18	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	31000	20000	36	14	2600
EC>C12-C16	10000	< 0.10	-	5.2	220	86	42	6.5	< 0.10	< 0.10	33	< 0.10	37000	2700	5500	130	430	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	49000	30000	180	54	5700
EC>C16-C21	7600	< 0.10	-	20	130	41	28	7.6	< 0.10	< 0.10	70	< 0.10	19000	1300	2600	86	280	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	9	< 0.10	< 0.10	< 0.10	7.5	26000	16000	150	36	3000
EC>C21-C35	7800	86	-	79	240	190	53	11	< 0.10	1300	110	< 0.10	20000	1400	2600	140	330	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	110	18	59	< 0.10	510	29000	18000	490	52	2900
EC>C35-C44	7800	7.3	-	5.1	4.7	<1.0	<0.10	<1.0	< 0.10	< 0.10	< 0.10	< 0.10	1600	93	190	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	7.3	6.4	5	< 0.10	< 0.10	2200	1300	< 0.10	< 0.10	260
Total aromatics		98	-	110	700	380	150	32	< 1.0	1300	240	< 1.0	100000	7500	15000	370	1100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	130	24	64	< 1.0	520	140000	88000	860	160	15000
Total Aliphatics and Aromatics		280	-	170	900	540	190	150	< 2.0	1900	740	< 2.0	110000	8100	16000	530	1300	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	390	160	230	< 2.0	1600	150000	94000	990	190	16000
TPH >C6-C8		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C8-C10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C10-C12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C12-C16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C16-C21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C21-C25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C25-C35		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C35-C40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TPH >C6-C40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TPH >C10-C40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TPH >C5-C10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BTEX & MTBE	mg/kg																																	
Benzene	90	0.0012	-	< 0.0010	0.017		0.34		< 0.0010	< 0.0010	0.13	0.85	0.26	190	720	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.026	-	0.019	0.13	0.013	0.035
Toluene	87000	0.0019	-	0.0033	0.0049		0.16		< 0.0010	< 0.0010	0.0021	0.012	0.035	74	250	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.002	0.0044	0.0044	< 0.0010	0.011	760	0.015	0.087	0.0044	0.028
Ethylbenzene	17000	0.046	-	0.0032	0.055		2.6		< 0.0010	< 0.0010	0.11	0.68	0.22	290	590	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0079	0.011	0.0082	< 0.0010	0.018	1400	0.051	0.031	< 0.0010	0.14
m&p-xylene	170000	0.17	-	0.0072	0.016		0.14		< 0.0010	< 0.0010	0.013	0.053	0.19	12	14	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.015	0.007	0.0072	< 0.0010	0.0079	27	0.007	0.039	< 0.0010	0.019
o-xylene	17000	0.052	-	0.0039	0.007		0.07		< 0.0010	< 0.0010	0.007	0.028	0.09	6.5	8.3	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0093	0.004	0.0045	< 0.0010	0.0031	92	0.005	0.021	< 0.0010	0.011
MTBE	NA	< 0.0010	-	< 0.0010	< 0.0010		< 0.0010		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0053	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Polycyclic Aromatic Hydrocarbons	mg/kg																																	
Naphthalene	1200	0.53	-	0.6	75	13	11	1.3	1.5	2.5	2	2.2	21	2600	5100	1.1	0.52	0.059	< 0.010	< 0.010	0.27	0.12	< 0.010	< 0.010	1	1.1	< 0.010	4.6	13	7100	< 0.010	< 0.010	1.9	2.4
Acenaphthylene	29000	0.41	-	0.66	51	11	6.5	1.3	0.37	0.65	0.38	0.38	11	2600	4800	64	23	0.047	< 0.010	< 0.010	0.075	0.17	< 0.010	< 0.010	4.6	4.1	< 0.010	2.8	4.9	11000	< 0.010	< 0.010	2.2	2.2
Acenaphthene	29000	0.46	-	0.74	92	29	20	2.3	0.64	1.1	0.83	0.57	13	600	1300	20	7.2	0.046	< 0.010	< 0.010	0.078	0.083	< 0.010	< 0.010	1.4	1.3	< 0.010	1.2	1.6	2800	< 0.010	< 0.010	1.3	0.79
Fluorene	20000	0.43	-	0.67	74	13	8.2	1.5	0.31	0.67	0.41	0.29	14	840	1800	65	22	0.053	< 0.010	< 0.010	0.079	0.12	< 0.010	< 0.010	2.2	2	< 0.010	1.5	1.6	3900	< 0.010	< 0.010	1.6	1.1
Phenanthrene	6200	1.3	-	2.3	87	31	19	4.8	1.8	3.1	2.3	1.4	48	1600	3500	190	65	0.21	< 0.010	< 0.010	0.31	0.82	0.061	< 0.010	5.4	5.5	< 0.010	4	3	8700	< 0.010	< 0.010	3.1	2.4
Anthracene	150000	0.25	-	0.47	29	5	3.3	0.69	0.23	0.36	0.29	0.25	5.1	290	610	21	6.8	0.082	< 0.010	< 0.010	0.057	0.093	0.027	< 0.010	0.95	0.99	< 0.010	0.77	0.55	1300	< 0.010	< 0.010	0.48	0.38
Fluoranthene	6300	1	-	1.9	82	17	11	2.6	1.8	2.7	2.1	1.8	25	760	1600	99	34	0.59	0.1	0.068	0.25	0.73	0.09	< 0.010	3	3.9	< 0.010	3.6	2.4	3900	< 0.010	0.097	1.7	1.4
Pyrene	15000	1.2	-	2.3	110	24	15	3.6	2.4	3.8	2.3	2.1	36	1100	2300	140	49	0.59	0.21	0.089	0.28	0.94	0.1	< 0.010	4.2	4.9	< 0.010	4	2.8	5700	< 0.010	0.12	2.2	1.8
Benz(a)anthracene	49	0.39	-	0.52	13	3.1	2.2	0.52	0.4	0.51	0.56	0.52	3.6	86	230	15	4.9	0.27	0.2	< 0.010	0.08	0.11	< 0.010	< 0.010	0.61	1.1	< 0.010	1.4	0.85	520	< 0.010	< 0.010	17	0.33
Chrysene	93	0.32	-	0.52	14	3.4	2.1	0.47	0.35	0.53	0.68	0.59	3.9	87	210	16	5.5	0.23	0.2	< 0.010	0.064	0.11	< 0.010	< 0.010	0.55	1	< 0.010	1.2	0.76	550	< 0.010	< 0.010	0.21	0.27
Benzo(b)fluoranthene	13	0.41	-	0.59	16	4.4	2.7	0.72	0.65	0.92	0.85	0.97	5.1	110	260	17	6.4	0.29	< 0.010	< 0.010	0.12	0.18	< 0.010	< 0.010	0.93	1.7	< 0.010	1.6	1.1	630	< 0.010	< 0.010	0.43	0.44
Benzo(k)fluoranthene	370	0.2	-	0.35	5.1	1.3	0.72	0.21	0.17	0.19	0.27	0.3	1.5	37	69	5.7	2.1	0.11	< 0.010	< 0.010	0.049	0.034	< 0.010	< 0.010	0.31	0.53	< 0.010	0.59	0.38	200	< 0.010	< 0.010	0.16	0.12
Benzo(a)pyrene	11	0.54	-	0.89	24	6	3.6	0.78	0.7	0.98	0.8	1	6.7	190	420	25	8.7	0.26	< 0.010	< 0.010	0.084	0.24	< 0.010	< 0.010	1	1.7	< 0.010	1.7	1.1	930	< 0.010	< 0.010	0.5	0.54
Indeno(123cd)pyrene	150	< 0.010	-	0.53	13	3.5	2	0.64	< 0.010	0.58	0.61	0.78	4.1	87	230	17	5.5	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.99	< 0.010	1.3	0.92	510	< 0.010	< 0.010	0.26	< 0.010
Dibenz(a,h)anthracene	1.1	< 0.010	-	0.14	0.58	0.16	0.15	0.17	< 0.010	0.066	0.079	0.088	0.25	3.3	5.9	0.72	0.29	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.18	< 0.010	0.21	0.13	23	< 0.010	< 0.010	0.02	< 0.010
Benzo(ghi)perylene	1400	< 0.010	-	0.7	20	5.1	3.1	0.87	< 0.010	1	0.75	0.93	6.3	180	230	25	8.4	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.2	< 0.010	1.1	0.81	810	< 0.010	< 0.010	0.4	< 0.010
Coronene	NA	-	-	-	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-
PAH 16 Total	NA	7.4	-	14	710		110		11	20	15	14	200	11000	23000	720	250	2.8	0.71	< 0.20	1.8	3.8	0.28	< 0.20	26	32	-	32	36	49000	< 0.20	0.22	33	14
Total Of 17 PAH's		-	-	-	-	170	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.20	-	-	-	-	-	-	-
PCB's	mg/kg																																	
PCB 81		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
PCB 77		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
PCB 105		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
PCB 114		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
PCB 118		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
PCB 123		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
PCB 126		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
PCB 156		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
PCB 157		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
PCB 167		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
PCB 169		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
PCB 189		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
Total PCBs (12 Congeners)		-	< 0.0010	-	< 0.0010	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	-
Inorganics																																		
Fraction of Organic Carbon	NA	0.02	-	0.009	0.018	-	0.012	-	0.051	0.049	0.042	0.024	0.029	0.029	0.042	0.0037	0.0042	0.058	0.21	0.0076	0.25	< 0.0010	0.0096	0.037	0.02	0.019	0.015	0.047	0.058	0.2	0.0021	0.0025	0.018	0.015
Organic Matter	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moisture	NA	12	13	20	15	16	15	18	17	23	19	14	18	26	19	19	16	15	61	20	46	21	18	24	17	27	23	27	25	32	27	19	14	14
Free Cyanide	24	< 0.50	-	< 0.50	< 0.50	-	< 0.50	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (2:1 Water Soluble) as SO4 mg/l	NA	1300	-	800	240		< 20	-	330	400	350	450	360	100	120	< 10	35	120	49	60	130	11	51	55	540	260	-	920	840	31	< 10	120	140	1000
pH (pH Units)	pH (<5, >9)	11.1	-	10.9	8.9	8.5	8.6	9	8.1	8.1	8	8.2	8.1	8.5	8.5	8.6	8.3	7.9	7.5	7.6	8.1	8.6	7.6	7.6	10	9.2	9.1	8.2	8.2	8.3	9.5	8.5	8.6	9.5
Chloride (Extractable)		320	-	300	140		110		640	500	400	420	520	58	52	< 20	700	58	34	< 20	96	< 20	< 20	< 20	360	840	-	440	360	180	20	26	66	360
Potassium (Total)		510	-	820	740		750		320	150	320	190	230	240	260	370	360	830	280	460	710	200	810	550	580	890	-	1400	890	2000	600	1200	520	690
Asbestos Screening																																		
Asbestos Identification	Present / Absent	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	-	No Asbestos Detected	-	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	-	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Type	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos by Gravimetry	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Asbestos		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

GACs are the LQM S4ULs with 1% SOM with the exception of those listed below:-

1. The GAC for lead is the C4SL derived using a Low Level of Toxicological Concern (LLTC) of 3.5ug/dL blood lead.

2. Free Cyanide - WYG derived using CLEA. See WYG Technical Memorandum: Derivation of a SSV.

Contaminant GAC	Public Open Space - Park (1% SOM)	BH666	BH666	BH666	BH666	BH666	BH667	BH667	BH667	BH667	BH667	BH667	BH667	BH668	BH668	BH668	BH668	BH668	BH668	BH668	BH668	BH668	BH669	BH669	BH669	BH669	BH669	BH669	BH670	BH670	BH670	BH670	BH670	BH670
	Depth (m)	5.00	9.00	10.00	11.00	13.00	0.5	3.0	4.0	6.0	8.0	11.0	13.0	2.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	5.0	7.0	9.0	11.0	12.0	13.5	1.0	3.0	5.0	6.0	7.0	10.0
Heavy Metals	mg/kg																																	
Inorganic Arsenic	170	13	-	4.8	-	3.1	13	6.7	-	15	-	-	-	3.6	-	9.9	4.2	3.6	-	-	3	4.8	1.4	10	20	14	7.1	3.3	4.1	6.9	-	-	21	-
Cadmium	532	0.37	-	0.12	-	0.16	0.14	0.3	-	0.17	-	-	-	< 0.10	-	0.18	< 0.10	< 0.10	-	-	0.13	< 0.10	0.17	0.14	0.31	0.44	0.74	< 0.10	0.16	< 0.10	-	-	0.8	-
Boron	46000	2.4	-	1.1	-	1.3	0.47	10	-	4.1	-	-	-	1.8	-	1.8	2	2.7	-	-	2.5	< 0.40	7.4	11	4.2	5.5	3.4	0.47	0.94	1.2	-	-	1.7	-
Chromium (total)	33000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	190	-
Copper	44000	79	-	86	-	33	88	99	-	100	-	-	-	67	-	160	41	53	-	-	98	13	31	10	83	81	42	16	38	56	-	-	270	-
Inorganic Mercury	240	< 0.10	-	< 0.10	-	< 0.10	< 0.05	0.06	-	0.05	-	-	-	< 0.10	-	0.19	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	0.22	0.19	0.1	< 0.10	0.14	< 0.10	-	-	0.71	-
Nickel	800	41	-	29	-	14	56	57	-	70	-	-	-	29	-	130	21	20	-	-	18	12	18	17	70	44	26	14	20	22	-	-	120	-
Lead	1300	53	-	26	-	23	33	49	-	38	-	-	-	44	-	91	60	220	-	-	50	9.2	28	6.9	120	100	32	13	29	58	-	-	190	-
Selenium	1800	< 0.20	-	< 0.20	-	< 0.20	1.4	0.57	-	1.6	-	-	-	< 0.20	-	< 0.20	< 0.20	< 0.20	-	-	< 0.20	< 0.20	< 0.20	< 0.20	0.22	0.21	< 0.20	< 0.20	< 0.20	< 0.20	-	-	0.3	-
Zinc	170000	190	-	130	-	120	260	200	-	330	-	-	-	220	-	480	290	340	-	-	240	31	110	35	270	560	1100	70	150	92	-	-	370	-
Chromium (Trivalent)		31	-	20	-	11	54	27	-	67	-	-	-	15	-	38	20	20	-	-	15	8.6	11	14	53	39	26	11	-	20	-	-	-	-
Chromium VI	220	< 0.50	-	< 0.50	-	< 0.50	< 0.50	< 0.50	-	< 0.50	-	-	-	< 0.50	-	< 0.50	< 0.50	< 0.50	-	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-	< 0.50	-
Manganese		860	-	340	-	200	980	410	-	1200	-	-	-	210	-	570	250	240	-	-	200	210	370	250	2500	650	-	160	-	450	-	-	-	-
Magnesium (Water Soluble)		20	-	< 20		< 20	< 20	40	-	60	-	-	-	< 20	-	< 20	< 20	< 20	-	-	< 20	< 20	< 20	< 20	< 20	< 20	-	< 20	-	< 20	-	-	-	-
Iron (Available)		45000	-	33000	-	51000	13000	31000	-	55000	-	-	-	3800	-	4700	5200	4400	-	-	8500	4700	34000	21000	23000	21000	-	16000	-	4900	-	-	-	-
Beryllium		< 1.0	-	< 1.0	-	< 1.0	0.7	< 0.5	-	0.9	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.8	< 1.0		< 1.0	-	-	-	-
Vanadium		27	-	17	-	8.6	48	46	-	59	-	-	-	7.1	-	27	12	10	-	-	8.5	8.2	6.6	20	60	33	17	7.8		20	-	-	-	-
Organics	mg/kg																																	
Phenol	440	-	< 0.020	< 0.020	< 0.020	< 0.020	-	< 0.020	-	< 0.020	0.44	0.11	< 0.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.020	< 0.020	-	< 0.020
Resorcinol		-	< 0.020	< 0.020	< 0.020	< 0.020	-	< 0.020	-	< 0.020	< 0.020	< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.020	< 0.020	-	< 0.020
Cresols		-	< 0.020	< 0.020	< 0.020	1.3	-	< 0.020	-	< 0.020	2.5	0.72	0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	0.2	-	< 0.020
Xylenols		-	< 0.020	< 0.020	< 0.020	< 0.020	-	< 0.020	-	< 0.020	< 0.020	< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	< 0.020	-	< 0.020
1-Naphthol		-	< 0.020	< 0.020	< 0.020	< 0.020	-	< 0.020	-	< 0.020	< 0.020	< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.020	< 0.020	-	< 0.020
Trimethylphenols		-	< 0.020	< 0.020	< 0.020	< 0.020	-	< 0.020	-	< 0.020	< 0.020	< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.020	< 0.020	-	< 0.020
Total Phenols		< 0.10	< 0.10	< 0.10	< 0.10	1.3	< 0.10	< 0.10	-	< 0.10	2.9	0.82	0.15	< 0.10	-	0.19	-	-	-	-	-	-	< 0.10	0.24	< 0.10	1.8	< 0.10	0.73	< 0.10	< 0.10	1.6	0.2	< 0.10	< 0.10
Total Petroleum Hydrocarbons	mg/kg																																	
Aliphatics																																		
EC>C5-C6	95000	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 1.0	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010		< 0.010	< 0.010	< 0.010		< 0.010
EC>C6-C8	150000	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	6	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 1.0	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010		< 0.010	< 0.010	< 0.010		< 0.010
EC>C8-C10	14000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	5.8	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 0.10	18	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10		< 0.10	< 0.10	< 0.10		< 0.10
EC>C10-C12	21000	19	8.3	20	11	10	< 0.10	9.2	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 0.10	88	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10		< 0.10	< 0.10	< 0.10		< 0.10
EC>C12-C16	25000	24	20	5.5	36	11	< 0.10	34	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 0.10	140	< 0.10	8	20	< 0.10	-	< 0.10		< 0.10	< 0.10	< 0.10		< 0.10
EC>C16-C21	450000	15	< 0.10	< 0.10	5.5	< 0.10	< 0.10	70	39	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0		31	< 0.10	< 0.10	560	< 0.10	-	< 0.10		< 0.10	7.6	< 0.10		< 0.10
EC>C21-C35	450000	300	330	150	260	480	< 0.10	890	1000	-	220	330	210	< 0.10	< 0.10	510	36	< 0.10	< 1.0	< 1.0	300	710	260	650	830	< 0.10	-	< 0.10		180	600	23		< 0.10
EC>C35-C44	450000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	50	< 0.10	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10		< 0.10	< 0.10	< 0.10		< 0.10
Total aliphatics	NA	350	360	180	320	500	< 1.0	1000	1100	-	220	330	210	< 1.0	< 1.0	510	86	< 1.0	< 5.0	< 5.0	300	990	260	660	1400	< 1.0	-	< 1.0		180	600	23		< 1.0
Aromatics																																		
EC 5-7 (benzene)	76000	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 1.0	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010		< 0.010	< 0.010	< 0.010		< 0.010
EC>C7-C8 (toluene)	87000	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 1.0	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010		< 0.010	< 0.010	< 0.010		< 0.010
EC>C8-C10	7200	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10		< 0.10	< 0.10	< 0.10		< 0.10
EC>C10-C12	9200	130	15	24	30	8.5	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 0.10	470	17	< 0.10	< 0.10	< 0.10	-	< 0.10		< 0.10	< 0.10	< 0.10		< 0.10
EC>C12-C16	10000	350	44	5.9	50	16	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	100	940	55	17	33	< 0.10	-	< 0.10		< 0.10	< 0.10	< 0.10		< 0.10
EC>C16-C21	7600	190	45	9.9	73	83	< 0.10	48	26	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	100	370	47	200	110	29	-	< 0.10		26	55	< 0.10		< 0.10
EC>C21-C35	7800	360	140	17	870	410	< 0.10	440	290	-	120	48	< 0.10	< 0.10	< 0.10	210	280	< 0.10	< 1.0	< 1.0	62	810	330	1300	580	< 0.10	-	< 0.10		190	160	30		< 0.10
EC>C35-C44	7800	< 0.10	9.1	5.5	11	21	< 0.10	< 0.10	19	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	15	< 0.10	< 1.0	< 1.0	< 0.10	45	< 0.10	< 0.10	18	< 0.10	-	< 0.10		20	< 0.10	< 0.10		< 0.10
Total aromatics		1000	250	62	1000	530	< 1.0	480	330	-	120	48	< 1.0	< 1.0	< 1.0	210	300	< 1.0	< 5.0	< 5.0	270	2600	450	1500	740	29	-	< 1.0		240	210	30		< 1.0
Total Aliphatics and Aromatics		1400	610	240	1300	1000	< 2.0	1500	1400	-	340	380	210	< 2.0	< 2.0	730	390	< 2.0	< 10	< 10	570	3600	710	2200	2100	29	-	< 2.0		420	820	53		< 2.0
TPH >C6-C8		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 1.0	-	-	-	< 1.0	-
TPH >C8-C10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 1.0	-	-	-	< 1.0	-
TPH >C10-C12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	< 1.0	-
TPH >C12-C16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	-	-	< 1.0	-
TPH >C16-C21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29	-	-	-	< 1.0	-
TPH >C21-C25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	-	< 1.0	-
TPH >C25-C35		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	-	-	-	< 1.0	-
TPH >C35-C40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.4	-	-	-	< 1.0	-
Total TPH >C6-C40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	-	< 10	-
Total TPH >C10-C40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	280	-	-	-	-	-	-	-
Total TPH >C5-C10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 10	-	-	-	-	-	-	-
BTEX & MTBE	mg/kg																																	
Benzene	90	0.041		0.0065		0.011								0.0054	-	0.0045	0.019	0.062			0.064	0.11	0.083	0.02	0.055	0.012	< 0.0010	0.01	-	< 0.0010	-	-	-	-
Toluene	87000	0.051		0.0039		0.007								0.003	-	0.0029	0.0049	0.0032			0.0044	0.098	0.017	0.0075	0.018	0.006	< 0.0010	0.0071	-	< 0.0010	-	-	-	-
Ethylbenzene	17000	0.19		0.0088		0.017								0.019	-	0.0017	0.0054	0.0072			0.011	0.1	0.042	0.033	0.016	0.083	0.17	0.2	-	< 0.0010	-	-	-	-
m&p-xylene	170000	0.1		0.0048		0.013								0.026	-	0.0094	0.048	0.01			0.0063	< 0.0010	0.08	0.069	0.034	0.021	0.42	0.029	-	< 0.0010	-	-	-	-
o-xylene	17000	0.04		0.0014		0.0034								0.012	-	0.0046	0.019	0.0046			0.0082	< 0.0010	0.021	0.019	0.012	0.014	0.13	0.014	-	< 0.0010	-	-	-	-
MTBE	NA	< 0.0010		< 0.0010		< 0.0010								< 0.0010	-	< 0.0010	< 0.0010	< 0.0010			< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-
Polycyclic Aromatic Hydrocarbons	mg/kg																																	
Naphthalene	1200	2.9	2.9	1.8	1.1	1.2	4.8	10	3.5	-	2.8	2.6	4.8	0.16	0.48	< 0.010	-	-	-	-	-	-	1.1	2.5	0.83	8.6	0.51	1.1	0.83	0.21	0.17	0.12	0.92	< 0.010
Acenaphthylene	29000	8.2	9.3	2	0.76	0.65	0.87	2.3	0.95	-	0.73	0.65	1	0.056	0.13	< 0.010	-	-	-	-	-	-	4.1	6.8	0.69	12	0.36	3.8	0.75	0.1	0.35	0.16	1.4	< 0.010
Acenaphthene	29000	2.6	3.9	1.1	0.23	0.19	0.26	0.71	0.34	-	0.24	0.28	1.2	0.066	0.2	< 0.010	-	-	-	-	-	-	1.3	2	0.36	100	0.62	1.2	9	0.17	0.42	0.12	0.28	< 0.010
Fluorene	20000	4.4	6.1	1.4	0.31	0.16	0.24	0.6	0.37	-	0.29	0.29	0.62	0.17	0.29	< 0.010	-	-	-	-	-	-	2	6	0.53	48	0.58	2.2	7.9	0.14	0.41	0.17	1.1	< 0.010
Phenanthrene	6200	12	16	2.7	0.56	0.5	0.17	1.5	0.74	-	0.83	0.48	1.1	0.54	0.96	0.11	-	-	-	-	-	-	4.9	24	1.4	100	1.7	5.3	53	0.65	2	0.65	8.6	0.28
Anthracene	150000	2	1.9	0.39	0.36	0.25	< 0.010	0.43	0.17	-	0.16	0.14	0.41	0.11	0.21	< 0.010	-	-	-	-	-	-	0.77	4.5	0.3	16	0.23	0.84	16	0.17	0.57	0.14	2.5	0.069
Fluoranthene	6300	6.6	8.1	1.5	0.46	0.36	0.1	2.3	0.8	-	0.81	0.32	2.6	1.3	0.78	0.13	-	-	-	-	-	-	2.9	16	1.3	59	1.2	3	81	1.1	3	1.1	14	0.72
Pyrene	15000	9.4	12	1.8	0.46	0.35	0.11	1.8	0.81	-	0.8	0.4	3.2	1.5	0.79	0.15	-	-	-	-	-	-	4.2	22	1.7	80	1.6	4.1	62	1.1	2.7	1.1	12	0.7
Benz(a)anthracene	49	1.8	1.2	0.4	0.21	0.16	< 0.010	1.1	0.3	-	0.19	0.075	0.73	1.2	0.18	< 0.010	-	-	-	-	-	-	0.59	3	0.46	10	0.19	0.48	34	0.51	1.1	0.49	6.9	0.29
Chrysene	93	1.4	1.2	0.22	0.18	0.11	< 0.010	0.99	0.31	-	0.2	0.12	0.71	1.6	0.29	< 0.010	-	-	-	-	-	-	0.64	2.9	0.37	9.1	0.19	0.5	30	0.44	1	0.49	6.9	0.25
Benzo(b)fluoranthene	13	3	1.7	0.4	0.33	0.19	< 0.010	1.3	0.36	-	0.27	0.13	1.1	2.3	0.34	< 0.010	-	-	-	-	-	-	0.75	3.6	0.8	13	0.28	0.81	35	0.84	1.3	0.45	9.6	0.44
Benzo(k)fluoranthene	370	0.76	0.51	0.22	0.14	0.089	< 0.010	0.47	0.15	-	0.19	0.041	0.43	0.76	0.098	< 0.010	-	-	-	-	-	-	0.22	1.2	0.27	4	0.095	0.27	13	0.34	0.42	0.16	3.4	0.13
Benzo(a)pyrene	11	4.7	2.2	0.43	0.26	0.23	< 0.010	0.93	0.35	-	0.37	0.19	1.3	1.8	0.27	< 0.010	-	-	-	-	-	-	1.1	4.9	0.77	19	0.32	1.1	31	0.81	1.3	0.58	8.4	0.36
Indeno(123cd)pyrene	150	3.2	1.4	0.26	< 0.010	0.1	< 0.010	0.39	0.15	-	0.21	0.13	0.71	1.1	0.16	< 0.010	-	-	-	-	-	-	0.71	3.4	0.63	13	0.28	0.64	18	0.56	0.72	0.45	5.7	0.27
Dibenz(a,h)anthracene	1.1	2.1	0.13	0.22	< 0.010	0.072	< 0.010	0.16	0.13	-	0.055	0.044	0.14	0.27	0.14	< 0.010	-	-	-	-	-	-	0.052	0.15	0.11	0.39	0.062	0.14	3.6	0.1	0.14	0.1	1.2	0.06
Benzo(ghi)perylene	1400	6.6	2.2	0.41	< 0.010	0.16	< 0.010	0.42	0.27	-	0.17	0.14	0.83	1.4	0.22	< 0.010	-	-	-	-	-	-	0.86	3.7	0.58	14	0.3	1.1	15	0.59	0.73	0.47	5.6	0.25
Coronene	NA	-	< 0.010	-	< 0.010	-	-	-	< 0.010	-	< 0.010	< 0.010	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	< 0.010
PAH 16 Total	NA	72	-	15	-	4.8	6.6	25	-	8.7	-	-	-	14	-	0.39	-	-	-	-	-	-	26	110	11	510	8.5	27	410	7.8	-	-	89	-
Total Of 17 PAH's		-	70	-	5.4	-	-	-	9.7	-	8.3	6	21	-	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	6.8	-	3.8
PCB's	mg/kg																																	
PCB 81		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
PCB 77		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
PCB 105		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
PCB 114		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
PCB 118		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
PCB 123		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
PCB 126		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
PCB 156		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
PCB 157		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
PCB 167		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
PCB 169		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
PCB 189		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
Total PCBs (12 Congeners)		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	-	-	-	-	-	-
Inorganics																																		
Fraction of Organic Carbon	NA	0.023	0.0072	0.014	0.025	0.024	0.007	0.05	-	0.041	-	-	-	0.029	-	0.035	0.017	0.024	-	-	0.017	0.006	0.069	0.066	0.098	0.16	0.012	< 0.0010	-	0.018	0.019	0.0088	-	< 0.0010
Organic Matter	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moisture	NA	22	16	17	31	40	16	34	24	36	19	10	28	14	36	20	25	19	24	26	25	18	29	30	17	23	23	16	15	18	19	6.2	7.4	18
Free Cyanide	24	< 0.50	-	< 0.50	-	< 0.50								< 0.50	-	< 0.50	< 0.50	< 0.50	-	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-	< 0.50	-
Sulphate (2:1 Water Soluble) as SO4 mg/l	NA	220	-	210	-	57	81	1100	-	1500	-	-	-	350	-	900	340	320	-	-	300	240	120	260	230	190	-	85	740	910	-	-	1900	-
pH (pH Units)	pH (<5, >9)	8.7	8.5	8.7	8.8	8.4	8.3	7.8	-	8.2	-	-	-	8.5	-	8.9	8.5	8.6	-		8.6	10.4	8	8.4	8.5	8.4	8.7	9	8.2	8.1	8.1	8.4	9.4	8.9
Chloride (Extractable)		460	-	240	-	600	< 20	120	-	280	-	-	-	260	-	320	< 20	720	-	-	590	510	1300	800	240	260	-	400	-	36	-	-	-	-
Potassium (Total)		1600	-	580	-	410	1800	450	-	410	-	-	-	340	-	970	420	400	-	-	350	350	780	2200	2100	1600	-	500	-	580	-	-	-	-
Asbestos Screening																																		
Asbestos Identification	Present / Absent	No Asbestos Detected	-	No Asbestos Detected	-	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	-	No Asbestos Detected	-	-	-	No Asbestos Detected	-	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	-	-	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	Chrysotile	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	-	No Asbestos Detected	-	-	-	-
ACM Type	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Free Fibres	-	-	-	-	-	-	-	-	-
Asbestos by Gravimetry	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-
Total Asbestos		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-

GACs are the LQM S4ULs with 1% SOM with the exception of those listed below:-

1. The GAC for lead is the C4SL derived using a Low Level of Toxicological Concern (LLTC) of 3.5ug/dL blood lead.

2. Free Cyanide - WYG derived using CLEA. See WYG Technical Memorandum: Derivation of a SSV.

Contaminant GAC	Public Open Space - Park (1% SOM)	BH671	BH671	BH671	BH671	BH671	BH672	BH672	BH672	BH672	BH673	BH673	BH673	BH673	BH673	BH674	BH674	BH674	BH674	BH675	BH675	BH675	BH675	BH675	BH676	BH676	BH676	BH676	BH676	BH676	BH676	BH677	BH677	BH677
	Depth (m)	**1.0**	**2.0**	**3.0**	**4.0**	**5.0**	**1.0**	**2.0**	**3.0**	**6.0**	**1.0**	**3.0**	**4.0**	**5.0**	**6.0**	**2.0**	**3.0**	**4.0**	**5.0**	**1.0**	**4.0**	**7.0**	**9.0**	**10.0**	**1.0**	**2.0**	**4.0**	**6.0**	**7.0**	**8.0**	**12.0**	**0.5**	**3.0**	**6.0**
Heavy Metals	**mg/kg**																																	
Inorganic Arsenic	**170**	< 1.0	< 1.0	2.5	< 1.0	-	4	-	-	-	6.9	-	-	-	-	8.4	7.6	-	-	< 0.5	3.8	19	5.1	-	36	-	-	-	-	-	-	7.2	3.7	2.5
Cadmium	**532**	< 0.10	< 0.10	< 0.10	< 0.10	-	0.13	-	-	-	0.19	-	-	-	-	0.17	0.36	-	-	< 0.10	< 0.10	1.3	0.46	-	< 0.10	-	-	-	-	-	-	0.19	0.12	< 0.10
Boron	**46000**	< 0.40	0.7	0.61	< 0.40	-	2.5	-	-	-	0.75	-	-	-	-	2	1.8	-	-	13	1.1	1.8	3	-	0.92	-	-	-	-	-	-	1.5	0.93	2.2
Chromium (total)	**33000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	**44000**	4.3	27	12	8	-	34	-	-	-	27	-	-	-	-	64	170	-	-	0.58	40	91	11	-	48	-	-	-	-	-	-	21	16	15
Inorganic Mercury	**240**	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	-	-	-	< 0.05	-	-	-	-	0.05	< 0.05	-	-	< 0.05	0.1	0.37	0.1	-	< 0.05	-	-	-	-	-	-	< 0.05	0.06	0.29
Nickel	**800**	4.2	11	13	7.7	-	14	-	-	-	21	-	-	-	-	30	17	-	-	< 0.50	13	71	7.4	-	18	-	-	-	-	-	-	17	12	10
Lead	**1300**	1.9	2.2	9.1	3.7	-	35	-	-	-	28	-	-	-	-	34	240	-	-	0.64	29	180	31	-	16	-	-	-	-	-	-	7	30	79
Selenium	**1800**	< 0.20	< 0.20	< 0.20	< 0.20	-	< 0.20	-	-	-	0.48	-	-	-	-	0.55	0.36	-	-	< 0.25	0.29	1.3	0.39	-	0.37	-	-	-	-	-	-	0.41	0.28	< 0.25
Zinc	**170000**	7.3	23	34	18	-	140	-	-	-	96	-	-	-	-	180	590	-	-	3.8	47	840	79	-	53	-	-	-	-	-	-	42	66	83
Chromium (Trivalent)		2.6	11	15	5.1	-	17	-	-	-	15	-	-	-	-	25	39	-	-	< 1.0	8.9	50	6.1	-	47	-	-	-	-	-	-	11	10	7.6
Chromium VI	**220**	< 0.50	< 0.50	< 0.50	< 0.50	-	<0.50	-	-	-	< 0.50	-	-	-	-	< 0.50	< 0.50	-	-	< 0.50	< 0.50	< 0.50	< 0.50	-	< 0.50	-	-	-	-	-	-	< 0.50	< 0.50	< 0.50
Manganese		64	130	170	-	-	-	-	-	-	290	-	-	-	-	510	220	-	-	1.7	170	1100	71	-	430	-	-	-	-	-	-	770	150	100
Magnesium (Water Soluble)		< 20	< 20	< 20	-	-	-	-	-	-	< 20	-	-	-	-	< 20	< 20	-	-	44	54	24	30	-	< 20	-	-	-	-	-	-	< 20	< 20	< 20
Iron (Available)		5900	5100	12000		-	-	-	-	-	9600	-	-	-	-	28000	64000	-	-	12000	10000	14000	9000	-	26000	-	-	-	-	-	-	140000	37000	76000
Beryllium		< 1.0	< 1.0	< 1.0	< 1.0	-	<1.0	-	-	-	< 0.5	-	-	-	-	< 0.5	< 0.5	-	-	< 0.5	< 0.5	< 0.5	< 0.5	-	< 0.5	-	-	-	-	-	-	< 0.5	< 0.5	< 0.5
Vanadium		< 5.0	11	13	< 5.0	-	10	-	-	-	14	-	-	-	-	22	10	-	-	< 0.5	8.7	42	6.3	-								6.9	7.9	5.5
Organics	**mg/kg**																																	
Phenol	**440**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.25	-	< 0.020	< 0.020	-	-	-	0.1	< 0.020	-	< 0.020	< 0.020	< 0.020	0.093	< 0.020	< 0.020	-	-	< 0.020
Resorcinol		-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.020	-	< 0.020	< 0.020	-	-	-	< 0.020	< 0.020	-	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	-	-	< 0.020
Cresols		-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	-	< 0.020	< 0.020	-	-	-	< 0.020	< 0.020	-	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	-	-	< 0.020
Xylenols		-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.084	-	< 0.020	0.11	-	-	-	< 0.020	< 0.020	-	< 0.020	< 0.020	< 0.020	< 0.020	0.2	< 0.020	-	-	< 0.020
1-Naphthol		-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.020	-	< 0.020	< 0.020	-	-	-	< 0.020	< 0.020	-	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	-	-	< 0.020
Trimethylphenols		-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.87	-	< 0.020	0.6	-	-	-	< 0.020	< 0.020	-	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	-	-	< 0.020
Total Phenols		-	-	-	-	-	< 0.10	-	-	-	< 0.10	-	-	-	-	1.4	9.3	< 0.10	0.71	0.71	2.2	0.82	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.2	< 0.10	< 0.10	< 0.10	< 0.10
Total Petroleum Hydrocarbons	**mg/kg**																																	
Aliphatics																																		
EC>C5-C6	**95000**	< 0.010	< 0.010	< 0.010	-	< 1.0	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	24	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C6-C8	**150000**	< 0.010	< 0.010	< 0.010	-	< 1.0	-	< 0.010	< 0.010	< 0.010	< 0.010	79	34	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C8-C10	**14000**	< 0.10	19	96	-	< 1.0	-	< 0.10	< 0.10	< 0.10	< 0.10	2200	2400	13	13	< 0.10	31	13	< 0.10	< 0.10	230	38	< 0.10	< 0.10	< 0.10	< 0.10	10	6.8	< 0.10	< 0.10	< 0.10	< 0.10	20	< 0.10
EC>C10-C12	**21000**	< 0.10	71	260	-	< 1.0	-	< 0.10	< 0.10	< 0.10	< 0.10	4100	4200	50	48	< 0.10	120	110	33	13	130	180	15	< 0.10	< 0.10	< 0.10	13	60	11	< 0.10	< 0.10	< 0.10	25	< 0.10
EC>C12-C16	**25000**	< 0.10	490	860	-	< 1.0	-	< 0.10	< 0.10	< 0.10	< 0.10	3100	2900	47	46	72	200	91	16	42	< 0.10	440	19	< 0.10	< 0.10	< 0.10	30	89	11	9.8	< 0.10	< 0.10	< 0.10	45
EC>C16-C21	**450000**	< 0.10	1300	1900	-	< 1.0	-	< 0.10	< 0.10	< 0.10	< 0.10	2000	2200	12	11	< 0.10	170	35	5.1	190	< 0.10	1000	24	< 0.10	< 0.10	11	120	230	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	62
EC>C21-C35	**450000**	< 0.10	500	1100	-	< 1.0	-	< 0.10	< 0.10	< 0.10	120	2300	1900	77	74	13000	1100	130	60	1200	< 0.10	1900	1200	170	< 0.10	120	780	1700	130	< 0.10	< 0.10	< 0.10	280	1200
EC>C35-C44	**450000**	< 0.10	79	55	-	< 1.0	-	< 0.10	< 0.10	< 0.10	< 0.10	1600	1400	< 0.10	< 0.10	1200	< 0.10	< 0.10	< 0.10	27	< 0.10	230	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	170	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	33
Total aliphatics	**NA**	< 1.0	2400	4300	-	< 5.0	-	< 1.0	< 1.0	< 1.0	120	15000	15000	200	190	14000	1600	380	110	1400	360	3800	1200	170	< 1.0	130	980	2200	150	9.8	< 1.0	< 1.0	320	1400
Aromatics																																		
EC 5-7 (benzene)	**76000**	< 0.010	< 0.010	< 0.010	-	< 1.0	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C7-C8 (toluene)	**87000**	< 0.010	< 0.010	< 0.010	-	< 1.0	-	< 0.010	< 0.010	< 0.010	< 0.010	710	750	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C8-C10	**7200**	< 0.10	99	260	-	< 1.0	-	< 0.10	< 0.10	< 0.10	< 0.10	**12000**	**13000**	85	82	< 0.10	37	71	< 0.10	< 0.10	2400	33	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	28	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	92
EC>C10-C12	**9200**	< 0.10	1600	3700	-	< 1.0	-	< 0.10	< 0.10	< 0.10	14	**80000**	**82000**	1100	1100	< 0.10	610	1200	230	< 0.10	570	120	< 0.10	9.5	< 0.10	< 0.10	70	1400	7	11	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**10000**	< 0.10	1900	5200	-	< 1.0	-	< 0.10	< 0.10	< 0.10	140	**98000**	**100000**	1700	1600	93	3100	2500	830	< 0.10	190	470	< 0.10	9	< 0.10	37	56	2800	39	18	< 0.10	< 0.10	< 0.10	27
EC>C16-C21	**7600**	< 0.10	1200	3400	-	< 1.0	-	< 0.10	< 0.10	< 0.10	170	**53000**	**55000**	1100	1100	120	2200	1600	480	43	< 0.10	1500	640	< 0.10	< 0.10	97	64	3400	18	12	< 0.10	< 0.10	< 0.10	250
EC>C21-C35	**7800**	< 0.10	1600	4200	-	< 1.0	-	< 0.10	< 0.10	< 0.10	560	**53000**	**54000**	1200	1200	7800	5900	1600	710	1100	< 0.10	5600	2200	23	< 0.10	280	120	4400	22	< 0.10	< 0.10	< 0.10	650	< 0.10
EC>C35-C44	**7800**	< 0.10	160	360	-	< 1.0	-	< 0.10	< 0.10	< 0.10	< 0.10	3700	4200	54	52	120	260	69	32	65	< 0.10	540	< 0.10	< 0.10	< 0.10	< 0.10	21	390	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total aromatics		< 1.0	6600	17000	-	< 5.0	-	< 1.0	< 1.0	< 1.0	880	300000	310000	5200	5100	8200	12000	7000	2300	1200	3200	8300	2900	42	< 1.0	410	340	12000	86	41	< 1.0	< 1.0	650	370
Total Aliphatics and Aromatics		< 2.0	9100	21000	-	< 10	-	< 2.0	< 2.0	< 2.0	1000	310000	330000	5400	5200	22000	14000	7400	2400	2700	3500	12000	4100	210	< 2.0	540	1300	15000	240	51	< 2.0	< 2.0	970	1800
TPH >C6-C8		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C8-C10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C10-C12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C12-C16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C16-C21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C21-C25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C25-C35		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C35-C40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TPH >C6-C40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TPH >C10-C40		-	-	-	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TPH >C5-C10		-	-	-	< 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BTEX & MTBE	**mg/kg**																																	
Benzene	**90**	< 0.0010	**190**	67	< 0.0010		< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.016	-	-	-	-	0.052	0.036	-	-	0.069	< 0.0010	0.06	0.049	0.087	< 0.0010	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010
Toluene	**87000**	0.1	85	40	< 0.0010		< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.011	-	-	-	-	0.026	0.012	-	-	0.017	< 0.0010	0.0082	0.0083	0.044	< 0.0010	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010
Ethylbenzene	**17000**	0.15	5.8	180	< 0.0010		< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.049	-	-	-	-	0.13	0.25	-	-	0.16	< 0.0010	0.018	0.018	0.11	< 0.0010	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010
m&p-xylene	**170000**	< 0.0010	7.2	4.1	0.093		< 0.0010	< 0.0010	< 0.0010	< 0.0010	<0.0010	-	-	-	-	0.0032	< 0.0010	-	-	0.11	< 0.0010	0.012	0.031	0.015	< 0.0010	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010
o-xylene	**17000**	< 0.0010	4.9	3	0.064		< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.07	-	-	-	-	0.025	0.012	-	-	0.058	< 0.0010	0.0064	0.024	0.009	< 0.0010	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010
MTBE	**NA**	< 0.0010	< 0.0010	< 0.0010	< 0.0010		< 0.0010	< 0.0010	< 0.0010	< 0.0010	<0. 010	-	-	-	-	< 0.0010	< 0.0010	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010
Polycyclic Aromatic Hydrocarbons	**mg/kg**																																	
Naphthalene	**1200**	-	-	-	-	-	0.077	0.082	< 0.010	< 0.010	7.3	**19000**	**2000**	130	7.2	2.5	210	84	53	< 0.010	< 0.010	0.31	< 0.010	4.2	< 0.010	3.2	< 0.010	4.3	0.99	1.1	< 0.010	0.11	0.29	0.24
Acenaphthylene	**29000**	-	-	-	-	-	0.061	0.11	< 0.010	< 0.010	20	17000	1800	230	37	0.62	580	460	250	< 0.010	< 0.010	0.43	< 0.010	5.2	< 0.010	20	< 0.010	13	3.2	3.7	< 0.010	0.1	0.3	0.33
Acenaphthene	**29000**	-	-	-	-	-	0.092	0.068	< 0.010	< 0.010	5.3	3100	240	28	8.3	0.22	390	85	46	< 0.010	< 0.010	0.38	< 0.010	1.9	< 0.010	17	< 0.010	26	11	9.8	< 0.010	0.1	0.13	0.22
Fluorene	**20000**	-	-	-	-	-	0.08	0.085	< 0.010	< 0.010	11	4500	460	68	17	0.23	290	160	95	< 0.010	< 0.010	0.37	< 0.010	3.3	< 0.010	21	< 0.010	23	5.7	6.3	< 0.010	0.16	0.24	0.3
Phenanthrene	**6200**	-	-	-	-	-	0.38	0.76	< 0.010	< 0.010	32	**10000**	1100	170	44	0.59	670	380	210	< 0.010	0.33	1.8	0.53	14	< 0.010	55	12	61	14	14	1.1	0.46	0.92	1.1
Anthracene	**150000**	-	-	-	-	-	0.075	0.21	< 0.010	< 0.010	4.8	1700	180	27	6.7	0.17	120	68	34	< 0.010	0.12	0.33	0.12	1.1	< 0.010	16	2.8	11	1.6	1.6	0.14	0.11	0.11	0.16
Fluoranthene	**6300**	-	-	-	-	-	0.41	1.5	0.093	0.11	19	4100	430	82	23	0.65	330	170	97	< 0.010	0.86	3.2	0.85	8.2	0.13	86	10	46	8.2	8.6	0.9	0.49	1.1	1.5
Pyrene	**15000**	-	-	-	-	-	0.43	1.3	0.12	0.13	26	6100	620	130	32	0.59	480	280	150	< 0.010	0.74	3	0.88	11	0.2	110	15	63	11	11	1.3	0.66	1.3	1.6
Benz(a)anthracene	**49**	-	-	-	-	-	0.14	0.68	< 0.010	< 0.010	3.3	**590**	**65**	14	3.7	0.14	**60**	31	16	< 0.010	0.38	1.5	0.29	1.1	< 0.010	**71**	8.2	29	4.4	3.6	0.42	0.11	0.35	0.23
Chrysene	**93**	-	-	-	-	-	0.14	0.69	< 0.010	< 0.010	3.4	**550**	63	14	3.8	0.19	58	32	17	< 0.010	0.25	1.4	0.23	1	< 0.010	20	3.4	10	2.1	1.6	0.6	0.14	0.27	0.2
Benzo(b)fluoranthene	**13**	-	-	-	-	-	0.17	0.8	< 0.010	< 0.010	4.4	**640**	**39**	**16**	4.7	0.19	**68**	**37**	**19**	< 0.010	0.42	1.8	0.25	1.5	< 0.010	**22**	2.9	11	2.1	1.9	< 0.010	0.11	0.43	0.38
Benzo(k)fluoranthene	**370**	-	-	-	-	-	0.091	0.2	< 0.010	< 0.010	1.4	170	22	4.8	1.3	0.16	23	11	6	< 0.010	0.17	0.66	0.12	0.45	< 0.010	8.4	2.2	3.9	0.76	0.74	< 0.010	0.1	0.11	0.099
Benzo(a)pyrene	**11**	-	-	-	-	-	0.11	0.57	< 0.010	< 0.010	6.1	**970**	**110**	**25**	6.9	0.27	**94**	**55**	**29**	< 0.010	0.37	1.5	0.22	1.9	< 0.010	**37**	5	**17**	3.1	2.3	< 0.010	0.15	0.41	0.39
Indeno(123cd)pyrene	**150**	-	-	-	-	-	0.076	< 0.010	< 0.010	< 0.010	3.8	**470**	58	14	4	0.24	53	31	16	< 0.010	< 0.010	0.99	< 0.010	< 0.010	< 0.010	17	< 0.010	8.7	2.7	2.9	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)anthracene	**1.1**	-	-	-	-	-	0.034	< 0.010	< 0.010	< 0.010	0.32	**20**	**2.3**	0.5	0.25	0.15	**2.6**	**1.4**	0.63	< 0.010	< 0.010	0.2	< 0.010	< 0.010	< 0.010	**1.6**	< 0.010	0.72	1.1	**1.3**	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(ghi)perylene	**1400**	-	-	-	-	-	0.099	< 0.010	< 0.010	< 0.010	5	850	82	20	5.7	0.17	74	43	22	< 0.010	< 0.010	0.93	< 0.010	< 0.010	< 0.010	24	< 0.010	12	3.9	3.5	< 0.010	< 0.010	< 0.010	< 0.010
Coronene	**NA**	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	-	-	< 0.010	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-
PAH 16 Total	**NA**	-	-	-	-	-	2.5	-	-	-	150	-	-	-	-	7.1	3500	-	-	< 0.20	3.6	19	3.5	-	0.33	530	62	340	76	73	4.5	2.8	6	6.8
Total Of 17 PAH's		-	-	-	-	-	-	7.1	0.21	0.24	-	70000	7200	970	210	-	-	1900	1100	-	-	-	-	55	-	-	-	-	-	-	-	-	-	-
PCB's	**mg/kg**																																	
PCB 81		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
PCB 77		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
PCB 105		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
PCB 114		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
PCB 118		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
PCB 123		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
PCB 126		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
PCB 156		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
PCB 157		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
PCB 167		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
PCB 169		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
PCB 189		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
Total PCBs (12 Congeners)		-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010	-	-	-	-	-	-	-	-	< 0.0010	-	-	-	-	-	-
Inorganics																																		
Fraction of Organic Carbon	**NA**	0.002	0.08	0.027	0.0012	-	0.0098	-	-	-	0.0016	-	-	-	-	0.021	0.057	-	-	0.15	0.026	0.065	0.03	-	0.01	-	-	-	-	-	-	0.0023	0.0048	0.0069
Organic Matter	**NA**	-	-	-	-	-	-	-	-	-	-	21	57	< 0.40	< 0.40	-	-	0.53	0.59	-	-	-	-	< 0.40	-	-	-	-	-	-	-	-	-	-
Moisture	**NA**	5.4	16	21	18	21	13	19	19	12	9.6	68	75	16	14	31	21	6.3	12	45	15	22	38	18	20	18	21	12	18	24	26	7.6	19	41
Free Cyanide	**24**	< 0.50	< 0.50	< 0.50	< 0.50	-	<0.50	-	-	-	< 0.50	-	-	-	-	< 0.50	< 0.50	-	-	< 0.50	< 0.50	< 0.50	< 0.50	-	< 0.50	-	-	-	-	-	-	< 0.50	< 0.50	< 0.50
Sulphate (2:1 Water Soluble) as SO4 mg/l	**NA**	120	52	180	-	-	-	-	-	-	180	-	-	-	-	470	360	-	-	1500	300	400	490	-	460	-	-	-	-	-	-	440	260	220
pH (pH Units)	**pH (<5, >9)**	**10**	8.7	8.6	**10.4**	-	8.5	-	-	-	**9.1**	8.8	9	8.9	**9.1**	8.5	8.1	8.7	8.5	8.4	8.4	7.9	8	-	8.6	8.6	8.4	8.8	8.9	8.9	8.9	**9.5**	8.6	8.4
Chloride (Extractable)		62	160	180	-	-	-	-	-	-	70	-	-	-	-	100	90	-	-	190	240	720	600	-	48	-	-	-	-	-	-	86	140	480
Potassium (Total)		140	180	710	-	-	-	-	-	-	55	-	-	-	-	890	560	-	-	< 10	420	1500	280	-	650	-	-	-	-	-	-	470	520	360
Asbestos Screening																																		
Asbestos Identification	**Present / Absent**	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	-	No Asbestos Detected	-	-	-	**Lagging**	-	-	-	-	No Asbestos Detected	No Asbestos Detected	-	-	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	-	No Asbestos Detected	-	-	-	-	-	-	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Type	**NA**	-	-	-	-	-	-	-	-	-	Chrysotile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos by Gravimetry	**NA**	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Asbestos		-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

GACs are the LQM S4ULs with 1% SOM with the exception of those listed below:-

1. The GAC for lead is the C4SL derived using a Low Level of Toxicological Concern (LLTC) of 3.5ug/dL blood lead.

2. Free Cyanide - WYG derived using CLEA. See WYG Technical Memorandum: Derivation of a SSV.

Compiled: May 2022

Contaminant GAC	Public Open Space - Park (1% SOM)	BH677	BH677	BH678	BH678	BH678	BH678	BH678	BH678	BH679	BH679	BH679	BH679	BH679	BH679	BH679
	Depth (m)	**9.0**	**12**	**1.0**	**3.0**	**5.0**	**7.0**	**7.7**	**12.0**	**1.0**	**3.0**	**4.0**	**6.0**	**8.0**	**9.0**	**12.0**
Heavy Metals	**mg/kg**															
Inorganic Arsenic	**170**	5.5	4	4.8	4.4	5.9	4.3	3.5	4.2	6.9	3.1	4.6	-	-	-	-
Cadmium	**532**	0.18	0.11	0.14	< 0.10	0.19	< 0.10	< 0.10	0.12	0.1	< 0.10	0.56	-	-	-	-
Boron	**46000**	1.6	0.4	< 0.40	0.98	1.6	2	0.44	0.43	1.2	7.1	5.1	-	-	-	-
Chromium (total)	**33000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	**44000**	21	11	18	18	170	110	10	13	24	22	12	-	-	-	-
Inorganic Mercury	**240**	0.08	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	0.05	< 0.05	0.05	-	-	-	-
Nickel	**800**	15	11	16	16	19	13	9.4	12	14	18	14	-	-	-	-
Lead	**1300**	33	8.7	15	12	160	47	8.7	13	19	6.4	20	-	-	-	-
Selenium	**1800**	0.34	0.3	0.71	0.71	0.64	0.28	0.47	0.51	0.51	1.3	0.39	-	-	-	-
Zinc	**170000**	88	42	50	46	92	55	35	43	63	16	52	-	-	-	-
Chromium (Trivalent)		13	9.2	13	12	17	14	8.7	11	14	5.2	7.7	-	-	-	-
Chromium VI	**220**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-	-	-
Manganese		180	170	370	330	240	180	140	160	440	83	450	-	-	-	-
Magnesium (Water Soluble)		< 20	< 20	< 20	< 20	30	< 20	< 20	< 20	< 20	< 20	< 20	-	-	-	-
Iron (Available)		65000	70000	58000	93000	27000	34000	61000	72000	99000	180000	77000	-	-	-	-
Beryllium		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.5	< 0.5	-	-	-	-
Vanadium		11	7.8	10	9.5	15	9.2	7.4	8.8	13	25	13	-	-	-	-
Organics	**mg/kg**															
Phenol	**440**	< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	-	-	-	-
Resorcinol		< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	-	-	-	-
Cresols		< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenols		< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	-	-	-	-
1-Naphthol		< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	-	-	-	-
Trimethylphenols		< 0.020	< 0.020	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phenols		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	-	-
Total Petroleum Hydrocarbons	**mg/kg**															
Aliphatics																
EC>C5-C6	**95000**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C6-C8	**150000**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C8-C10	**14000**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**21000**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	18	< 0.10	< 0.10	< 0.10	< 0.10	140	22	21	< 0.10	< 0.10
EC>C12-C16	**25000**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	29	< 0.10	< 0.10	< 0.10	< 0.10	12	43	24	< 0.10	< 0.10
EC>C16-C21	**450000**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	72	< 0.10	< 0.10	< 0.10	< 0.10	9	210	20	< 0.10	< 0.10
EC>C21-C35	**450000**	500	160	150	52	87	620	86	61	< 0.10	< 0.10	260	740	150	< 0.10	< 0.10
EC>C35-C44	**450000**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	8	13	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total aliphatics	**NA**	500	160	150	52	87	750	99	61	< 1.0	< 1.0	420	1000	220	< 1.0	< 1.0
Aromatics																
EC 5-7 (benzene)	**76000**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C7-C8 (toluene)	**87000**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
EC>C8-C10	**7200**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	33	< 0.10	< 0.10	< 0.10
EC>C10-C12	**9200**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	9.1	< 0.10	< 0.10	< 0.10
EC>C12-C16	**10000**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	71	< 0.10	< 0.10	< 0.10
EC>C16-C21	**7600**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	42	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	69	11	< 0.10	< 0.10
EC>C21-C35	**7800**	13	< 0.10	15	50	< 0.10	280	63	11	< 0.10	< 0.10	52	680	110	< 0.10	< 0.10
EC>C35-C44	**7800**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	46	8.1	< 0.10	< 0.10	< 0.10	9.7	23	13	< 0.10	< 0.10
Total aromatics		13	< 1.0	16	50	< 1.0	370	71	11	< 1.0	< 1.0	62	880	140	< 1.0	< 1.0
Total Aliphatics and Aromatics		510	160	160	100	87	1100	170	72	< 2.0	< 2.0	480	1900	350	< 2.0	< 2.0
TPH >C6-C8		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C8-C10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C10-C12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C12-C16		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C16-C21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C21-C25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C25-C35		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C35-C40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TPH >C6-C40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TPH >C10-C40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TPH >C5-C10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BTEX & MTBE	**mg/kg**															
Benzene	**90**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0058	< 0.0010	< 0.0010	-	-	-	-
Toluene	**87000**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.01	< 0.0010	< 0.0010	-	-	-	-
Ethylbenzene	**17000**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.11	< 0.0010	< 0.0010	-	-	-	-
m&p-xylene	**170000**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.021	< 0.0010	< 0.0010	-	-	-	-
o-xylene	**17000**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.014	< 0.0010	< 0.0010	-	-	-	-
MTBE	**NA**	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	-	-	-
Polycyclic Aromatic Hydrocarbons	**mg/kg**															
Naphthalene	**1200**	0.29	0.062	0.28	0.11	0.19	0.13	< 0.010	< 0.010	0.66	0.12	< 0.010	4	0.1	0.16	< 0.010
Acenaphthylene	**29000**	0.38	0.28	1.1	0.068	0.81	1.2	< 0.010	< 0.010	30	1.3	< 0.010	23	0.66	0.67	< 0.010
Acenaphthene	**29000**	0.15	0.14	0.44	0.073	0.27	0.26	< 0.010	< 0.010	9.6	0.43	< 0.010	6.8	0.16	0.2	< 0.010
Fluorene	**20000**	0.28	0.2	1	0.093	0.57	0.54	< 0.010	< 0.010	30	1.1	< 0.010	12	0.37	0.41	< 0.010
Phenanthrene	**6200**	1.2	0.9	4	0.36	2.8	3	< 0.010	< 0.010	92	3	1	35	2.2	1	0.38
Anthracene	**150000**	0.16	0.07	0.46	0.055	0.21	0.28	< 0.010	< 0.010	9.4	0.35	0.14	5.4	0.35	0.14	0.078
Fluoranthene	**6300**	1.2	1.1	3.2	0.45	2.5	2.9	0.37	0.49	46	1.6	0.43	18	1.7	0.63	0.31
Pyrene	**15000**	1.5	1.2	3.9	0.54	3.1	3.8	0.44	0.56	65	2.1	0.53	26	2.4	0.81	0.38
Benz(a)anthracene	**49**	0.25	0.14	0.65	0.092	0.51	0.49	< 0.010	< 0.010	6.5	0.3	< 0.010	2.6	0.23	< 0.010	< 0.010
Chrysene	**93**	0.19	0.12	0.84	0.087	0.63	0.45	< 0.010	< 0.010	7	0.24	< 0.010	2.7	0.2	< 0.010	< 0.010
Benzo(b)fluoranthene	**13**	0.39	0.25	1.3	< 0.010	1.2	0.82	< 0.010	< 0.010	8.5	0.26	< 0.010	3.6	0.37	< 0.010	< 0.010
Benzo(k)fluoranthene	**370**	0.098	0.081	0.36	< 0.010	0.36	0.24	< 0.010	< 0.010	2.7	0.13	< 0.010	1.1	0.16	< 0.010	< 0.010
Benzo(a)pyrene	**11**	0.31	0.23	1.1	< 0.010	0.88	0.91	< 0.010	< 0.010	11	0.42	< 0.010	4.8	0.48	< 0.010	< 0.010
Indeno(123cd)pyrene	**150**	< 0.010	< 0.010	< 0.010	< 0.010	0.87	< 0.010	< 0.010	< 0.010	7.2	< 0.010	< 0.010	2.6	< 0.010	< 0.010	< 0.010
Dibenz(a,h)anthracene	**1.1**	< 0.010	< 0.010	< 0.010	< 0.010	0.069	< 0.010	< 0.010	< 0.010	0.29	< 0.010	< 0.010	0.18	< 0.010	< 0.010	< 0.010
Benzo(ghi)perylene	**1400**	< 0.010	< 0.010	< 0.010	< 0.010	1	< 0.010	< 0.010	< 0.010	11	< 0.010	< 0.010	4.5	< 0.010	< 0.010	< 0.010
Coronene	**NA**	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010
PAH 16 Total	**NA**	6.4	4.8	19	1.9	16	15	0.81	1.1	340	11	2.1	-	-	-	-
Total Of 17 PAH's		-	-	-	-	-	-	-	-	-	-	-	150	9.4	4	1.2
PCB's	**mg/kg**															
PCB 81		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
PCB 77		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
PCB 105		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
PCB 114		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
PCB 118		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
PCB 123		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
PCB 126		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
PCB 156		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
PCB 157		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
PCB 167		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
PCB 169		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
PCB 189		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
Total PCBs (12 Congeners)		-	-	-	-	-	-	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	-
Inorganics																
Fraction of Organic Carbon	**NA**	0.005	< 0.0010	0.0083	0.01	0.008	0.0074	< 0.0010	< 0.0010	0.0038	0.014	0.18	-	-	-	-
Organic Matter	**NA**	-	-	-	-	-	-	-	-	-	-	-	6.2	2.8	< 0.40	< 0.40
Moisture	**NA**	18	19	15	9.5	11	19	18	20	15	22	24	14	29	19	20
Free Cyanide	**24**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-	-	-
Sulphate (2:1 Water Soluble) as SO4 mg/l	**NA**	260	20	180	330	2200	970	88	80	30	180	250	-	-	-	-
pH (pH Units)	**pH (<5, >9)**	8.7	9	8	8.2	8.4	8.7	8.8	8.6	8.4	8.3	8.2	-	-	-	-
Chloride (Extractable)		130	< 20	160	140	360	360	24	22	62	260	1000	-	-	-	-
Potassium (Total)		690	660	560	460	720	460	600	730	400	340	310	-	-	-	-
Asbestos Screening																
Asbestos Identification	**Present / Absent**	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	-	-	-	-
ACM Type	**NA**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos by Gravimetry	**NA**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Asbestos		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

GACs are the LQM S4ULs with 1% SOM with the exception of those listed below:-

1. The GAC for lead is the C4SL derived using a Low Level of Toxicological Concern (LLTC) of 3.5ug/dL blood lead.

2. Free Cyanide - WYG derived using CLEA. See WYG Technical Memorandum: Derivation of a SSV.

Contaminant GAC	**Public Open Space - Park (1% SOM)**	**BH659**	**BH659**	**BH659**	**BH659**	**BH659**	**BH660**	**BH660**	**BH660**	**BH660**	**BH660A**	**BH660A**	**BH660A**	**BH660A**	**BH665**	**BH665**
	Depth(m)	**7.0**	**9.0**	**11.0**	**12.0**	**14.0**	**6.0**	**7.0**	**8.0**	**9.0**	**9.0**	**10.0**	**12.0**	**13.0**	**8.0**	**10.0**
VOCs	**mg/kg**															
Dichlorodifluoromethane		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride	**4.8000**	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromomethane		<0.02	<0.02	<0.02	<0.02	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroethane		<0.002	<0.002	<0.002	<0.002	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trichlorofluoromethane		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	0.0026	<0.001	<0.001	<0.001
1,1-Dichloroethene		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trans 1,2-Dichloroethene		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis 1,2-Dichloroethene		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromochloromethane		<0.005	<0.005	<0.005	<0.005	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloromethane		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	**57,000 (1,425)vap**	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloromethane		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzene		<0.001	0.85	0.26	0.0012	-	-	<0.001	0.017	190	0.16	0.092	0.02	0.055	0.012	-
1,2-Dichloroethane	**21.0000**	<0.002	<0.002	<0.002	<0.002	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trichloroethene	**70.0000**	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloropropane		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibromomethane		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromodichloromethane		<0.005	<0.005	<0.005	<0.005	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1,3-Dichloropropene		<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene		<0.001	0.012	0.035	0.0019	-	-	0.0033	0.0049	74	0.036	0.01	0.0075	0.018	0.006	0.0071
Trans-1,3-Dichloropropene		<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,1,2-Trichloroethane		<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tetrachloroethene	**810 (424)sol**	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane		<0.002	<0.002	<0.002	<0.002	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Dibromochloromethane		<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,2-Dibromoethane		<0.005	<0.005	<0.005	<0.005	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	**1500.0000**	<0.002	<0.002	<0.002	<0.002	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene		<0.001	0.68	0.22	0.046	-	-	0.0032	0.055	290	0.2	0.12	0.033	0.016	0.083	0.2
m & p-Xylene		<0.001	0.053	0.19	0.17	-	-	0.0072	0.016	12	0.029	0.0075	0.069	0.034	0.021	0.029
o-Xylene		<0.001	0.028	0.09	0.052	-	-	0.0039	0.007	6.5	0.022	0.0058	0.019	0.012	0.014	0.014
Styrene		<0.001	<0.001	0.35	0.0094	-	-	0.0038	0.0042	23	0.0059	0.003	<0.001	<0.001	<0.001	0.0085
Tribromomethane		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Isopropylbenzene		<0.001	<0.001	0.016	0.026	-	-	0.0033	0.012	1.2	<0.001	<0.001	<0.001	<0.001	0.011	<0.001
Bromobenzene		<0.001	<0.001	<0.001	<0.001	-	-	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichloropropane		<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Propylbenzene		<0.001	<0.001	0.011	0.031	-	-	<0.001	<0.001	1.4	<0.001	<0.001	0.034	0.021	<0.001	<0.001
2-Chlorotoluene		<0.001	<0.001	<0.001	<0.001	-	-	0.0038	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene		<0.001	<0.001	0.016	0.045	-	-	<0.001	<0.001	1.9	<0.001	<0.001	0.024	0.017	<0.001	<0.001
4-Chlorotoluene		<0.001	<0.001	<0.001	<0.001	-	-	0.0051	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tert-Butylbenzene		<0.001	<0.001	0.0047	0.012	-	-	0.0051	<0.001	0.63	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,4-Trimethylbenzene		<0.001	<0.001	0.0038	0.019	-	-	0.0047	<0.001	<0.001	<0.001	<0.001	0.11	0.058	0.043	0.058
Sec-Butylbenzene		<0.001	<0.001	<0.001	<0.001	-	-	0.0065	<0.001	<0.001	<0.001	<0.001	0.053	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	**390.0000**	<0.001	<0.001	<0.001	<0.001	-	-	0.0063	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Isopropyltoluene		<0.001	<0.001	<0.001	0.012	-	-	0.0099	<0.001	0.63	<0.001	<0.001	0.021	0.012	0.048	0.12
1,4-Dichlorobenzene	**36,000 (224)vap**	<0.001	<0.001	<0.001	<0.001	-	-	0.0078	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
N-Butylbenzene		<0.001	<0.001	<0.001	<0.001	-	-	0.012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	**24,000 (571)sol**	<0.001	<0.001	<0.001	<0.001	-	-	0.0084	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane		<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	**1,700 (318)vap**	<0.001	<0.001	<0.001	<0.001	-	-	0.019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Hexachlorobutadiene	**48.0000**	<0.001	<0.001	<0.001	<0.001	-	-	0.0087	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichlorobenzene	**770 (134)vap**	<0.002	<0.002	<0.002	<0.002	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methyl Tert-Butyl Ether		<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
N-Nitrosodimethylamine		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
VOC TIC		None Detected	None Detected	None Detected	-	-	None Detected	None Detected	None Detected	None Detected	None- Detected	None Detected	None Detected	None Detected	None Detected	None Detected

GAC (LQM/CIEH) S4ULs

Contaminant GAC	**Public Open Space - Park (1% SOM)**	**BH665**	**BH665**	**BH666**	**BH666**	**BH666**	**BH666**	**BH667**	**BH667**	**BH667**	**BH667**	**BH667**	**BH668**	**BH668**	**BH668**	**BH668**
	Depth(m)	**11.0**	**12.0**	**9.0**	**10.0**	**11.0**	**13.0**	**3.0**	**6.0**	**8.0**	**11.0**	**13.0**	**7.0**	**8.0**	**9.0**	**10.0**
VOCs	**mg/kg**															
Dichlorodifluoromethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride	**4.8000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromomethane		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroethane		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trichlorofluoromethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trans 1,2-Dichloroethene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis 1,2-Dichloroethene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromochloromethane		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloromethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	**57,000 (1,425)vap**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloromethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzene		0.026	-	0.019	0.13	0.0019	0.0045	<0.001	<0.001	0.0094	0.0065	0.011	0.011	2100	1300	0.04
1,2-Dichloroethane	**21.0000**	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trichloroethene	**70.0000**	<0.001	0.069	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloropropane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibromomethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromodichloromethane		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1,3-Dichloropropene		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene		0.011	760	0.015	0.087	0.0022	0.0029	<0.001	<0.001	0.004	0.0039	0.0077	0.007	28	500	0.022
Trans-1,3-Dichloropropene		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,1,2-Trichloroethane		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tetrachloroethene	**810 (424)sol**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Dibromochloromethane		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,2-Dibromoethane		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	**1500.0000**	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene		0.018	1400	0.051	0.031	<0.001	0.0017	<0.001	<0.001	0.0048	0.0088	0.016	0.017	1300	460	0.082
m & p-Xylene		0.0079	27	0.007	0.039	<0.001	0.0094	<0.001	<0.001	0.004	0.0048	0.0078	0.013	<0.001	<0.001	<0.001
o-Xylene		0.0031	92	0.005	0.021	<0.001	0.0046	<0.001	<0.001	0.0013	0.0014	0.0028	0.0033	8	28	0.015
Styrene		0.018	7.2	0.0029	0.19	<0.001	0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.19
Tribromomethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Isopropylbenzene		<0.001	38	<0.001	<0.001	<0.001	0.0058	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	12	0.011
Bromobenzene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichloropropane		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Propylbenzene		<0.001	35	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5.3	0.042
2-Chlorotoluene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene		<0.001	11	<0.001	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.019
4-Chlorotoluene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tert-Butylbenzene		<0.001	0.27	<0.001	0.0036	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.3	<0.001
1,2,4-Trimethylbenzene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.6	0.085
Sec-Butylbenzene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	**390.0000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Isopropyltoluene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	**36,000 (224)vap**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
N-Butylbenzene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	**24,000 (571)sol**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	**1,700 (318)vap**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Hexachlorobutadiene	**48.0000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichlorobenzene	**770 (134)vap**	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methyl Tert-Butyl Ether		<0.001	0.0053	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	7.2	<0.001
N-Nitrosodimethylamine		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
VOC TIC		None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	-	-

GAC (LQM/CIEH) S4ULs

Soils Screening (VOC) Phase 2

Contaminant GAC	**Public Open Space - Park (1% SOM)**	**BH668**	**BH668**	**BH668**	**BH668**	**BH669**	**BH669**	**BH669**	**BH669**	**BH670**	**BH670**	**BH671**	**BH671**	**BH671**	**BH673**	**BH673**
	Depth(m)	**11.0**	**12.0**	**13.0**	**14.0**	**7.0**	**9.0**	**11.0**	**13.5**	**5.0**	**6.0**	**2.0**	**3.0**	**5.0**	**3.0**	**4.0**
VOCs	**mg/kg**															
Dichlorodifluoromethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride	**4.8000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromomethane		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroethane		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trichlorofluoromethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trans 1,2-Dichloroethene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis 1,2-Dichloroethene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromochloromethane		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloromethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	**57,000 (1,425)vap**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloromethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzene		0.0085	0.052	0.018	0.049	0.019	0.062	0.13	0.24	0.064	0.11	190	67	0.93	<0.001	<0.001
1,2-Dichloroethane	**21.0000**	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trichloroethene	**70.0000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloropropane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibromomethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromodichloromethane		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1,3-Dichloropropene		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene		0.0041	0.026	0.047	0.09	0.0049	0.0032	0.0025	0.002	0.0044	0.098	85	40	0.53	<0.001	<0.001
Trans-1,3-Dichloropropene		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,1,2-Trichloroethane		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tetrachloroethene	**810 (424)sol**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Dibromochloromethane		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,2-Dibromoethane		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.042	0.0069	0.011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	**1500.0000**	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene		0.004	0.13	0.89	0.55	0.0054	0.0072	0.0071	0.0029	0.011	0.1	5.8	180	2.3	<0.001	<0.001
m & p-Xylene		<0.001	0.0032	0.015	0.044	0.048	0.01	0.0043	0.0032	0.0063	<0.001	7.2	4.1	0.18	<0.001	<0.001
o-Xylene		<0.001	0.025	0.066	0.036	0.019	0.0046	0.003	0.0029	0.0082	<0.001	4.9	3	0.14	<0.001	<0.001
Styrene		0.028	<0.001	<0.001	0.22	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	85	90	<0.001	<0.001	<0.001
Tribromomethane		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Isopropylbenzene		<0.001	0.036	0.035	0.017	0.0081	<0.001	<0.001	0.0058	0.01	0.015	2.8	1.4	<0.001	<0.001	<0.001
Bromobenzene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichloropropane		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Propylbenzene		<0.001	<0.001	0.02	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.4	0.77	<0.001	<0.001	<0.001
2-Chlorotoluene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene		<0.001	0.013	0.043	0.022	<0.001	<0.001	<0.001	<0.001	<0.001	0.051	1.7	1	<0.001	<0.001	<0.001
4-Chlorotoluene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0077	<0.001	<0.001	<0.001	<0.001	<0.001
Tert-Butylbenzene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.39	<0.001	<0.001	<0.001
1,2,4-Trimethylbenzene		<0.001	0.016	0.19	0.1	<0.001	<0.001	0.018	0.054	0.057	0.2	<0.001	<0.001	<0.001	<0.001	<0.001
Sec-Butylbenzene		<0.001	<0.001	0.013	0.0065	<0.001	<0.001	<0.001	<0.001	<0.001	0.016	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	**390.0000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Isopropyltoluene		<0.001	<0.001	0.015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.027	<0.001	0.39	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	**36,000 (224)vap**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.011	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
N-Butylbenzene		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	**24,000 (571)sol**	<0.001	<0.001	0.0092	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	**1,700 (318)vap**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Hexachlorobutadiene	**48.0000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichlorobenzene	**770 (134)vap**	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methyl Tert-Butyl Ether		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
N-Nitrosodimethylamine		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
VOC TIC		-	-	-	-	None Detected	None Detected	None Detected	None Detected	-	-	-	-	-	None Detected	None Detected

GAC (LQM/CIEH) S4ULs

Contaminant GAC	Public Open Space - Park (1% SOM)	BH673	BH673	BH674	BH674	BH674	BH675	BH676	BH676	BH676	BH676	BH676	BH676	BH677	BH677	BH677
	Depth(m)	**5.0**	**6.0**	**2.0**	**4.0**	**5.0**	**4.0**	**2.0**	**4.0**	**6.0**	**7.0**	**8.0**	**12.0**	**6.0**	**9.0**	**12.0**
VOCs	**mg/kg**															
Dichlorodifluoromethane		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride	**4.8000**	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromomethane		<0.02	<0.02	<0.02	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroethane		<0.002	<0.002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trichlorofluoromethane		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trans 1,2-Dichloroethene		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis 1,2-Dichloroethene		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromochloromethane		<0.005	<0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloromethane		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	**57,000 (1,425)vap**	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloromethane		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzene		<0.001	<0.001	<0.001	0.015	0.24	0.0033	0.0031	0.2	0.0085	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	**21.0000**	<0.002	<0.002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trichloroethene	**70.0000**	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloropropane		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibromomethane		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromodichloromethane		<0.005	<0.005	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1,3-Dichloropropene		<0.01	<0.01	<0.01	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene		<0.001	0.0017	<0.001	0.0026	0.15	0.001	0.0012	0.049	0.0034	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trans-1,3-Dichloropropene		<0.01	<0.01	<0.01	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,1,2-Trichloroethane		<0.01	<0.01	<0.01	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tetrachloroethene	**810 (424)sol**	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane		<0.002	<0.002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Dibromochloromethane		<0.01	<0.01	<0.01	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,2-Dibromoethane		<0.005	<0.005	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	**1500.0000**	<0.002	<0.002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene		<0.001	0.0016	<0.001	0.0075	0.24	0.013	0.023	0.27	0.021	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m & p-Xylene		<0.001	0.01	<0.001	0.0018	0.051	0.001	0.0012	0.012	0.0057	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o-Xylene		<0.001	0.0025	<0.001	0.0023	0.037	0.00089	0.00078	0.0077	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Styrene		<0.001	<0.001	<0.001	0.0021	0.024	0.0018	0.0025	0.027	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tribromomethane		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Isopropylbenzene		<0.001	<0.001	<0.001	<0.0002	0.024	0.00097	0.0015	0.0047	0.0037	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromobenzene		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0059	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichloropropane		<0.05	<0.05	<0.05	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Propylbenzene		<0.001	<0.001	<0.001	<0.0002	0.003	<0.0002	<0.0002	0.0022	0.0049	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Chlorotoluene		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0053	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	0.0055	0.0044	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Chlorotoluene		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0048	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tert-Butylbenzene		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0043	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,4-Trimethylbenzene		<0.001	0.022	<0.001	0.018	0.13	<0.0002	<0.0002	0.025	0.0076	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sec-Butylbenzene		<0.001	<0.001	<0.001	<0.0002	0.01	<0.0002	<0.0002	<0.0002	0.0057	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	**390.0000**	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0064	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Isopropyltoluene		<0.001	0.0056	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0064	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	**36,000 (224)vap**	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
N-Butylbenzene		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	**24,000 (571)sol**	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0088	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane		<0.05	<0.05	<0.05	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	**1,700 (318)vap**	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.021	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Hexachlorobutadiene	**48.0000**	<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0092	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichlorobenzene	**770 (134)vap**	<0.002	<0.002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.025	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methyl Tert-Butyl Ether		<0.001	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00073	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
N-Nitrosodimethylamine		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
VOC TIC		None Detected	None Detected	None Detected	None Detected	None Detected	None Detected	-	-	-	-	-	-	-	-	-

GAC (LQM/CIEH) S4ULs

Contaminant GAC	**Public Open Space - Park (1% SOM)**	**BH679**	**BH679**	**BH679**	**BH679**
	Depth(m)	**6.0**	**8.0**	**9.0**	**12.0**
VOCs	**mg/kg**				
Dichlorodifluoromethane		<0.001	<0.001	<0.001	<0.001
Chloromethane		<0.001	<0.001	<0.001	<0.001
Vinyl Chloride	**4.8000**	<0.001	<0.001	<0.001	<0.001
Bromomethane		<0.02	<0.02	<0.02	<0.02
Chloroethane		<0.002	<0.002	<0.002	<0.002
Trichlorofluoromethane		<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene		<0.001	<0.001	<0.001	<0.001
Trans 1,2-Dichloroethene		<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane		<0.001	<0.001	<0.001	<0.001
cis 1,2-Dichloroethene		<0.001	<0.001	<0.001	<0.001
Bromochloromethane		<0.005	<0.005	<0.005	<0.005
Trichloromethane		<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	**57,000 (1,425)vap**	<0.001	<0.001	<0.001	<0.001
Tetrachloromethane		<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene		<0.001	<0.001	<0.001	<0.001
Benzene		<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	**21.0000**	<0.002	<0.002	<0.002	<0.002
Trichloroethene	**70.0000**	<0.001	<0.001	<0.001	<0.001
1,2-Dichloropropane		<0.001	<0.001	<0.001	<0.001
Dibromomethane		<0.001	<0.001	<0.001	<0.001
Bromodichloromethane		<0.005	<0.005	<0.005	<0.005
cis-1,3-Dichloropropene		<0.01	<0.01	<0.01	<0.01
Toluene		<0.001	<0.001	<0.001	<0.001
Trans-1,3-Dichloropropene		<0.01	<0.01	<0.01	<0.01
1,1,2-Trichloroethane		<0.01	<0.01	<0.01	<0.01
Tetrachloroethene	**810 (424)sol**	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane		<0.002	<0.002	<0.002	<0.002
Dibromochloromethane		<0.01	<0.01	<0.01	<0.01
1,2-Dibromoethane		<0.005	<0.005	<0.005	<0.005
Chlorobenzene		<0.001	<0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	**1500.0000**	<0.002	<0.002	<0.002	<0.002
Ethylbenzene		<0.001	<0.001	<0.001	<0.001
m & p-Xylene		<0.001	<0.001	<0.001	<0.001
o-Xylene		<0.001	<0.001	<0.001	<0.001
Styrene		<0.001	<0.001	<0.001	<0.001
Tribromomethane		<0.001	<0.001	<0.001	<0.001
Isopropylbenzene		<0.001	<0.001	<0.001	<0.001
Bromobenzene		<0.001	<0.001	<0.001	<0.001
1,2,3-Trichloropropane		<0.05	<0.05	<0.05	<0.05
N-Propylbenzene		<0.001	<0.001	<0.001	<0.001
2-Chlorotoluene		<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene		<0.001	<0.001	<0.001	<0.001
4-Chlorotoluene		<0.001	<0.001	<0.001	<0.001
Tert-Butylbenzene		<0.001	<0.001	<0.001	<0.001
1,2,4-Trimethylbenzene		<0.001	<0.001	<0.001	<0.001
Sec-Butylbenzene		<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	**390.0000**	<0.001	<0.001	<0.001	<0.001
4-Isopropyltoluene		<0.001	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	**36,000 (224)vap**	<0.001	<0.001	<0.001	<0.001
N-Butylbenzene		<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	**24,000 (571)sol**	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane		<0.05	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	**1,700 (318)vap**	<0.001	<0.001	<0.001	<0.001
Hexachlorobutadiene	**48.0000**	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichlorobenzene	**770 (134)vap**	<0.002	<0.002	<0.002	<0.002
Methyl Tert-Butyl Ether		<0.001	<0.001	<0.001	<0.001
N-Nitrosodimethylamine		< 0.050	< 0.050	< 0.050	-
VOC TIC		None Detected	None Detected	None Detected	None Detected

GAC (LQM/CIEH) S4ULs

Soils Screening (SVOC) Phase 2

Contaminant GAC	Public Open Space - Park 1% SOM	BH659	BH659	BH659	BH659	BH659	BH660	BH660	BH660	BH660	BH660A	BH660A	BH660A	BH660A	BH665	BH665	BH665	BH665
	Depth (m)	7.0	9.0	11.0	12.0	14.0	6.0	7.0	8.0	9.0	9.0	10.0	12.0	13.0	8.0	10.0	11.0	12.0
SVOCs	mg/kg																	
Phenol	**760**	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.44	< 0.050	< 0.050	< 0.050	2.40	< 0.050	< 0.050
2-Chlorophenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	--	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylphenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.10	< 0.050	< 0.050	< 0.050	0.90	< 0.050	< 0.050
Bis(2-Chloroisopropyl	--	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-nitrosodi-n-propylamine		< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Methylphenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.36	< 0.050	< 0.050	< 0.050	3.20	< 0.050	< 0.050
Nitrobenzene	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Isophorone	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.084	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitrophenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.25	< 0.050	< 0.050	< 0.050	4.10	< 0.050	< 0.050
Bis(2-chloroethoxy)methane	**1700**	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	-	3.9	1.5	63	47	3.60	0.96	10	8.7	69	410	620	7	20	2.1	7200	0.18	4
4-Chloroaniline	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloro-3-methylphenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	-	0.83	0.46	11	9.8	1.10	0.2	0.22	0.48	8.2	58	78	8.700	9.200	0.47	900.00	0.55	1.40
4-Nitrophenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitroaniline	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene	-	4.2	0.68	8.7	16	1.90	0.12	2.3	0.52	25	170	350	110	98	1.90	4100	17	11
Dimethylphthalate	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	**24000**	1.1	2.6	43	50	5.20	0.42	22	1.4	25	130	78	21	10	0.75	940	9.1	5.4
3-Nitroaniline	**390**	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzofuran	**36000**	0.84	0.49	7.5	9.1	1.10	0.1	4.9	0.27	7.1	40	53	11	8.1	0.49	610	4.50	2.30
4-Chlorophenylphenylether		< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene	-	1.6	1.1	14	0.63	2.20	< 0.050	19	0.51	0.38	65	86	47	31	1.00	1100	7.30	4.80
Diethyl phthalate	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitroaniline	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Azobenzene	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	0.18	< 0.050	< 0.050	< 0.050	< 0.050	2.3	< 0.050	< 0.050
4-Bromophenylphenyl Ether	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene	-	3.5	2.5	31	46	4.80	0.52	54	1.3	24	140	190	110	72	3.20	2300.00	1.30	7.30
Anthracene	-	0.6	0.45	6	7.4	0.84	0.18	7.5	1.5	4.9	24	31	13	8.2	0.60	480.00	2.80	2.30
Carbazole	-	0.079	< 0.050	0.55	< 0.50	< 0.50	< 0.050	0.4	< 0.050	0.62	2.8	3.3	0.230	0.190	0.08	40.00	0.27	0.10
Di-n-butyl phthalate	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	0.46	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	-	1.9	1.3	14	22	2.30	0.99	30	0.55	12	63	71	49	29	2.30	1000	7.00	7.10
Pyrene	**15000**	2.4	1.9	18	30	3.20	1.2	41	< 0.050	17	84	110	69	43	2.80	1400	9.70	9.70
Butylbenzyl phthalate	**NA**	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(a)anthracene	-	0.33	0.21	2	3.1	< 0.50	0.33	4.3	0.46	2.2	10	9	5.1	3	0.65	130	0.80	0.89
Chrysene	-	0.33	0.21	2.1	3.4	< 0.50	0.39	4.1	0.55	2.1	10	9.3	5.1	3	0.72	160	0.93	1.00
Bis(2-ethylhexyl) phthalate	-	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Di-n-Octyl phthalate	**29000**	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(b)fluoranthene	**29000**	0.41	0.27	2.6	3.7	< 0.50	0.51	4	0.24	2.9	12	11	6.7	4.0	0.91	160	1.10	1.10
Benzo(k)fluoranthene	**150000**	0.14	0.087	0.8	1.1	< 0.50	0.17	1.2	0.23	0.93	3.5	3	2.1	1.1	0.28	49	0.34	0.33
Benzo(a)pyrene	-	0.44	0.35	3.3	5.0	0.61	0.5	5.8	0.72	3.6	13	14	8.1	4.6	0.96	230	1.40	1.60
Indeno(1,2,3-cd)pyrene	**150**	0.23	0.19	1.7	2.4	< 0.50	0.31	2.7	0.43	1.6	7.7	6.8	4.4	2.5	0.47	110	0.71	0.69
Dibenzo(a,h)anthracene	**1.1**	< 0.050	< 0.050	0.16	< 0.50	< 0.50	0.065	0.23	0.1	0.18	0.77	0.62	0.410	0.22	0.08	**12**	< 0.050	< 0.050
Benzo(ghi)perylene	**1400**	0.34	0.32	2.7	3.8	< 0.50	0.5	4.3	0.56	2.3	13	11	7.4	4.2	0.72	170	1.1	1.1

GAC (LQM/CIEH) S4ULs

Compiled: May 2022

Contaminant GAC	Public Open Space - Park 1% SOM	BH666	BH666	BH666	BH666	BH667	BH667	BH667	BH667	BH667	BH668	BH668	BH668	BH668	BH668	BH668	BH668	BH668
	Depth (m)	**9.0**	**10.0**	**11.0**	**13.0**	**3.0**	**6.0**	**8.0**	**11.0**	**13.0**	**7.0**	**8.0**	**9.0**	**10.0**	**11.0**	**12.0**	**13.0**	**14.0**
SVOCs	**mg/kg**																	
Phenol	**760**	< 0.050	< 0.050	< 0.050	< 0.050	0.110	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chlorophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	**-**	< 0.050	< 0.050	< 0.050	< 0.050	0.830	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	**--**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylphenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl	**--**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-nitrosodi-n-propylamine		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Methylphenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Isophorone	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitrophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-chloroethoxy)methane	**1700**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	**-**	5.1	16	7.6	4.6	0.2	< 0.050	< 0.050	0.078	0.083	< 0.050	0.50	0.23	0.14	0.079	0.32	0.23	0.29
4-Chloroaniline	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloro-3-methylphenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	**-**	1.70	4.70	1.90	1.40	0.230	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.110	< 0.050	< 0.050	0.190	0.250	0.170
4-Nitrophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitroaniline	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene	**-**	9.80	24	9.70	4.90	0.150	< 0.050	< 0.050	< 0.050	0.097	< 0.050	0.16	0.690	0.087	< 0.050	0.16	0.12	0.15
Dimethylphthalate	**-**	< 0.050	< 0.050	< 0.050	< 0.050	0.150	< 0.050	0.220	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	**24000**	3.3	8.0	2.8	3.1	0.090	< 0.050	< 0.050	0.180	0.570	< 0.050	0.80	< 0.050	< 0.050	0.170	0.580	0.230	0.530
3-Nitroaniline	**390**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzofuran	**36000**	2.00	5.10	1.90	1.30	0.240	< 0.050	< 0.050	0.100	0.097	< 0.050	0.44	0.190	0.099	< 0.050	0.300	0.110	0.270
4-Chlorophenylphenylether		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene	**-**	3.70	9.40	4.00	3.00	0.240	< 0.050	0.061	0.210	0.180	< 0.050	0.68	0.420	0.240	0.110	0.410	0.200	0.370
Diethyl phthalate	**-**	< 0.050	< 0.050	< 0.050	< 0.050	0.120	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitroaniline	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Azobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	0.110	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene	**-**	6.70	17.00	10.00	8.40	1.500	0.230	0.270	1.000	0.370	< 0.050	2.30	1.200	1.100	0.250	3.200	0.610	2.900
Anthracene	**-**	1.50	3.40	1.70	1.50	0.230	0.062	0.074	0.350	0.210	< 0.050	0.57	0.310	0.260	0.066	0.510	0.130	0.460
Carbazole	**-**	0.13	0.30	0.19	0.13	0.170	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.22	0.080	0.110	< 0.050	0.320	< 0.050	2.200
Di-n-butyl phthalate	**-**	< 0.050	0.10	< 0.050	< 0.050	0.440	0.093	0.150	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	**-**	4.40	9.40	5.50	5.20	1.600	0.370	0.440	1.900	1.300	< 0.050	2.20	1.200	1.200	0.240	3.200	0.430	2.900
Pyrene	**15000**	6.10	13.00	7.50	7.10	1.300	0.370	0.410	1.600	1.600	< 0.050	1.70	1.500	1.200	0.290	2.900	0.530	2.600
Butylbenzyl phthalate	**NA**	< 0.050	0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(a)anthracene	**-**	0.61	1.20	1.10	0.97	0.570	0.140	0.140	0.910	0.460	< 0.050	0.51	0.250	0.260	0.066	1.000	0.430	0.930
Chrysene	**-**	0.60	1.40	1.10	1.00	0.710	0.190	0.170	0.860	0.390	< 0.050	0.57	0.330	0.330	0.066	1.000	0.600	0.940
Bis(2-ethylhexyl) phthalate	**-**	< 0.050	0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Di-n-Octyl phthalate	**29000**	0.12	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(b)fluoranthene	**29000**	0.71	1.60	1.50	1.60	0.600	0.200	0.170	1.200	0.600	< 0.050	0.36	0.320	0.290	0.092	1.200	0.930	1.100
Benzo(k)fluoranthene	**150000**	0.21	0.41	0.42	0.42	0.290	0.078	0.061	0.400	0.120	< 0.050	0.12	0.110	0.087	< 0.050	0.380	0.290	6.500
Benzo(a)pyrene	**-**	1.00	1.90	2.00	2.10	0.480	0.160	0.160	1.100	0.580	< 0.050	0.32	0.360	0.260	0.079	0.920	0.730	0.830
Indeno(1,2,3-cd)pyrene	**150**	0.40	0.92	1.00	1.30	0.260	0.093	0.098	0.660	0.360	< 0.050	0.14	0.190	0.120	< 0.050	0.470	0.360	0.430
Dibenzo(a,h)anthracene	**1.1**	< 0.050	0.09	0.16	0.42	0.090	< 0.050	< 0.050	0.180	0.069	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.120	1.100
Benzo(ghi)perylene	**1400**	0.76	1.40	1.80	2.30	0.29	< 0.050	0.14	0.74	0.53	< 0.050	0.20	0.35	0.21	< 0.050	0.58	0.37	0.49

GAC (LQM/CIEH) S4ULs

															22-15042	22-15042	22-15042	
Contaminant GAC	**Public Open Space - Park 1% SOM**	**BH669**	**BH669**	**BH669**	**BH669**	**BH670**	**BH670**	**BH671**	**BH671**	**BH671**	**BH673**	**BH673**	**BH673**	**BH673**	**BH674**	**BH674**	**BH674**	**BH675**
	Depth (m)	**7.0**	**9.0**	**11.0**	**13.5**	**5.0**	**6.0**	**2.00**	**3.00**	**5.00**	**3.0**	**4.0**	**5.0**	**6.0**	**2.0**	**4.0**	**5.0**	**4.0**
SVOCs	**mg/kg**																	
Phenol	**760**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	0.420	0.490	< 0.050	4.80	17.00	0.11	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chlorophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	0.24	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	27.00	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	0.16	0.37	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	0.16	0.33	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	**--**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	2.20	4.80	0.07	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylphenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	0.140	0.230	< 0.050	1.10	3.70	0.07	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl	**--**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-nitrosodi-n-propylamine		< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	2.90	6.90	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Methylphenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	0.500	0.390	< 0.050	2.40	7.40	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Isophorone	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitrophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	1.80	4.30	0.06	< 0.050	< 0.050	0.05	< 0.050	< 0.050
Bis(2-chloroethoxy)methane	**1700**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	**-**	0.88	0.25	0.32	1.50	< 0.50	< 0.50	0.2	2000	400	38000	46000	810	0.61	0.30	440	890	< 0.050
4-Chloroaniline	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	0.25	1.40	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloro-3-methylphenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	**-**	< 0.050	< 0.050	0.10	0.71	< 0.50	< 0.50	0.230	280.000	49.000	4400.00	5300.00	100.00	0.82	0.07	90.00	13.00	< 0.050
4-Nitrophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitroaniline	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.08	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene	**-**	1.80	0.39	0.21	1.9	1.4	< 0.50	0.110	1300.000	270.000	25000.00	29000.00	620.00	7.60	0.32	530.00	710.00	< 0.050
Dimethylphthalate	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	**24000**	0.77	0.14	0.27	4.20	1.1	< 0.50	0.200	400.000	68.000	6600.00	5100.00	93.00	3.20	0.12	110.00	14.00	< 0.050
3-Nitroaniline	**390**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzofuran	**36000**	0.63	0.11	0.12	0.89	< 0.50	< 0.50	0.095	180.000	33.000	2600.00	2900.00	65.00	1.40	< 0.050	68.00	10.00	< 0.050
4-Chlorophenylphenylether		< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene	**-**	1.20	0.17	0.25	1.90	0.9	< 0.50	0.180	480.000	81.000	6600.00	7700.00	160.00	4.00	0.16	170.00	230.00	0.094
Diethyl phthalate	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	0.44	1.20	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitroaniline	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Azobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	0.560	< 0.050	7.70	4.30	0.11	< 0.050	0.10	0.27	< 0.050	< 0.050
4-Bromophenylphenyl Ether	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene	**-**	3.30	0.42	0.79	4.80	2.1	< 0.50	0.550	990.000	190.000	14000.00	16000.00	350.00	7.40	0.25	360.00	470.00	0.520
Anthracene	**-**	0.48	0.07	0.20	0.87	< 0.50	< 0.50	0.120	190.000	28.000	2500.00	2700.00	59.00	1.90	0.09	61.00	8.60	0.160
Carbazole	**-**	0.13	< 0.050	0.07	< 0.050	< 0.50	< 0.50	< 0.050	2.300	1.700	150.00	180.00	2.20	< 0.050	< 0.050	3.30	0.62	0.210
Di-n-butyl phthalate	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	1.30	2.70	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	**-**	2.40	0.41	1.10	2.70	1.8	0.87	0.380	500.000	93.000	6600.00	7900.00	160.00	5.60	0.14	170.00	20.00	0.680
Pyrene	**15000**	2.70	0.53	1.10	3.80	2.30	0.76	0.480	700.000	130.000	8300.00	11000.00	220.00	7.40	0.17	240.00	300.00	0.560
Butylbenzyl phthalate	**NA**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(a)anthracene	**-**	0.56	0.18	0.39	0.41	< 0.50	< 0.50	0.380	68.000	9.400	870.00	1000.00	13.00	0.88	0.07	16.00	3.60	0.330
Chrysene	**-**	0.73	0.07	0.49	0.44	< 0.50	< 0.50	0.530	72.000	10.000	890.00	860.00	13.00	0.87	0.07	16.00	3.50	0.280
Bis(2-ethylhexyl) phthalate	**-**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	4.90	33.00	< 0.050	< 0.050	< 0.050	0.46	< 0.050	< 0.050
Di-n-Octyl phthalate	**29000**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(b)fluoranthene	**29000**	0.94	0.18	0.62	0.59	0.59	0.56	0.830	84.000	14.000	1100.00	1200.00	17.00	1.10	< 0.050	20.00	4.40	0.360
Benzo(k)fluoranthene	**150000**	0.30	0.07	0.22	0.17	< 0.50	< 0.50	0.260	6.700	3.700	250.00	310.00	5.00	0.38	< 0.050	7.00	1.30	0.340
Benzo(a)pyrene	**-**	0.94	0.14	0.60	0.84	0.65	< 0.50	0.650	120.000	21.000	1300.00	1500.00	37.00	1.50	< 0.050	41.00	5.80	0.260
Indeno(1,2,3-cd)pyrene	**150**	0.44	0.07	0.29	0.38	< 0.50	< 0.50	0.320	53.000	8.700	**690.00**	**780.00**	18.00	0.89	< 0.050	15.00	3.30	0.160
Dibenzo(a,h)anthracene	**1.1**	0.09	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	**6.200**	**5.300**	0.960	**61.00**	**28.00**	**2.00**	0.09	< 0.050	1.60	0.33	< 0.050
Benzo(ghi)perylene	**1400**	0.67	0.08	0.39	0.69	< 0.50	< 0.50	0.310	85	14	1100	1200	36	1.40	< 0.050	**43**	**5.5**	0.160

GAC (LQM/CIEH) S4ULs

Contaminant GAC	Public Open Space - Park 1% SOM	BH676	BH676	BH676	BH676	BH676	BH676	BH677	BH677	BH677	BH679	BH679	BH679
	Depth (m)	2.0	4.0	6.0	7.0	8.0	12.0	6.0	9.0	12.0	6.0	8.0	9.0
SVOCs	mg/kg												
Phenol	**760**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chlorophenol	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.460	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	--	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylphenol	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl	--	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-nitrosodi-n-propylamine		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Methylphenol	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrobenzene	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Isophorone	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.058	< 0.050	0.062
2-Nitrophenol	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-chloroethoxy)methane	**1700**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	-	0.570	11.0	7.1	1.2	1.5	0.15	0.17	0.085	< 0.050	290	0.084	< 0.050
4-Chloroaniline	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloro-3-methylphenol	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	-	0.240	0.560	5.900	1.100	1.000	0.081	0.100	< 0.050	< 0.050	110	< 0.050	< 0.050
4-Nitrophenol	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitroaniline	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene	-	5.800	0.800	27.000	6.500	5.100	0.430	0.170	0.220	0.340	660	0.230	0.074
Dimethylphthalate	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	**24000**	5.100	8.600	42.000	34.000	14.000	0.450	0.140	0.097	0.620	160	0.110	< 0.050
3-Nitroaniline	**390**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzofuran	**36000**	0.890	1.200	7.900	2.600	1.700	0.094	< 0.050	< 0.050	0.120	120	0.084	< 0.050
4-Chlorophenylphenylether		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene	-	4.500	2.800	25.000	12.000	6.700	0.310	0.140	0.130	0.450	240	0.200	< 0.050
Diethyl phthalate	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitroaniline	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	-	< 0.050	< 0.050	6.600	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Azobenzene	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene	-	11.000	6.800	53.000	21.000	12.000	0.810	0.430	0.410	0.920	500	0.550	0.099
Anthracene	-	4.900	1.500	11.000	3.500	2.300	0.140	0.120	0.085	0.170	89	0.140	< 0.050
Carbazole	-	0.097	0.100	1.100	1.200	0.620	< 0.050	< 0.050	< 0.050	< 0.050	3.1	< 0.050	< 0.050
Di-n-butyl phthalate	-	< 0.050	< 0.050	0.130	< 0.050	< 0.050	< 0.050	0.085	0.085	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	-	47.000	6.600	35.000	12.000	7.300	0.530	0.490	0.310	0.670	200	0.380	0.160
Pyrene	**15000**	55.000	8.100	47.000	16.000	9.400	0.740	0.560	0.440	0.890	280	0.520	0.210
Butylbenzyl phthalate	**NA**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(a)anthracene	-	9.900	1.500	6.200	2.100	1.300	0.110	0.170	0.061	0.099	27	0.110	< 0.050
Chrysene	-	9.300	1.400	5.500	1.800	1.100	0.081	0.120	0.061	0.099	30	0.130	< 0.050
Bis(2-ethylhexyl) phthalate	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.790	< 0.050
Di-n-Octyl phthalate	**29000**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(b)fluoranthene	**29000**	14.000	2.200	8.100	2.800	1.700	0.140	0.120	0.085	0.120	38.0	0.160	< 0.050
Benzo(k)fluoranthene	**150000**	4.300	0.580	2.000	0.850	0.460	< 0.050	< 0.050	< 0.050	< 0.050	7	0.070	< 0.050
Benzo(a)pyrene	-	14.000	2.000	8.700	2.900	1.800	0.220	0.140	0.110	0.140	40	0.180	< 0.050
Indeno(1,2,3-cd)pyrene	**150**	9.300	1.300	5.300	1.500	1.100	0.094	< 0.050	< 0.050	0.074	22	0.140	< 0.050
Dibenzo(a,h)anthracene	**1.1**	0.830	0.180	0.220	0.160	0.079	< 0.050	< 0.050	< 0.050	< 0.050	**1.3**	< 0.050	< 0.050
Benzo(ghi)perylene	**1400**	**7.2**	**1.9**	**7.8**	2.8	1.7	0.054	< 0.050	< 0.050	< 0.050	35	0.170	< 0.050

GAC (LQM/CIEH) S4ULs

Contaminant GAC	**Public Open Space - Park (1% SOM)**	**TP652**	**TP652**	**TP652**	**TP652**	**TP653**	**TP653**	**TP654**	**TP654**	**TP654**	**TP655**	**TP655**	**TP655**	**TP656**	**TP656**	**TP657**	**TP657**	**TP657**	**TP658**	**TP658**	**TP659**	**TP659**
	Depth (m)	**1.0**	**3.0**	**5.0**	**6.0**	**2.0**	**3.0**	**1.0**	**5.0**	**6.0**	**2.0**	**4.0**	**6.0**	**2.0**	**6.0**	**2.0**	**4.0**	**5.0**	**2.0**	**5.0**	**1.0**	**2.0**
	mg/kg																					
Inorganic Arsenic	**170**	4.7	6	5.6	2.7	7	2.8	5.8	6	1.7	3.4	4.3	1.2	4.6	0.7	5	5.4	5	6.4	9.8	4	8.9
Cadmium	**532**	0.12	0.16	0.35	< 0.10	0.32	0.15	0.13	0.14	0.13	< 0.10	0.17	< 0.10	0.14	< 0.10	0.14	< 0.10	< 0.10	0.16	0.13	< 0.10	0.13
Boron	**46000**	0.86	1.4	4.6	0.67	6.6	5.6	3.4	1.9	1.2	1.1	4.1	< 0.40	2.3	1.1	3.3	< 0.40	< 0.40	2.2	1.4	1.2	0.88
Chromium (total)	**33000**	14	23	15	8.9	16	7	80	12	3.6	-	-	-	-	-	13	13	16	12	-	11	14
Copper	**44000**	46	56	38	16	180	17	26	28	6.5	14	50	12	21	2.7	33	25	28	330	36	19	27
Inorganic Mercury	**240**	< 0.05	0.06	0.06	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05	< 0.05	< 0.05
Nickel	**800**	19	22	37	9	23	13	47	17	4.3	12	13	8.8	14	3.9	18	22	30	17	21	18	21
Lead	**1300**	29	39	44	7.9	**1500**	32	15	34	3.5	29	46	6.8	17	1.1	28	14	16	50	24	16	21
Selenium	**1800**	0.4	0.41	0.36	< 0.25	0.41	0.28	0.31	0.4	0.46	0.25	0.27	0.29	0.5	0.28	0.39	0.37	0.41	0.36	0.51	0.25	0.57
Zinc	**170000**	150	180	270	33	590	88	84	87	10	50	93	27	56	4.7	130	54	53	130	76	83	110
Chromium (Trivalent)		-	-	-	-	-	-	-	-	-	8.9	11	9	10	1.8	-	-	-	-	15	-	-
Chromium VI	**220**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese		-	-	-	-	-	-	-	-	-	190	210	89	280	42	-	-	-	-	740	-	-
Iron (Available)		-	-	-	-	-	-	-	-	-	9400	10000	11000	3900	41000	-	-	-	-	6300	-	-
Beryllium		-	-	-	-	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-	-	-	< 0.5	-	-
Vanadium		-	-	-	-	-	-	-	-	-	8.1	8.9	7.2	11	1.5	-	-	-	-	14	-	-
Organics	**mg/kg**																					
Phenol	**440**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.11	< 0.10	< 0.10	< 0.10	0.22	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.13	< 0.10	< 0.10	< 0.10
Total Petroleum Hydrocarbons	**mg/kg**																					
Mineral Oil		< 10	420	680	170	2000	1100	2500	< 10	930	-	-	-	-	-	190	< 10	29	240	-	82	220
Aliphatics																						
EC>C5-C6	**95000**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0
EC>C6-C8	**150000**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0
EC>C8-C10	**14000**	< 1.0	18	< 1.0	9.3	32	17	13	< 1.0	29	< 0.10	20	< 0.10	21	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0
EC>C10-C12	**21000**	< 1.0	31	21	27	88	43	65	< 1.0	59	< 0.10	42	< 0.10	40	12	9.4	< 1.0	< 1.0	< 1.0	< 0.10	29	13
EC>C12-C16	**25000**	< 1.0	27	28	26	110	23	210	< 1.0	39	< 0.10	48	< 0.10	81	8.4	6.6	< 1.0	< 1.0	< 1.0	< 0.10	< 1.0	23
EC>C16-C21	**450000**	< 1.0	80	42	21	280	140	370	< 1.0	69	< 0.10	68	< 0.10	130	6.2	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	23	27
EC>C21-C35	**450000**	< 1.0	270	590	91	1500	840	1800	< 1.0	730	< 0.10	550	< 0.10	490	210	180	< 1.0	30	240	< 0.10	30	160
EC>C35-C44	**450000**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	89	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 1.0	< 1.0
Total aliphatics	**NA**	< 5.0	420	680	170	2000	1100	2500	< 5.0	930	< 1.0	730	< 1.0	760	230	190	< 5.0	30	240	< 1.0	82	220
Aromatics																						
EC 5-7 (benzene)	**76000**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 1.0	< 1.0	< 1.0	< 1.0	< 0.010	< 1.0	< 1.0
EC>C7-C8 (toluene)	**87000**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 1.0	< 1.0	< 1.0	< 1.0	< 0.010	< 1.0	< 1.0
EC>C8-C10	**7200**	< 1.0	16	< 1.0	< 1.0	630	19	44	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	6.5	< 1.0	< 1.0	< 1.0	< 0.10	< 1.0	< 1.0
EC>C10-C12	**9200**	< 1.0	< 1.0	< 1.0	< 1.0	740	< 1.0	62	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 1.0	< 1.0
EC>C12-C16	**10000**	< 1.0	< 1.0	6	< 1.0	470	32	94	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	23	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	390	< 1.0
EC>C16-C21	**7600**	< 1.0	40	140	17	550	170	290	< 1.0	12	< 0.10	180	< 0.10	59	< 0.10	6.7	< 1.0	< 1.0	4.6	< 0.10	< 1.0	< 1.0
EC>C21-C35	**7800**	< 1.0	1600	860	94	1700	750	2000	< 1.0	1400	< 0.10	770	< 0.10	640	520	330	< 1.0	76	140	< 0.10	1600	160
EC>C35-C44	**7800**	< 1.0	< 1.0	< 1.0	< 1.0	33	30	110	< 1.0	460	< 0.10	< 0.10	< 0.10	15	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 1.0	43
Total aromatics	**NA**	< 5.0	1600	1000	110	4100	990	2500	< 5.0	1900	< 1.0	950	< 1.0	740	520	340	< 5.0	76	140	< 1.0	2000	210
Total Aliphatics and Aromatics	**NA**	< 10	2100	1700	280	6100	2100	5100	< 10	2800	< 2.0	1700	< 2.0	1500	760	530	< 10	110	380	< 2.0	2000	430
BTEX & MTBE	**mg/kg**																					
Benzene	**90**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	<0.001	<0.001	<0.001	<0.001	< 0.0010	<0.001	<0.001
Toluene	**87000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	<0.001	<0.001	<0.001	<0.001	< 0.0010	<0.001	<0.001
Ethylbenzene	**17000**	<0.001	<0.001	<0.001	<0.001	<0.001	0.0022	0.0037	<0.001	<0.001	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	<0.001	<0.001	<0.001	<0.001	< 0.0010	<0.001	<0.001
m&p-xylene	**170000**	<0.001	<0.001	<0.001	<0.001	<0.001	0.0028	0.0062	<0.001	<0.001	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	<0.001	<0.001	<0.001	<0.001	< 0.0010	<0.001	0.0027
o-xylene	**17000**	<0.001	<0.001	<0.001	<0.001	<0.001	0.0034	0.0045	<0.001	<0.001	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	<0.001	<0.001	<0.001	<0.001	< 0.0010	<0.001	0.0016
MTBE	**NA**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	<0.001	<0.001	<0.001	<0.001	< 0.0010	<0.001	<0.001
Polycyclic Aromatic Hydrocarbons	**mg/kg**																					
Naphthalene	**1200**	< 0.010	< 0.010	8.4	< 0.010	5	2.5	1.6	1.8	< 0.010	1.4	1	< 0.010	< 0.010	< 0.010	< 0.010	1.8	1.2	< 0.010	0.37	3.1	< 0.010
Acenaphthylene	**29000**	< 0.010	< 0.010	0.14	< 0.010	0.061	0.024	0.017	0.34	< 0.010	0.03	0.031	< 0.010	< 0.010	< 0.010	< 0.010	0.051	0.023	< 0.010	0.052	0.15	< 0.010
Acenaphthene	**29000**	< 0.010	< 0.010	1	< 0.010	0.25	0.17	0.16	0.17	< 0.010	0.12	0.088	< 0.010	< 0.010	< 0.010	< 0.010	0.16	0.11	< 0.010	0.09	0.73	< 0.010
Fluorene	**20000**	< 0.010	< 0.010	1.3	< 0.010	0.15	0.11	0.09	0.17	< 0.010	0.033	0.18	< 0.010	< 0.010	< 0.010	< 0.010	0.1	0.063	< 0.010	0.043	0.78	< 0.010
Phenanthrene	**6200**	0.22	0.17	3.7	< 0.010	0.88	0.46	0.36	0.55	< 0.010	0.11	0.89	< 0.010	0.29	< 0.010	< 0.010	0.26	0.24	0.48	0.22	2	0.19
Anthracene	**150000**	0.12	0.036	0.4	< 0.010	0.11	0.078	0.063	0.17	< 0.010	0.051	0.13	< 0.010	0.072	< 0.010	< 0.010	0.12	0.082	0.15	0.084	0.49	0.046
Fluoranthene	**6300**	0.65	0.41	1.8	< 0.010	1	0.4	0.5	1.3	0.13	0.25	0.87	0.074	0.29	< 0.010	0.14	0.43	0.39	0.79	0.46	1.6	0.36
Pyrene	**15000**	0.62	0.71	1.9	< 0.010	0.98	0.39	0.54	1.7	0.15	0.3	0.69	0.088	0.24	< 0.010	0.17	0.49	0.42	0.83	0.48	1.5	0.32
Benz(a)anthracene	**49**	0.59	0.24	< 0.010	< 0.010	0.39	0.11	0.23	0.42	< 0.010	0.13	0.35	< 0.010	< 0.010	< 0.010	< 0.010	0.22	0.21	0.37	0.35	0.74	< 0.010
Chrysene	**93**	0.63	0.8	< 0.010	< 0.010	0.42	0.12	0.19	0.4	< 0.010	0.12	0.36	< 0.010	< 0.010	< 0.010	< 0.010	0.24	0.17	0.34	0.3	0.63	< 0.010
Benzo(b)fluoranthene	**13**	0.59	0.7	< 0.010	< 0.010	0.69	0.21	0.16	0.68	< 0.010	0.19	0.38	< 0.010	< 0.010	< 0.010	< 0.010	0.23	0.19	0.39	0.47	1.1	< 0.010
Benzo(k)fluoranthene	**370**	0.48	0.22	< 0.010	< 0.010	0.23	0.089	0.066	0.22	< 0.010	0.066	0.094	< 0.010	< 0.010	< 0.010	< 0.010	0.13	0.071	0.17	0.2	0.35	< 0.010
Benzo(a)pyrene	**11**	0.7	0.52	< 0.010	< 0.010	0.48	0.16	0.12	0.74	< 0.010	0.12	0.38	< 0.010	< 0.010	< 0.010	< 0.010	0.27	0.23	0.46	0.41	0.87	< 0.010
Indeno(123cd)pyrene	**150**	0.54	0.28	< 0.010	< 0.010	0.32	0.15	0.11	0.46	< 0.010	0.11	0.17	< 0.010	< 0.010	< 0.010	< 0.010	0.13	0.18	0.28	0.29	0.47	< 0.010
Dibenz(a,h)anthracene	**1.1**	0.4	0.11	< 0.010	< 0.010	0.098	0.062	0.065	0.092	< 0.010	0.049	0.077	< 0.010	< 0.010	< 0.010	< 0.010	0.049	0.071	0.065	0.066	0.1	< 0.010
Benzo(ghi)perylene	**1400**	0.57	0.56	< 0.010	< 0.010	0.37	0.088	0.12	0.56	< 0.010	0.15	0.22	< 0.010	< 0.010	< 0.010	< 0.010	0.21	0.2	0.3	0.23	0.53	< 0.010
Coronene	**NA**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010
PAH 16 Total	**NA**	-	-	-	-	-	-	-	-	-	3.2	5.9	< 0.20	0.89	< 0.20	-	-	-	-	4.1	-	-
PAH 17 Total	**NA**	6.1	4.8	19	< 0.20	11	5.1	4.4	9.8	0.28	-	-	-	-	-	0.31	4.9	3.9	4.6	-	15	0.92
PCB's	**mg/kg**																					
PCB 28		0.013	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.036	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010
PCB 52		0.013	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.024	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010
PCB 90+101		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010
PCB 118		< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010
PCB 153		< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.015	0.014	< 0.0010	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010
PCB 138		< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.015	0.014	< 0.0010	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010
PCB 180		< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.015	0.014	< 0.0010	< 0.0010	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010
Total PCBs (7 congeners)		0.027	< 0.0010	< 0.0010	< 0.0010	0.045	0.041	< 0.0010	0.06	< 0.0010	-	-	-	-	-	< 0.0010	< 0.0010	< 0.0010	< 0.0010	-	< 0.0010	< 0.0010
Inorganics																						
Fraction of Organic Carbon	**NA**	-	-	-	-	-	-	-	-	-	0.0076	0.1	0.0026	0.046	0.18	-	-	-	-	0.01	-	-
Moisture	**NA**	25	18	29	9.9	33	26	21	17	47	16	31	7.8	24	50	26	15	16	17	20	13	16
Cyanide (Complex)	-	1.6	2.7	1.7	1.5	1.6	1.4	1.4	1.4	1.5						4.3	1.9	1.7	< 0.50	-	< 0.50	24
Free Cyanide	**24**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Cyanide	**NA**	1.6	2.7	1.7	1.5	1.6	1.4	1.4	1.4	1.5	-	-	-	-	-	4.3	1.9	1.7	< 0.50	-	< 0.50	24
Thiocyanate	**NA**	< 5.0	6.8	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	17	-	-	-	-	-	< 5.0	< 5.0	< 5.0	< 5.0	-	< 5.0	< 5.0
Sulphate (2:1 Water Soluble) as SO4 mg/	**NA**	-	-	-	-	-	-	-	-	-	720	450	< 10	100	21	-	-	-	-	110	-	-
pH (pH Units)	**pH (<5, >9)**	**9.6**	8.4	8	**9.1**	8	6.3	**5.9**	8.1	8.1	7.7	8.5	8.1	8.1	8.1	8.2	8.1	8	8	7.8	8.2	8
Chloride (Extractable)		-	-	-	-	-	-	-	-	-	100	120	140	< 20	100	-	-	-	-	96	-	-
Potassium (Total)		-	-	-	-	-	-	-	-	-	130	170	63	390	59	-	-	-	-	220	-	-
Asbestos Screening																						
Asbestos Identification	**Present / Absent**	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected

GACs are the LQM S4ULs with 1% SOM with the exception of those listed below:-

1. The GAC for lead is the C4SL derived using a Low Level of Toxicological Concern (LLTC) of 3.5ug/dL blood lead.

2. Free Cyanide - WYG derived using CLEA. See WYG Technical Memorandum: Derivation of a SSV.

APPENDIX 7 – SOILS LABORATORY TEST CERTIFICATES

DIGITAL APPENDIX

APPENDIX 8 – SOILS LEACHATE TESTING SUMMARY

Sample Point / Determinands	**TSV**	**BH610**	**BH644**	**BH644**	**BH644**	**BH645**	**BH645**	**BH645**	**BH646**	**BH646**	**BH646**
	Depth (m)	**2.0**	**2.0**	**5.0**	**8.0**	**0.7**	**3.0**	**9.0**	**2.0**	**5.0**	**7.0**
HEAVY METALS	**µg/l**										
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**	4.5	4.5	7.3	3.4	5.1	4.1	1.4	0.89	1.0	4.5
Boron (diss.filt)	**1000 (5)**	210	27	99	190	560	220	54	65	32	150
Barium (diss.filt)	**700 (8)**	15	11	< 5.0	14	66	< 5.0	6.4	17	< 5.0	12
Beryllium (diss.filt)		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	**0.09 (AA) & 0.6 (MAC) (1) 0.6 (AA) (2) $CaCO_3$ 50 - <100 mg/l**	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
C8 Cadmium (Dissolved)		-	-	-	-	-	< 0.08	< 0.08	-	-	-
Chromium (diss.filt)	**50 (5)**		< 0.50	< 0.50	< 0.50	1.3	2.2	0.95	< 0.50	< 0.50	< 0.50
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	< 0.50	1.5	1.8	4.7	1.3	2.2	0.95	14	1.4	8.5
Iron (diss.)	**1000 (AA) (1&2)**	2	9.0	66	5.6	2.2	0.92	2.1	< 5.0	< 5.0	7.0
Mercury (diss.filt)	**0.07 MAC (1&2)**	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	42	85	150	6.3	**1200**	**380**	46	**480**	44	3.9
Molybdenum (diss.filt)	**70 (8)**	14	7.9	**92**	8.4	24	6.6	3.2	3.8	3.7	2.5
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	11	4.7	**15**	**52**	**24**	**24**	**15**	4.2	2.7	**23**
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	< 0.50	0.75	0.95	< 0.50	1.8	< 0.50	< 0.50	< 0.50	< 0.50	0.55
Antimony (diss.filt)	**5 (5)**	2.8	3.2	**27**	**7.6**	4.2	2.9	0.93	1.5	0.71	1.8
Selenium (diss.filt)	**10(5)**	< 0.50	< 0.50	< 0.50	< 0.50	0.93	1.1	< 0.50	< 0.50	< 0.50	< 0.50
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	3.7	5.5	6.2	< 2.5	25	5.2	< 2.5	4.5	< 2.5	3.6
Iron (Total)		13	9.0	66	5.6	83	150	10	< 5.0	< 5.0	7.0
Manganese (Total)		42	85	150	6.3	1200	380	46	480	44	3.9
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenols	**ug/l**										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**	<0.00003	<0.00003	0.00015	<0.00003	0.0019	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Speciated TPH	**ug/l**										
Aliphatics											
EC C5-C6	**15000 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C6-C8	**15000 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**300 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**300 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatics											
EC C5-C7	**10 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C7-C8	**700 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**90 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	**880**	**1200**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**90 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21	**90 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	**180**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35	**90 (7)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35		< 5.0	< 5.0	< 5.0	< 5.0	1100	1200	< 5.0	< 5.0	< 5.0	< 5.0
tal Aliphatics & Aromatics >C5-		< 10	< 10	< 10	< 10	1100	1200	< 10	< 10	< 10	< 10
BTEX/MTBE/GRO	**µg/l**										
MTBE	**15 (5*)**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**	< 1.0	< 1.0	< 1.0	< 1.0	4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**	< 1.0	< 1.0	< 1.0	< 1.0	7.8	2.1	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	**300 (8)**	< 1.0	< 1.0	1.6	< 1.0	2.3	2.2	< 1.0	< 1.0	< 1.0	< 1.0
p/m-Xylene		< 1.0	< 1.0	3.5	< 1.0	4.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene		< 1.0	< 1.0	2.3	< 1.0	3.7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Polyaromatic Hydrocabons	**µg/l**										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)anthracene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA	**-**	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
INORGANICS	**mg/l**										
Dissolved Organic Carbon		11	12	150	19	41	200	8.8	12	6.9	21
Alkalinity (Total)		160	90	270	210	660	360	170	150	79	260
Chloride	**250 (5)**	9.8	4.4	32	20	71	150	19	3.9	8.3	44
Ammonia (Free)	**0.3 (1)**	**1.9**	**0.66**	**1.7**	**2.8**	**0.34**	< 0.050	**1.2**	0.15	**0.83**	**6.6**
Ammonium		27	4.3	27	36	23	0.31	17	1.6	8.9	44
Nitrite		0.042	0.047	0.11	0.052	< 0.020	< 0.020	< 0.020	0.24	0.046	0.049
Nitrate	**50 (5)**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	23	< 0.50	< 0.50
Sulphate	**250 (5)**	98	22	6.8	3.7	**490**	16	3.0	180	16	6.8
Cyanide (Total) Low-Level	**0.001 (AA), 0.005 (95%ile) (1&2)**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium		19	4.2	20	25	21	29	13	5.2	8.8	24
Magnesium		4.6	2.8	6.3	1.6	6.6	14	2.7	8.3	2.0	4.1
Sodium	**200(5)**	14	4.5	22	22	27	40	20	3.8	9.8	43

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Note 5 - These EQS refer to bioavailable concentrations of the substances.

Sample Point / Determinands	TSV	BH610	BH635	BH635	BH635
HEAVY METALS	**µg/l**	**2.00**	**2.00**	**4.00**	**5.00**
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**	4.5	3.1	2.1	5.1
Boron (diss.filt)	**1000 (5)**	210	180	67	31
Barium (diss.filt)	**700 (8)**	15	84	10	12
Beryllium (diss.filt)		< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	**0.09 (AA) & 0.6 (MAC) (1) 0.6 (AA) (2)** **$CaCO_3$ 50 - <100 mg/l**	< 0.11	-	-	-
C8 Cadmium (Dissolved)		-	< 0.08	< 0.08	< 0.08
Chromium (diss.filt)	**50 (5)**		0.54	< 0.50	0.57
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	< 0.50	0.62	1.7	4.5
Iron (diss.)	**1000 (AA) (1&2)**	2	15	13	490
Mercury (diss.filt)	**0.07 MAC (1&2)**	< 0.05	< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	42	**1100**	18	22
Molybdenum (diss.filt)	**70 (8) ?**	14	4.1	26	7.2
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	11	**110**	6.0	4.0
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	< 0.50	< 0.50	< 0.50	1.8
Antimony (diss.filt)	**5 (5)**	2.8	2.0	**15**	**5.9**
Selenium (diss.filt)	**10(5)**	< 0.50	< 0.50	< 0.50	0.68
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	3.7	6.9	5.7	10
Iron (Total)		13	15	13	490
Manganese (Total)		42	1100	18	22
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**	< 20	< 20	< 20	< 20
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**	< 0.10	0.14	< 0.10	< 0.10
Phenols	**ug/l**				
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**	<0.00003	<0.00003	<0.00003	<0.00003
Speciated TPH	**ug/l**				
Aliphatics					
EC C5-C6	**15000 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C6-C8	**15000 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**300 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**300 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21		< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35		< 0.10	1300	< 0.10	< 0.10
EC>C35-C44		< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35		< 5.0	1300	< 5.0	< 5.0
Aromatics					
EC C5-C7	**10 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C7-C8	**700 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**90 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**90 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21	**90 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35	**90 (7)**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44		< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35		< 5.0	< 5.0	< 5.0	< 5.0
tal Aliphatics & Aromatics >C5-		< 10	1300	< 10	< 10
BTEX/MTBE/GRO	**µg/l**				
MTBE	**15 (5*)**	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	**300 (8)**	< 1.0	< 1.0	< 1.0	< 1.0
p/m-Xylene		< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene		< 1.0	< 1.0	< 1.0	< 1.0
Polyaromatic Hydrocabons	**µg/l**				
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)anthracene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)	**-**	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA	**-**	< 0.20	< 0.20	< 0.20	< 0.20
INORGANICS	**mg/l**				
Dissolved Organic Carbon		11	54	14	25
Alkalinity (Total)		160	120	110	130
Chloride	**250 (5)**	9.8	60	23	5.4
Ammonia (Free)	**0.3 (1)** **Types 1,2,4 and 6 $^{\text{(see note 3)}}$**	**1.9**	0.11	**0.48**	0.11
Ammonium		27	1.4	6.8	1.6
Nitrite		0.042	0.35	0.31	0.46
Nitrate	**50 (5)**	< 0.50	< 0.50	3.1	1.6
Sulphate	**250 (5)**	98	**570**	75	74
Cyanide (Total) Low-Level	**0.001 (AA), 0.005 (95%ile) (1&2)**	< 0.050	**0.070**	< 0.050	< 0.050
Potassium		19	5.7	9.7	4.1
Magnesium		4.6	13	3.4	2.6
Sodium	**200(5)**	14	4.7	7.0	7.4

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2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/
Note 5 - These EQS refer to bioavailable concentrations of the substances.l

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH603	BH660	BH660A	BH660A	BH659	BH659	BH665	BH665	BH668	BH665	BH666	BH666	BH669	BH669	BH673	BH673	BH601R	BH601R	BH603R	BH603R	BH602R	BH668	BH668
	Depth (m)		2.0	9.0	9.0	10.0	10.0	11.0	9.0	12.0	8.0	4.0	11.0	13.0	10.0	13.5	4.0	5.0	1.0	4.0	3.0	6.0	4.0	12.0	14.0
HEAVY METALS	µg/l		28/03/2022	29/03/2022	30/03/2022	30/03/2022	31/03/2022	31/03/2022	05/04/2022	05/04/2022	08/04/2022	04/04/2022	06/04/2022	06/04/2022	07/04/2022	07/04/2022	20/04/2022	20/04/2022	22/04/2022	22/04/2022	21/04/2022	21/04/2022	21/04/2022	11/04/2022	11/04/2022
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.82	1.6	12	4.7	7.40	3.5	5.8	2.2	2.2	6.3	4.4	5.1	6.1	3.30	5.50	1.50	2.70	1.10	2.4	3.2	8.8	1.2	1.9
Boron (diss.filt)	1000 (5)		14	59	100	270	280	35	260	23	220	260	60	230	180	31.00	150.00	32.00	510	110	76	230	450	95	< 10
Barium (diss.filt)	700 (8)		9.1	20	18	63	12	< 5.0	26	10	56	12	6	20	20	12.00	25.00	29.00	15	< 5.0	12	6.5	72	64	21
Beryllium (diss.filt)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	0.09 (AA) & 0.6 (MAC) (1) CaCO$_3$ 50 - <100 mg/l		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.09	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (diss.filt)	50 (5)		< 0.50	< 0.50	5.0	3.30	1.5	2.9	4.1	< 0.50	5.60	5.5	4.40	< 0.50	5.00	12.00	0.72	< 0.50	2.1	1.00	< 0.50	1	2.8	< 0.50	< 0.50
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	14	3.3	12	5.2	8	6.8	2.9	2.4	5.70	8.1	3.20	12.0	5.5	29.00	2.00	2.20	1.6	1.50	1.20	1.80	7.80	< 0.50	1.5
Iron (diss.)	1000 (AA) (1&2)		28	< 5.0	73	46	500	300	39.0	< 5.0	51.0	97.0	100.0	33.0	80	160.00	65.00	19.00	570	85.00	34.00	94.00	57.00	32.00	120
Mercury (diss.filt)	0.07 MAC (1&2)		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	13	110	5.7	**330**	22	13	130.0	35	130.00	15.0	5.7	8.5	130	2.90	92.00	**350.00**	**420**	27	250	4.5	140	130	30
Molybdenum (diss.filt)	70 (8)		3.8	6.4	48	32	**81.0**	4.3	**78.0**	2.8	32.00	37.0	8	41	37.0	15.00	16.00	1.90	30	5.7	9.9	2.2	11	21	8.5
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	1.4	2.3	9.5	9.9	13.0	2.6	**16**	1.2	10.00	**19**	5.2	7	11.0	7.60	**21.00**	2.80	**46**	8.7	6.5	14	**160**	4.3	2.4
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	< 0.50	< 0.50	1.7	1.3	5.5	2	< 0.50	< 0.50	1.50	2.2	1	0.9	0.6	1.00	1.70	< 0.50	1.2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Antimony (diss.filt)	5 (5)		1.4	**7.4**	**21**	**10**	**15.0**	0.84	**18.0**	1.6	3.50	**9.0**	**23**	**75**	**21.0**	4.30	**6.50**	0.89	**7.3**	**13**	2.4	0.67	3	4.4	2.4
Selenium (diss.filt)	10(5)		< 0.50	< 0.50	1.5	0.88	0.58	0.91	5.3	< 0.50	< 0.50	1.9	< 0.50	5	1.20	1.30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	3.2	< 0.50	< 0.50
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	6.7	5.1	**120**	16	8.3	4.7	30.0	4.9	8.00	20	6.2	13	8	6.60	**64.00**	5.60	22	11	7.6	5.1	31	4.4	5.2
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	<20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.22	0.26	1.1	< 0.10	0.33	**11**	< 0.10	< 0.10	0.17	0.11	< 0.10	< 0.10	< 0.10	**6.00**	< 0.10	< 0.10	< 0.10	< 0.10	0.18	< 0.10	< 0.10	< 0.10	< 0.10
Phenols	ug/l																								
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		< 0.030	< 0.030	0.68	3.4	0.13	< 0.030	5.8	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	4	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	0.96	< 0.030	< 0.030
Speciated TPH	ug/l																								
Aliphatics																									
EC C5-C6	15000 (7)		< 0.10	< 0.10	590	780	510	670	2200	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C6-C8	15000 (7)		< 0.10	< 0.10	220	340	270	200	1100	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	300 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	230	15	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	300	31	< 0.10	41	38	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	300 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**480**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	36	46	**320**	56	< 0.10	55	53	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	300 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	220	93	< 0.10	96	110	< 0.10	< 0.10	< 0.10	89
EC>C16-C21			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35			< 0.10	350	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	150	< 0.10	< 0.10	< 0.10	< 0.10	450	260	240	< 0.10	< 0.10	720	350	< 0.10	< 0.10	1200	740
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35			< 5.0	350	810	1100	780	870	3900	170	< 5.0	< 5.0	< 5.0	< 5.0	480	310	1100	180	< 5.0	910	550	< 5.0	< 5.0	1200	830
Aromatics																									
EC C5-C7	10 (7)		< 0.10	< 0.10	**590**	**2200**	**160**	**310**	**3100**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**740**
EC>C7-C8	700 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	290	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**14000**
EC>C8-C10	300 (7)		< 0.10	< 0.10	**820**	**5000**	**330**	< 0.10	**23000**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**18000**	**990**	< 0.10	< 0.10	**860**	< 0.10	< 0.10	< 0.10	**8900**
EC>C10-C12	90 (7)		< 0.10	< 0.10	**8900**	**23000**	**10000**	**2100**	**24000**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	59	**42000**	**5800**	< 0.10	**380**	**6200**	< 0.10	< 0.10	< 0.10	**860**
EC>C12-C16	90 (7)		< 0.10	< 0.10	**3700**	**14000**	**5600**	**1800**	**17000**	**1600**	< 0.10	< 0.10	< 0.10	< 0.10	**99**	**160**	**19000**	**4300**	< 0.10	72	**6300**	< 0.10	< 0.10	**110**	**120**
EC>C16-C21	90 (7)		24	< 0.10	< 0.10	< 0.10	**260**	< 0.10	**720**	**180**	< 0.10	< 0.10	< 0.10	< 0.10	48	< 0.10	**1500**	**200**	< 0.10	< 0.10	**430**	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35	90 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	75	74	< 0.10	< 0.10	< 0.10	< 0.10	62	58	**220**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35			24	< 5.0	14000	44000	16000	4100	69000	1900	< 5.0	< 5.0	< 5.0	< 5.0	210	280	81000	11000	< 5.0	450	14000	< 5.0	< 5.0	110	24000
otal Aliphatics & Aromatics >C5-3			24	350	15000	46000	17000	5000	72000	2000	< 10	< 10	< 10	< 10	690	590	82000	11000	< 10	1400	14000	< 10	< 10	1400	25000
BTEX/MTBE/GRO	µg/l																								
MTBE	15 (5*)		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		< 1.0	< 1.0	**7200**	**22000**	**13**	8	**6200**	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**280**	**100**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**58**
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		< 1.0	< 1.0	**1200**	**2400**	22	6.7	**3700**	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	29	67	< 1.0	< 1.0	17	< 1.0	< 1.0	< 1.0	22
Ethylbenzene	300 (8)		< 1.0	< 1.0	45	61	7.6	46	**3100**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	8.2	79	< 1.0	< 1.0	24	< 1.0	< 1.0	< 1.0	72
p/m-Xylene			< 1.0	< 1.0	63	84	10	2.3	64	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	53	15	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	13
o-Xylene			< 1.0	< 1.0	48	61	7.9	2.1	540	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	52	17	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	12
Polyaromatic Hydrocabons	µg/l																								
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		< 0.010	< 0.010	**2700**	**7700**	**3800**	**2000**	**8800**	**4.7**	0.8	0.98	**38**	**38**	**2.1**	**89**	**22000**	**4000**	2	0.88	**4300**	**24**	**37**	**2.4**	**8500**
Acenaphthylene (aq)	-		< 0.010	< 0.010	560	1300	290	200	1500	820	0.77	25	31	32	20	97	3400	1500	< 0.010	< 0.010	2500	230	39	< 0.010	3000
Acenaphthene (aq)	-		< 0.010	< 0.010	88	150	710	380	210	140	2.5	4.5	11	5.9	5.9	81	290	110	< 0.010	< 0.010	200	41	3.5	< 0.010	520
Fluorene (aq)	-		< 0.010	< 0.010	74	95	170	74	300	100	2.2	2.5	5	4.9	4.2	26	290	100	< 0.010	< 0.010	190	32	4.5	< 0.010	260
Phenanthrene (aq)	-		< 0.010	< 0.010	41	74	170	44	200	81	1	2.3	5.7	4.5	4.8	23	270	61	< 0.010	< 0.010	120	23	< 0.010	< 0.010	170
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		< 0.010	< 0.010	**4.5**	**9**	**31**	**4.1**	**21**	**8**	**0.33**	< 0.010	**1.6**	< 0.010	**1.1**	**3.4**	**42**	**8.8**	< 0.010	< 0.010	**18**	**4**	< 0.010	< 0.010	**24**
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		< 0.010	< 0.010	**2.9**	**6.6**	**42**	**6.5**	**26**	**7.1**	**0.7**	< 0.010	**0.85**	< 0.010	**3.5**	**3.3**	**77**	**4.5**	< 0.010	< 0.010	**10**	**2.4**	< 0.010	< 0.010	**17**
Pyrene (aq)	-		< 0.010	< 0.010	2.8	9.1	51	7.8	34	14	0.95	< 0.010	2	< 0.010	5.3	4	100	7	< 0.010	< 0.010	11	2.1	< 0.010	< 0.010	19
Benzo(a)anthracene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	2.1	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	6.8	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	2.4	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	6.1	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	**2.8**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	**0.81**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	**1.9**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.6	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.1	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA 16	-		< 0.20	< 0.20	3500	9400	5300	2700	11000	1200	9.3	35	95	85	47	330	26000	5800	2	0.88	7300	360	84	2.4	13000
INORGANICS	mg/l																								
Dissolved Organic Carbon			7	6	87	310.0	72	43.0	210	10	39	43	72	51	39	**15**	**110**	**34**	68	85	20	54	310	11	21
Alkalinity (Total)			67	130	52	390	150	33	360.00	63.00	100	170	60	160	140	340	220	140	400	76	190	210	810	77	82
Chloride	250 (5)		2.3	3	68	32	17.0	3.3	67.00	2.40	51	59	29.00	65.00	35	20	35	14	150	28	11	66	220	22	13
Ammonia (Free)	0.3 (1) Types 1,2,4 and 6 $^{\text{(see note 3)}}$		0.1	**0.81**	**13**	**1.4**	**0.42**	0.18	**1.60**	0.20	**2.0**	**5**	**1.4**	**1.7**	**1**	**3**	**0.48**	< 0.050	**7.7**	**1.5**	**0.64**	**3.6**	**11**	**1.3**	**0.56**
Ammonium			0.87	6	14	29	8.1	1.7	24	1.7	45	16	5.4	18.0	20.0	0.15	42	0.28	110	24	11	41	150	7.7	3
Nitrite			0.046	0.044	1.6	0.083	0.054	< 0.020	0.11	0.03	0.02	0	< 0.020	0.15	< 0.020	0.067	0.028	0.026	< 0.020	0.035	< 0.020	0.12	0.031	0.29	0.066
Nitrate	50 (5)		8	< 0.50	**160**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.4	< 0.50	6.4	0.5	< 0.50	< 0.50	< 0.50	1.2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate	250 (5)		33	110	90	110.0	27	4	140.00	4.10	**420.0**	65	20	66	110	33	55	12	**420**	85	33	24	90	220	40
Cyanide (Total) Low-Level	0.001 (AA), 0.005 (95%ile) (1&2)		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium			1.6	6	7	24	13.0	2.0	37.00	4.60	28	21	3.6	10.0	16.0	5.7	31	6.2	53	12	9.3	21	84	14	8.8
Magnesium			1.8	5.0	2	11.0	2.6	0.8	15.00	1.60	13.0	2.6	1	2.7	4.7	< 0.20	3.3	2.9	19	3	5.5	2.8	18	7.7	3.1
Sodium	200 (5)		2.8	4	15	33	17.0	3.2	51.00	2.50	44	36	19.0	63.0	27.0	5.5	34	4.5	130	24	11	51	160	15	8.3

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/
Note 5 - These EQS refer to bioavailable concentrations of the substances.l

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH667	BH667	BH676	BH676	BH678	BH678	BH677	BH677	BH675	BH675	BH660A	BH679
	Depth (m)		11.0	13.0	6.0	8.0	7.0	12.0	6.0	9.0	4.0	9.0	12.0	8.0
HEAVY METALS	µg/l		15/04/2022	15/04/2022	09/05/2022	09/05/2022	10/05/2022	10/05/2022	11/05/2022	11/05/2022	12/05/2022	12/05/2022	13/05/2022	13/05/2022
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		9.3	2	1.6	1.6	1.7	3.5	1.6	2.1	6.2	0.77	1.7	4.3
Boron (diss.filt)	**1000 (5)**		30	100	180	110	110	16	120	71	270	110	27	100
Barium (diss.filt)	**700 (8)**		20	67	37	36	82	8.5	71	26	51	34	16	28
Beryllium (diss.filt)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	**0.09 (AA) & 0.6 (MAC) (1)** **CaCO$_3$ 50 - <100 mg/l**		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08			< 0.08	< 0.08		
Chromium (diss.filt)	**50 (5)**		11	< 0.50	< 0.50	< 0.50	11	7.4	< 0.50	< 0.50	< 0.50	1.6	< 0.50	< 0.50
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	**66**	4.1	12	< 0.50	1.3	1.5	< 0.50	< 0.50	1.6	< 0.50	1.4	1.6
Iron (diss.)	**1000 (AA) (1&2)**		200	22	16	22	< 5.0	16	< 0.50	< 0.50	73	6.3		
Mercury (diss.filt)	**0.07 MAC (1&2)**		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	0.66	**380**	31	30	**330**	3.8	**530**	20	**860**	240	31	96
Molybdenum (diss.filt)	**70 (8)**		38	16	62	8.3	27	17	5.5	28	18	4.6	2.6	14
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	**51**	7.3	4.8	5.8	12	2.1	13	3.4	**62**	6.5	1.7	3.8
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.58	< 0.50	< 0.50	< 0.50	0.91	< 0.50	0.92	< 0.50	0.69	< 0.50	< 0.50	< 0.50
Antimony (diss.filt)	**5 (5)**		**17**	2.5	4.2	3.1	**7.8**	3.5	3.2	**6**	**15**	1.2	1.8	3.4
Selenium (diss.filt)	**10(5)**		1.8	< 0.50	< 0.50	< 0.50	0.71	< 0.50	< 0.50	< 0.50	0.62	< 0.50	< 0.50	0.6
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	< 2.5	7.6	6	< 2.5	9.1	2.6	5.3	< 2.5	12	4.6	< 2.5	< 2.5
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		**4.2**	< 0.10	0.6	0.25	2.7	0.17	< 0.10	0.23	**3.7**	1.4	0.12	< 0.10
Phenols	ug/l													
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		< 0.030	< 0.030	0.066	0.058	< 0.030	< 0.030	< 0.030	< 0.030	1	< 0.030	< 0.030	< 0.030
Speciated TPH	ug/l													
Aliphatics														
EC C5-C6	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C6-C8	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	190	< 0.10	27	< 0.10
EC>C10-C12	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	110	< 0.10	32	< 0.10
EC>C12-C16	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35			< 0.10	< 0.10	650	750	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35			< 5.0	< 5.0	650	750	< 5.0	< 5.0	< 5.0	< 5.0	300	< 5.0	59	< 5.0
Aromatics														
EC C5-C7	**10 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C7-C8	**700 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	93	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**2100**	< 0.10	77	< 0.10
EC>C10-C12	**90 (7)**		< 0.10	< 0.10	**270**	76	< 0.10	< 0.10	41	< 0.10	**490**	< 0.10	**290**	< 0.10
EC>C12-C16	**90 (7)**		< 0.10	< 0.10	**4500**	**4800**	< 0.10	< 0.10	< 0.10	< 0.10	**160**	< 0.10	**3000**	< 0.10
EC>C16-C21	**90 (7)**		< 0.10	< 0.10	**430**	**500**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**190**	< 0.10
EC>C21-C35	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35			< 5.0	< 5.0	5200	5400	< 5.0	< 5.0	41	< 5.0	2700	< 5.0	3600	< 5.0
otal Aliphatics & Aromatics >C5-3			< 10	< 10	5900	6200	< 10	< 10	41	< 10	3000	< 10	3700	< 10
BTEX/MTBE/GRO	µg/l													
MTBE	**15 (5*)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**17**	< 1.0
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**18**	< 1.0
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	31	< 1.0
Ethylbenzene	**300 (8)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	3	< 1.0
p/m-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Polyaromatic Hydrocabons	µg/l													
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		**2.2**	< 0.010	1.4	**11**	< 0.010	< 0.010	0.14	0.69	1.3	< 0.010	**19**	< 0.010
Acenaphthylene (aq)	**-**		< 0.010	< 0.010	84	150	< 0.010	< 0.010	0.27	8.8	< 0.010	< 0.010	1000	< 0.010
Acenaphthene (aq)	**-**		< 0.010	< 0.010	470	380	< 0.010	< 0.010	0.35	4.6	< 0.010	< 0.010	130	< 0.010
Fluorene (aq)	**-**		< 0.010	< 0.010	23	91	< 0.010	< 0.010	0.22	3.1	< 0.010	< 0.010	110	< 0.010
Phenanthrene (aq)	**-**		< 0.010	< 0.010	0.69	44	0.87	< 0.010	0.15	2.5	< 0.010	< 0.010	53	< 0.010
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		< 0.010	< 0.010	**1.6**	**5.8**	**0.5**	< 0.010	0.07	**0.52**	< 0.010	< 0.010	**7.9**	< 0.010
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		< 0.010	< 0.010	**4.2**	**9.6**	**0.9**	< 0.010	**0.12**	**0.95**	< 0.010	< 0.010	**12**	< 0.010
Pyrene (aq)	**-**		< 0.010	< 0.010	5.3	11	1.3	< 0.010	0.2	1	< 0.010	< 0.010	15	< 0.010
Benzo(a)anthracene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA 16	**-**		2.2	< 0.20	590	700	3.6	< 0.20	1.5	22	1.3	< 0.20	1400	< 0.20
INORGANICS	mg/l													
Dissolved Organic Carbon			31	45	16	15	15	3.2	20	12	340	11	8.3	15
Alkalinity (Total)			140	110	84	86	78	57	120	76	510	99	79	110
Chloride	**250 (5)**		95	48	30	5.1	8.6	7.8	6.5	3.8	66	9.4	2.7	2.3
Ammonia (Free)	**0.3 (1)** **Types 1,2,4 and 6 $^{\text{(see note 3)}}$**		**5.8**	< 0.050	**1.8**	**0.74**	**0.86**	0.17	0.27	0.07	< 0.050	**4.9**	< 0.050	**0.44**
Ammonium			0.43	15	4	5.5	5.4	1.8	8.3	4.4	< 0.050	< 0.050	0.2	7
Nitrite			< 0.020	0.04	0.15	0.046	0.053	< 0.020	< 0.020	0.048	< 0.020	0.038	< 0.020	0.048
Nitrate	**50 (5)**		< 0.50	< 0.50	< 0.50	< 0.50	0.73	0.61	< 0.50	< 0.50	< 0.50	0.79	< 0.50	< 0.50
Sulphate	**250 (5)**		130	**380**	220	73	**1500**	8.3	**420**	60	72	250	8.1	130
Cyanide (Total) Low-Level	**0.001 (AA), 0.005 (95%ile) (1&2)**		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium			9.7	16	15	15	19	5.8	10	7	18	6.8	5.5	6.4
Magnesium			0.42	9.5	6.7	4.8	12	1.1	10	1.9	18	6.4	2	2.7
Sodium	**200 (5)**		8.5	50	14	6.9	12	3.3	10	5.2	16	7.2	3.8	8.5

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Note 5 - These EQS refer to bioavailable concentrations of the substances.l

APPENDIX 9 – GROUNDWATER & SURFACE WATERS SUMMARY – ROUND 1

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH04	BH05	BH06	BH07	BH101	BH102	BH103	BH104	BH105	BH106	BH107	BH108	BH111	BH112	BH118	BH119	BH201	BH202	BH203	BH204	BH205	BH205	BH206	BH207	BH212	BH216	BH217	BH218	BH219	BH220	BH221
HEAVY METALS	µg/l																																
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		8.6	31	3.2	42	< 0.20	< 0.20	1	< 0.20	0.21	0.56	5.2	1.2	0.57	0.27	0.44	1.4	28	1.5	4.5	0.47	8.9	2.5	13	4	1.3	0.86	13	7.3	2.3	3.4	1.4
Boron (diss.filt)	**1000 (5)**		900	120	36	810	250	36	14	36	96	39	110	34	38	20	21	370	570	460	430	30	220	600	360	910	42	13	59	4100	90	170	100
Barium (diss.filt)	**700 (8)**		450	110	160	160	130	37	-	53	140	29	420	23	16	22	-	120	270	110	110	29	92	98	140	160	110	30	67	250	120	81	41
Beryllium (diss.filt)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	**0.09 (AA) & 0.6 (MAC) (1) 0.6** **$CaCO_3$ 50 - <100 mg/l**		< 0.11	< 0.11	< 0.11	< 0.11	0.13	0.25	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	0.93	< 0.11	0.21	< 0.11	< 0.11	0.15	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
Chromium (diss.filt)	**50 (5)**		2.5	< 0.50	< 0.50	2.9	< 0.50	7.3	< 0.50	2.1	2.7	< 0.50	4.3	< 0.50	6.3	6.3	4.2	< 0.50	1.6	< 0.50	3.9	< 0.50	2	< 0.50	1.4	4.5	< 0.50	< 0.50	2.9	12	< 0.50	0.88	< 0.50
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	34.94	4	< 0.50	0.51	3.4	0.86	3.1	< 0.50	2.1	9.4	1.3	4.2	< 0.50	6.5	1.4	4.1	9.6	2.7	1.2	5.1	1.1	7.4	0.61	< 0.50	3.2	0.58	3.5	4.5	3.5	< 0.50	< 0.50	< 0.50
Iron (diss.)	**1000 (AA) (1&2)**		11000	14000	26000	57000	< 5.0	8.8	-	28	18000	37000	120000	14	78	< 5.0	-	190	12000	4100	63000	9.4	19000	5700	14000	57000	49	350	7700	22000	14000	18000	1800
Mercury (diss.filt)	**0.07 MAC (1&2)**		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	276.92	14000	3000	63000	2200	2500	4300	-	970	2600	13000	16000	1900	7.6	30	-	4200	3000	1600	2600	510	2000	3100	4700	2400	1000	3600	5400	920	5100	3000	2600
Molybdenum (diss.filt)	**70 (8)**		0.61	0.86	< 0.20	0.58	< 0.20	< 0.20	-	0.65	0.77	< 0.20	0.3	0.44	0.27	< 0.20	-	< 0.20	2.6	< 0.20	0.41	< 0.20	0.81	< 0.20	0.35	0.34	< 0.20	0.27	0.2	0.61	< 0.20	< 0.20	0.39
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	14.98	55	2.9	28	15	2.6	5.8	2.1	5.5	2.4	26	37	2.2	0.88	2.4	3.9	5.5	25	3.4	9.4	2.4	17	5.2	20	9.6	0.55	7.4	4.7	50	1.7	4.1	2
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	9.64	< 0.50	< 0.50	< 0.50	1.6	< 0.50	< 0.50	< 0.50	< 0.50	0.82	< 0.50	0.92	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.8	1	2.9	< 0.50	2.7	< 0.50	< 0.50	0.57	< 0.50	< 0.50	< 0.50	1.7	< 0.50	< 0.50	< 0.50
Antimony (diss.filt)	**5 (5)**		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50	0.79	< 0.50	0.6	< 0.50	0.54	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.64	< 0.50	< 0.50	< 0.50
Selenium (diss.filt)	**10 (10)**		< 0.50	< 0.50	< 0.50	1.3	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1	< 0.50	0.5	< 0.50	< 0.50	< 0.50	< 0.50	1.3	< 0.50	< 0.50	1.7	0.50	0.87	0.97	< 0.50	< 0.50	1.6	1.1	< 0.50	< 0.50	< 0.50
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	37.15	72	< 2.5	15	81	10	7.5	5.8	7.1	110	17	25	3	5.3	16	7.7	17	28	29	110	3.9	84	12	7.1	12	2.6	11	36	54	6.1	3.3	3.7
Iron (Total)			11000	14000	26000	57000	< 5.0	8.8	-	-	-	37000	120000	-	78	-	-	190	12000	-	-	-	-	-	14000	-	-	-	-	-	-	-	1800
Manganese (Total)			14000	3000	63000	2200	2500	4300	-	-	-	13000	16000	-	7.8	-	-	4200	3000	-	-	-	-	-	4700	-	-	-	-	-	-	-	2600
Manganese [II]			2000	390	4500	2200	600	570	-	-	-	300	770	-	< 1.0	-	-	700	490	-	-	-	-	-	2800	-	-	-	-	-	-	-	260
Manganese [IV]			12000	2600	58000	1700	1900	3700	-	-	-	13000	15000	-	3600	-	-	3500	2800	-	-	-	-	-	1900	-	-	-	-	-	-	-	2300
Iron [II]			170	40	6100	120	< 20	< 20	-	-	-	19000	460	-	< 20	-	-	30	30	-	-	-	-	-	< 20	-	-	-	-	-	-	-	< 20
Iron [III]			11000	14000	20000	57000	< 20	< 20	-	-	-	18000	120000	-	78	-	-	160	12000	-	-	-	-	-	14000	-	-	-	-	-	-	-	1800
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		< 20	< 20	< 20	< 20	< 20	< 20	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	0.58	0.21	0.24	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.17	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.16	< 0.10	< 0.10	< 0.10
Phenols	ug/l																																
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	-	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
TPH	ug/l																																
TPH >C6-C8			-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C8-C10			-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C10-C12			-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C12-C16			-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C16-C21			-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C21-C25			-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C25-C35			-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C35-C40			-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TPH >C6-C40			-	-	-	-	-	-	< 10	-	-	-	-	-	-	-	< 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Speciated TPH	ug/l																																
Aliphatics																																	
EC C5-C6	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C6-C8	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatics																																	
EC C5-C7	**10 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C7-C8	**700 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	51	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**90 (7)**		< 0.10	< 0.10	< 0.10	37	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	73	< 0.10	< 0.10	< 0.10	-	< 0.10	43	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	87	< 0.10	< 0.10	< 0.10	< 0.10	220	< 0.10	< 0.10	< 0.10
EC>C12-C16	**90 (7)**		< 0.10	< 0.10	< 0.10	41	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	37	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	110	< 0.10	< 0.10	< 0.10
EC>C16-C21	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35			< 5.0	< 5.0	< 5.0	78	< 5.0	< 5.0	-	< 5.0	< 5.0	< 5.0	73	< 5.0	< 5.0	< 5.0	-	< 5.0	80	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	140	< 5.0	< 5.0	< 5.0	< 5.0	330	< 5.0	< 5.0	< 5.0
Total Aliphatics & Aromatics >C5-35			< 10	< 10	< 10	78	< 10	< 10	-	< 10	< 10	< 10	73	< 10	< 10	< 10	-	< 10	80	< 10	< 10	< 10	< 10	< 10	140	< 10	< 10	< 10	< 10	330	< 10	< 10	< 10
BTEX/MTBE/GRO	µg/l																																
MTBE	**15 (5*)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		< 1.0	< 1.0	7.9	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	12	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	4.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	**300 (8)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	15	< 1.0	< 1.0	< 1.0	< 1.0	4.3	< 1.0	< 1.0	< 1.0
p/m-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	8.6	< 1.0	< 1.0	< 1.0	12	< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.3	< 1.0	< 1.0	< 1.0
PCBs	µg/l																																
PCB congener 81			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 77			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 105			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 114			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 123			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 126			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 156			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 157			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 167			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 169			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 189			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PCBs (12 Congeners)			-	-	-	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polyaromatic Hydrocabons	µg/l																																
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.35	< 0.010	0.95	41	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.25	32	< 0.010	0.27	< 0.010	-	< 0.010	49	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene (aq)			< 0.010	< 0.010	< 0.010	0.16	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.073	6.8	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene (aq)			< 0.010	< 0.010	< 0.010	35	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	2.0	26	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene (aq)			< 0.010	< 0.010	< 0.010	7	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.53	1.7	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene (aq)			< 0.010	< 0.010	< 0.010	3.7	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		< 0.010	< 0.010	< 0.010	0.48	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		< 0.010	< 0.010	< 0.010	0.48	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene (aq)			< 0.010	< 0.010	< 0.010	0.39	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)anthracene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA 16 (aq)			0.35	< 0.20	0.95	88	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	2.9	66	< 0.20	0.27	< 0.20	-	< 0.20	49	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
INORGANICS	mg/l																																
Dissolved Organic Carbon			130	5.1	150	260	3.4	3.8	-	5.3	9.8	69	150	4.6	15	< 2.0	-	52	370	160	26	4.3	56	30	62	170	99	61	11	310	32	52	110
Total Inorganic Carbon			840	100	120	860	34	50	-	-	-	43	240	-	50	-	-	38	340	-	-	-	-	-	410	-	-	-	-	-	-	-	130
Total Organic Carbon			270	4.7	150	260	3.6	2.4	-	-	-	67	170	-	5.1	-	-	42	390	-	-	-	-	-	200	-	-	-	-	-	-	-	110
Dissolved Methane			0.4	< 0.050	< 0.050	2.3	< 0.050	< 0.050	-	-	-	< 0.050	1.5	-	< 0.050	-	-	< 0.050	2.6	-	-	-	-	-	0.065	-	-	-	-	-	-	-	< 0.050
pH	**6-9**		6.5	8.2	5.9	6.7	7.4	8	7.6	6.5	7	6.3	6.4	7.8	8.1	6.5	6.6	6.9	8.2	7.1	6.5	6.4	6.7	7	6.8	6.8	7.2	7.3	8.1	7.5	7.2	7.7	7.1
Dissolved CO2			2100	5	1300	1600	10	4.6	-	-	-	200	840	-	3.5	-	-	43	18	-	-	-	-	-	500	-	-	-	-	-	-	-	85
Alkalinity (Total)			3500	430	490	3600	140	210	180	240	720	180	980	160	210	63	130	160	1400	570	930	430	810	860	1700	3000	520	240	680	4800	790	840	560
Chloride	**250 (5)**		250	19	550	74	28	36	-	53	31	85	980	27	29	32	-	28	320	43	44	53	47	53	180	67	17	41	46	600	24	56	31
Ammonia (Free)	**0.3 (1)** **Types 3.5 and 7 $^{\text{(see note 3)}}$**		0.16	0.61	< 0.050	0.29	< 0.050	< 0.050	-	< 0.050	< 0.050	< 0.050	0.18	< 0.050	0.49	< 0.050	-	< 0.050	13	0.14	0.1	< 0.050	0.051	0.096	0.14	0.37	< 0.050	< 0.050	0.79	11	0.11	0.94	0.074
Ammonium			110	8.2	3.3	150	0.67	0.77	-	5.1	8.7	4.1	180	0.49	9.3	0.24	-	14	190	28	73	0.8	25	21	49	130	2.6	3.2	15	760	15	42	13
Ammoniacal Nitrogen			-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	0.93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite			< 0.020	< 0.020	< 0.020	< 0.020	0.025	< 0.020	-	< 0.020	0.028	0.023	< 0.020	< 0.020	< 0.020	< 0.020	-	0.11	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.025	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Nitrate	**50 (5)**		< 0.50	< 0.50	< 0.50	< 0.50	1.1	18	-	9.1	< 0.50	4.9	< 0.50	0.9	7.7	49	-	4.7	< 0.50	< 0.50	0.99	< 0.50	< 0.50	< 0.50	< 0.50	0.62	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate	**250 (5)**		< 1.0	< 1.0	170	< 1.0	19	30	65	52	< 1.0	45	29	12	17	18	24	15	17	19	7.6	48	18	15	270	9.8	< 1.0	50	200	< 1.0	37	3	12
Cyanide (Total) Low-Level	**0.001 (AA), 0.005 (95%ile) (1&2)**		< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.012	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.010	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.016	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Sulphide			< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-	-	-	< 0.050	< 0.050	-	< 0.050	-	-	< 0.050	< 0.050	-	-	-	-	-	< 0.050	-	-	-	-	-	-	-	< 0.050
Potassium			83	6.6	1	83	3.6	2.8	-	4.3	7.3	2.3	38	3.9	9.3	2.3	-	8.0	98	29	36	4.4	30	32	28	76	5.4	4.7	14	450	11	25	10
Magnesium			74	7.8	18	46	7.5	15	-	19	11	16	45	6.5	4.8	6.4	-	4.6	61	15	29	22	29	36	49	82	7.9	5.6	17	160	12	20	14
Sodium	**200 (5)**		200	14	380	92	12	24	-	39	18	36	560	18	15	18	-	16	240	29	49	24	43	52	150	250	8.3	13	55	620	13	40	22

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of 1 µg/l has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l OR 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH401	BH402	BH402S	BH403	BH404	BH618D	BH619D	BH619S	BH620	BH621	BH622	BH623D	BH624D	BH624S	BH625	BH626	BH627	BH628	BH629	BH630	BH631	BH632	BH633	BH634	BH635D	BH635S	BH636D	BH636S	BH637	BH638	BH651	BH653	BH654D	BH654S
HEAVY METALS	µg/l																																			
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		-	-	-	-	-	2.6	4.5	9.6	0.54	0.37	1.4	3.5	1.1	1.1	5.9	-	-	-	-	-	-	1.2	< 0.20	1.8	1.2	0.52	1.1	11	1.1	1	7.6	4.4	2.7	5.4
Boron (diss.filt)	**1000 (5)**		-	-	-	-	-	170	57	27	63	88	96	430	740	970	730	-	-	-	-	-	-	320	190	80	220	200	270	**1200**	100	12	420	700	430	370
Barium (diss.filt)	**700 (8)**		-	-	-	-	-	70	93	110	100	48	-	-	290	220	120	-	-	-	-	-	-	110	26	170	89	120	100	250	160	24	320	120	310	160
Beryllium (diss.filt)			-	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	-	-	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	**0.09 (AA) & 0.6 (MAC) (1) 0.6 CaCO$_3$ 50 - <100 mg/l**		-	-	-	-	-	< 0.11	**0.13**	**0.22**	< 0.11	**0.62**	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	-	-	-	-	-	-	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	**0.2**	**0.13**	< 0.11	**0.15**
Chromium (diss.filt)	**50 (5)**		-	-	-	-	-	0.56	4.1	7.9	0.54	0.51	< 0.50	0.88	0.51	0.85	2.0	-	-	-	-	-	-	< 0.50	< 0.50	< 0.50	0.60	1.4	< 0.50	6.3	< 0.50	0.75	5.7	< 0.50	2.4	< 0.50
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	34.94	-	-	-	-	-	1	3.5	3.1	3.9	3.5	0.73	1.1	0.51	0.60	1.8	-	-	-	-	-	-	0.76	0.65	< 0.50	0.64	0.52	1.7	< 0.50	< 0.50	< 0.50	2	2.8	3.5	3.9
Iron (diss.)	**1000 (AA) (1&2)**		-	-	-	-	-	15	**1800**	**3900**	**9300**	55			**17000**	**16000**	**41000**	-	-	-	-	-	-	**2600**	1000	**34000**	**15000**	**37000**	20	**35000**	**1800**	< 5.0	**20000**	**3200**	**2100**	510
Mercury (diss.filt)	**0.07 MAC (1&2)**		-	-	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	-	-	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	**0.17**	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (diss.filt)	**123 (AA) $^{\text{(see note 1)}}$**	276.92	-	-	-	-	-	**5400**	**5300**	**7300**	**8000**	**1700**	-	-	**7200**	**4900**	**3900**	-	-	-	-	-	-	**4800**	**390**	**17000**	**3200**	**2300**	**450**	**2500**	**4000**	**1400**	**13000**	**26000**	**13000**	**3800**
Molybdenum (diss.filt)	**70 (8)**		-	-	-	-	-	1.7	2	2.3	0.35	< 0.20	-	-	< 0.20	< 0.20	< 0.20	-	-	-	-	-	-	0.81	< 0.20	0.31	0.74	0.21	5.6	8.3	0.59	0.59	< 0.20	0.46	2.8	3.5
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	14.98	-	-	-	-	-	5.5	11	8.1	6.4	**25**	9.4	2.7	4.5	5.0	9.2	-	-	-	-	-	-	2.1	1.5	7.3	3.0	2.6	2.4	**43**	3.9	2.0	**30**	**26**	10	9.5
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	9.64	-	-	-	-	-	< 0.50	5	4.1	< 0.50	< 0.50	< 0.50	1.2	< 0.50	< 0.50	6.2	-	-	-	-	-	-	0.68	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.3	< 0.50	< 0.50	1.7	2.7	5.2	0.72
Antimony (diss.filt)	**5 (5)**		-	-	-	-	-	< 0.50	0.82	< 0.50	< 0.50	< 0.50		-	< 0.50	< 0.50	0.55	-	-	-	-	-	-	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Selenium (diss.filt)	**10 (10)**		-	-	-	-	-	0.64	5.2	2.6	< 0.50	< 0.50	< 0.50	2.9	< 0.50	< 0.50	0.98	-	-	-	-	-	-	< 0.50	< 0.50	< 0.50	< 0.50	0.76	< 0.50	< 0.50	< 0.50	< 0.50	1.1	2.4	< 0.50	2.7
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	37.15	-	-	-	-	-	15	**87**	**110**	**120**	11	37	33	6.6	13	16	-	-	-	-	-	-	17	5.3	12	17	30	7.5	**63.0**	< 2.5	3.5	**60**	**40**	**38**	20
Iron (Total)			22000	960	98000	31000	3800	15	-	-	-	55	2100	15000	17000	16000	-	15000	35000	-	4000	1700	< 5.0	2600	1000	34000	15000	37000	20	35000	1800	-	20000	3300	-	510
Manganese (Total)			8500	19000	50000	2300	14000	5400	-	-	-	1700	8400	2400	7200	4900	-	45000	8700	-	8000	13000	860	4800	390	17000	3200	2400	460	2700	4000	-	14000	26000	-	3800
Manganese [II]			1900	850	5100	100	2200	2200	-	-	-	1400	2600	610	690	670	-	2500	400	-	2500	310	56	2500	390	260	1500	400	< 1.0	53	430	-	3500	2100	-	200
Manganese [IV]			6600	18000	45000	2200	12000	3300	-	-	-	320	5800	1700	6500	4200	-	43000	7000	-	5600	13000	800	4300	< 1.0	17000	1700	1900	450	2400	3600	-	9500	24000	-	3400
Iron [II]			50	< 20	1700	< 20	< 20	< 20	-	-	-	< 20	20	70	1000	480	-	70	60	-	70	60	60	60	< 20	40	50	20	930	16000	60	-	< 20	< 20	-	50
Iron [III]			22000	930	96000	31000	3800	< 20	-	-	-	55	2000	15000	16000	16000	-	15000	35000	-	3900	1600	< 20	2500	1000	34000	15000	37000	< 20	19000	1700	-	20000	3200	-	460
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**			-	-	-	-	< 20	< 20	< 20	< 20	< 20	-	-	< 20	< 20	< 20	-	-	-	-	-	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		-	-	-		-	< 0.10	< 0.10	< 0.10	< 0.10	2.7	-	-	< 0.10	< 0.10	0.17	-	-	-	-	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.9	0.11	< 0.10	< 0.10	< 0.10	0.1	< 0.10	< 0.10
Phenols	ug/l																																			
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**			-		-	-	< 0.030	0.22	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
TPH	ug/l																																			
TPH >C6-C8			-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C8-C10			-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C10-C12			-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C12-C16			-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C16-C21			-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C21-C25			-	-	-	-	-	-	-	-	-	-	39	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C25-C35			-	-	-	-	-	-	-	-	-	-	320	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH >C35-C40			-	-	-	-	-	-	-	-	-	-	10	< 0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TPH >C6-C40			-	-	-	-	-	-	-	-	-	-	370	< 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Speciated TPH	ug/l																																			
Aliphatics																																				
EC C5-C6	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C6-C8	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35			< 0.10	< 0.10	4800	< 0.10	< 0.10	< 0.10	2500	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	2800	500	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	51	< 0.10	1500	180	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35			< 5.0	< 5.0	4800	< 5.0	< 5.0	< 5.0	2500	< 5.0	< 5.0	< 5.0	-	-	< 5.0	< 5.0	2800	500	< 5.0	< 5.0	-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	51	< 5.0	1500	180	< 5.0
Aromatics																																				
EC C5-C7	**10 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	**330**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C7-C8	**700 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	**790**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	89	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	150	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**90 (7)**		< 0.10	**110**	< 0.10	< 0.10	**3700**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	**140**	**120**	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**90 (7)**		< 0.10	< 0.10	< 0.10	20	**730**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	25	**170**	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	29	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35			< 5.0	110	< 5.0	20	5700	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	-	-	< 5.0	< 5.0	160	420	< 5.0	< 5.0	-	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Aliphatics & Aromatics >C5-35			< 10	120	4800	20	5700	< 10	2500	< 10	< 10	< 10	-	-	< 10	< 10	3000	920	< 10	< 10	-	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	51	< 10	1500	180	< 10
BTEX/MTBE/GRO	µg/l																																			
MTBE	**15 (5*)**		-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		-	**6400**	< 1.0	< 1.0	**1700**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	**19**	**63**	< 1.0	< 1.0	-	< 1.0	< 1.0	**43**	8.6	< 1.0	< 1.0	< 1.0	< 1.0	2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		-	**460**	< 1.0	< 1.0	**440**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	7.7	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	**300 (8)**		-	170	< 1.0	< 1.0	**360**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	17	100	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	20	25	< 1.0	18	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p/m-Xylene			-	59	< 1.0	< 1.0	69	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	8.2	8.2	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	6.7	8.2	< 1.0	39	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene			-	40	< 1.0	< 1.0	45	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	5.3	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	8.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
PCBs	µg/l																																			
PCB congener 81			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 77			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 105			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 114			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 123			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 126			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 156			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 157			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 167			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 169			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 189			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PCBs (12 Congeners)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polyaromatic Hydrocabons	µg/l																																			
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.3	1.5	**110**	**30**	1.1	< 0.010	**1600**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.91	< 0.010	< 0.010	< 0.010	< 0.010	0.61	< 0.010	< 0.010
Acenaphthylene (aq)			-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.9	5	< 0.010	< 0.010	380	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene (aq)			-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	21	60	< 0.010	< 0.010	77	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene (aq)			-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	4.4	7.9	< 0.010	< 0.010	49	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene (aq)			-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	2.7	10	< 0.010	< 0.010	30	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	**0.20**	**0.89**	< 0.010	< 0.010	**2.4**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	**0.39**	**1.1**	< 0.010	< 0.010	**2.5**	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene (aq)			-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.35	1.5	< 0.010	< 0.010	2.7	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)anthracene (aq)			-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)			-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)			-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)			-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA 16 (aq)			-	-	-	-	-	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	1.3	1.5	140	120	1.1	< 0.20	2100	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.91	< 0.20	< 0.20	< 0.20	< 0.20	0.61	< 0.20	< 0.20
INORGANICS	mg/l																																			
Dissolved Organic Carbon			-	-	-	-	-	8.7	14	22	7.1	5.7	-	-	330	340	300	-	-	-	-	-	-	160	12	25	150	150	41	49	78	43	140	120	170	110
Total Inorganic Carbon			190	230	29	1000	220	120	-	-	-	100	130	200	290	310	-	100	34	-	130	36	53	180	550	100	160	150	48	360	98	-	230	130	-	100
Total Organic Carbon			51	240	3.6	480	250	8.6	-	-	-	5	110	260	32	340	-	130	35	-	160	31	64	150	13	26	160	160	42	54	78	-	140	120	-	110
Dissolved Methane			0.18	0.95	< 0.050	1.9	< 0.050	0.11	-	-	-	< 0.050	0.41	0.71	< 0.050	< 0.050	-	0.11	< 0.050	-	0.40	< 0.050	< 0.050	0.86	< 0.050	< 0.050	1.7	3.2	1	< 0.050	1.3	-	< 0.050	< 0.050	-	< 0.050
pH	**6-9**		-	-	-	-	-	7.2	7.4	7.4	6.4	7	7.9	7.1	6.9	6.9	6.9	6.9	6.9	8	7.9	7.8	-	7.4	7	6	6.8	8.1	8.3	7.4	7.9	8.2	6.8	7.1	8.1	8.2
Dissolved CO2			420	700	8.1	2100	170	63	-	-	-	84	13	130	340	340	-	110	39	-	15	5.1	4.9	61	420	780	200	10	1.8	110	9.8	-	340	96	-	4.8
Alkalinity (Total)			810	940	120	4300	910	500	370	400	420	420	530	820	1200	1300	990	420	140	-	550	150	220	770	2300	430	680	630	200	1500	410	190	970	540	680	420
Chloride	**250 (5)**		-	-	-	-	-	27	28	24	27	70	-	-	70	84	47	-	-	-	-	-	-	55	220	310	28	26	32	**280**	34	39	160	170	71	22
Ammonia (Free)	**0.3 (1) Types 3.5 and 7 $^{\text{(see note 3)}}$**		-	-	-	-	-	< 0.050	0.1	0.16	< 0.050	< 0.050	-	-	0.24	0.28	**0.37**	-	-	-	-	-	-	**0.41**	**1.2**	< 0.050	0.11	**1.8**	**0.94**	**3.5**	0.24	0.075	0.16	< 0.050	**1.1**	0.19
Ammonium			-	-	-	-	-	1.6	9.9	14	7.7	8	-	-	79	86	98	-	-	-	-	-	-	37	260	34	36	35	9.8	290	6.6	1.1	66	7.3	21	2.5
Ammoniacal Nitrogen			-	-	-	-	-	-	-	-	-	-	9.3	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite			0.027	< 0.020	0.068	< 0.020	< 0.020	< 0.020	0.23	< 0.020	< 0.020	< 0.020	0.12	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	-	< 0.020	< 0.020	0.72	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.45	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Nitrate	**50 (5)**		< 0.50	< 0.50	25	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	7.5	6.1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	< 0.50	< 0.50	13	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate	**250 (5)**		< 1.0	110	24	< 1.0	31	160	28	6	29	66	17	11	45	42	< 1.0	15	12	-	170	74	79	11	100	70	33	20	19	< 1.0	45	46	12	110	28	36
Cyanide (Total) Low-Level	**0.001 (AA), 0.005 (95%ile) (1&2)**		-	-	-	-	-	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	**0.012**	**0.014**	-	-	-	-	-	-	< 0.0050	< 0.0050	< 0.0050	**0.011**	**0.011**	< 0.0050	< 0.0050	**0.011**	**0.011**	< 0.0050	**0.016**	< 0.0050	< 0.0050
Sulphide			< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-	-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-	< 0.050	< 0.050	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-	< 0.050	< 0.050	-	< 0.050
Potassium			-	-	-	-	-	7.4	9.1	8	7.7	5.8	-	-	30	37	41	-	-	-	-	-	-	19	12	5.5	14	12	7.8	89	8.1	1.3	47	4.4	16	4.4
Magnesium			-	-	-	-	-	14	12	14	13	18	-	-	42	48	30	-	-	-	-	-	-	26	10	23	20	17	13	58	16	16	50	35	28	27
Sodium	**200 (5)**		-	-	-	-	-	33	36	28	22	42	-	-	71	86	66	-	-	-	-	-	-	130	21	150	21	19	23	250	25	20	130	85	130	37

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:
Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of 1 µg/l has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l OR 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH02	BH114	BH121	BH122	BH208	BH209	BH213	BH214	BH215	BH301	BH302	BH303	BH405	BH406	BH407	BH408	BH408	BH610D	BH610S	BH614	BH615D	BH615S	BH616	BH617	BH645	BH646	BH647A	BH649B	BHW1
HEAVY METALS	µg/l																														
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		31	< 0.20	< 0.20	0.44	< 0.20	1.5	3.6	8.4	2.9	0.36	110	43	1.8	3.2	3.6	0.42	0.44	17	42	0.21	-	-	-	-	2.6	9.6	3.6	3.4	1.3
Boron (diss.filt)	**1000 (5)**		1100	< 10	75	70	44	880	1200	2800	890	160	1500	850	730	800	18	19	260	2600	910	26	-	-	-	-	1200	1800	270	750	260
Barium (diss.filt)	**700 (8)**		500	15	49	23	30	220	35	88	100	83	640	400	140	300	16	13	77	450	210	33	-	-	-	-	150	140	< 5.0	350	210
Beryllium (diss.filt)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	**0.09 (AA) & 0.6 (MAC) (1) 0.6 (AA)** **$CaCO_3$ 50 - <100 mg/l**		< 0.11	< 0.11	0.19	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	0.33	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	-	-	-	-	< 0.11	0.12	< 0.11	< 0.11	0.29
Chromium (diss.filt)	**50 (5)**		1.3	6.9	< 0.50	0.69	< 0.50	1	12	20	16	< 0.50	10	5.2	1.2	2.7	< 0.50	< 0.50	< 0.50	20	6.1	0.56	-	-	-	-	18	21	0.9	1.1	5.1
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	34.94	11	3.5	1.7	6.9	0.78	0.51	6.6	49	6.1	< 0.50	4	8.6	0.61	0.67	< 0.50	0.56	< 0.50	< 0.50	< 0.50	0.57	-	-	-	-	2.2	2.5	31	1.9	5.5
Iron (diss.)	**1000 (AA) (1&2)**		48000	< 5.0	< 5.0	50	< 5.0	98	17000	24000	40000	16000	9900	57000	92	290	140	20	35	16000	51000	< 5.0	-	-	-	-	68000	62000	610	61	28000
Mercury (diss.filt)	**0.07 MAC (1&2)**		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.17	< 0.05	< 0.05	-	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	276.92	790	3.5	360	580	930	1000	500	360	1000	1500	660	2100	11000	9200	1600	470	510	4900	1900	92	-	-	-	-	2600	1800	1	13000	1000
Molybdenum (diss.filt)	**70 (8)**		1.7	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	1.9	2.5	2.9	1.4	2.1	2.2	0.37	1.4	1.9	0.24	0.24	5.3	3.9	0.38	-	-	-	-	1.1	2.2	11	9.2	1.2
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	14.98	19	1.2	13	9.7	4.6	7.8	46	310	37	11	170	19	19	16	4.9	0.97	0.88	110	21	1.2	-	-	-	-	56	70	14	37	7.9
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	9.64	2.3	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.8	2.5	1.3	< 0.50	4.2	3.6	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	3	0.99	< 0.50	-	-	-	-	2.1	4.7	< 0.50	< 0.50	2.7
Antimony (diss.filt)	**5 (5)**		1.2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.5	3.5	1.6	< 0.50	2.3	0.85	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	3.8	1.0	< 0.50	-	-	-	-	2	2.4	0.70	0.60	0.52
Selenium (diss.filt)	**10 (10)**		1.3	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.51	2	1.9	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.2	< 0.50	< 0.50	-	-	-	-	1.4	< 0.50	8.8	1.3	< 0.50
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	37.15	120	9.2	14	14	10	8.6	190	190	190	11	42	100	4.4	5.9	4	18	4.6	130.0	22.0	9.1	-	-	-	-	130	170	< 2.5	9.2	64
Iron (Total)			-	< 5.0	< 5.0	140	-	-	-	-	-	-	-	-	-	-	140	20	37	16000	-	< 5.0	16	1600	7900	-	-	-	-	62	-
Manganese (Total)			-	3.5	370	580	-	-	-	-	-	-	-	-	-	-	1600	490	540	4900	-	92	140	5700	3800	-	-	-	-	13000	-
Manganese [II]			-	< 1.0	18	56	-	-	-	-	-	-	-	-	-	-	180	30	120	1300	-	51	< 1.0	470	1200	-	-	-	-	58	-
Manganese [IV]			-	360	340	520	-	-	-	-	-	-	-	-	-	-	750	440	390	3600	-	40	140	5200	2600	-	-	-	-	13000	-
Iron [II]			-	40	270	40	-	-	-	-	-	-	-	-	-	-	60	60	< 20	420	-	< 20	990	14000	50	-	-	-	-	< 20	-
Iron [III]			-	< 20	< 20	< 20	-	-	-	-	-	-	-	-	-	-	81	< 20	35	16000	-	< 20	< 20	< 20	7700	-	-	-	-	61	-
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	20	< 20	< 20	-	-	-	-	< 20	21	< 20	< 20	< 20
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		< 0.10	2.7	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.2	< 0.10	< 0.10	< 0.10	0.12	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.23	< 0.10	< 0.10	-	-	-	-	< 0.10	< 0.10	0.34	< 0.10	< 0.10
Phenols	ug/l																														
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		< 0.030	-	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	-	-	< 0.030	< 0.030	-	-	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	0.57	1.2	< 0.030	< 0.030	< 0.030
Speciated TPH	ug/l																														
Aliphatics																															
EC C5-C6	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C6-C8	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	55	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	33	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	33	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	55	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatics																															
EC C5-C7	**10 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	120	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C7-C8	**700 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	230	< 0.10	< 0.10	< 0.10	< 0.10	92	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	35	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	95	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	80	240	< 0.10	< 0.10	< 0.10	< 0.10	830	< 0.10	< 0.10	< 0.10	< 0.10	140	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	30	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	120	< 0.10	< 0.10	< 0.10	< 0.10	98	< 0.10	< 0.10	< 0.10	< 0.10	25	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	49	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	47	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	48	120	360	< 5.0	< 5.0	< 5.0	< 5.0	1300	< 5.0	< 5.0	< 5.0	< 5.0	400	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	30	< 5.0	< 5.0	< 5.0	< 5.0
Total Aliphatics & Aromatics >C5-35			< 10	< 10	< 10	< 10	< 10	81	120	360	< 10	< 10	< 10	< 10	1300	< 10	< 10	< 10	< 10	450	< 10	< 10	< 10	< 10	< 10	< 10	30	< 10	< 10	< 10	< 10
BTEX/MTBE/GRO	µg/l																														
GRO >C5-C12																															
MTBE	**15 (5*)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	14	6.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-		27	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.6	7.1	13	< 1.0	< 1.0	5400	1400	< 1.0	< 1.0	< 1.0	< 1.0	4.8	2.7	< 1.0	< 1.0	< 1.0	-	-	6.4	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	85	2	6.3	< 1.0	< 1.0	< 1.0	140	< 1.0	< 1.0	< 1.0	< 1.0	90	1.6	< 1.0	< 1.0	< 1.0	-	-	33	61	< 1.0	< 1.0	< 1.0
Ethylbenzene	**300 (8)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	270	17	31	< 1.0	< 1.0	22	190	< 1.0	< 1.0	< 1.0	< 1.0	16	34	< 1.0	< 1.0	< 1.0	-	-	28	29	< 1.0	< 1.0	< 1.0
p/m-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	780	33	43	< 1.0	< 1.0	34	30	< 1.0	< 1.0	< 1.0	< 1.0	19	79	< 1.0	< 1.0	< 1.0	-		25	60	< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	270	15	16	< 1.0	< 1.0	< 1.0	14	< 1.0	< 1.0	< 1.0	< 1.0	11	21	< 1.0	< 1.0	< 1.0	-		10	21	< 1.0	< 1.0	< 1.0
PCBs	µg/l																														
PCB congener 81			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB congener 77			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB congener 105			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB congener 114			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB congener 123			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB congener 126			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB congener 156			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB congener 157			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB congener 167			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB congener 169			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB congener 189			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (12 Congeners)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Polyaromatic Hydrocabons	µg/l																														
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.1	0.71	0.66	3.2	< 0.010	< 0.010	470	7.3	< 0.010	< 0.010	< 0.010	0.96	< 0.010	< 0.010	0.7	0.43	< 0.010	< 0.010	< 0.010	< 0.010	0.49	0.56	< 0.010
Acenaphthylene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)anthracene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA 16 (aq)			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	1.1	0.71	0.66	3.2	< 0.20	<0.20	470	7.3	< 0.20	< 0.20	< 0.20	0.96	< 0.20	< 0.20	0.7	0.43	< 0.20	< 0.20	< 0.20	< 0.20	0.49	0.56	< 0.20
INORGANICS	mg/l																														
Dissolved Organic Carbon			170	2.6	2.6	11	2.1	220	120	130	110	86	580	190	55	50	16	3.8	3.2	140	250	3.8	-	-	-	-	240	37	210	240	200
Total Inorganic Carbon			-	15	34	82	-	-	-	-	-	-	-	-	-	-	94	43	41	890	-	94	21	120	500	-	-	-	-	260	-
Total Organic Carbon			-	210	2.3	3.5	-	-	-	-	-	-	-	-	-	-	9.3	< 2.0	3.5	140	-	3.4	24	150	51	-	-	-	-	270	-
Dissolved Methane			-	< 0.050	< 0.050	< 0.050	-	-	-	-	-	-	-	-	-	-	0.26	0.087	0.84	< 0.050	-	< 0.050	0.36	0.1	0.67	-	-	-	-	2.9	-
pH	**6 - 9**		7.1	7.9	7.4	6.8	7	7.1	7.3	7.9	7.4	6.7	7.9	6.8	6.9	6.8	8.3	6.8	7.8	7.3	7.1	7.6	-	-	-	-	6.9	6.8	7.5	7.6	6.5
Dissolved CO2			-	1.4	12	110	-	-	-	-	-	-	-	-	-	-	3.6	57	6.0	350	-	22	2.4	41	470	-	-	-	-	59	-
Alkalinity (Total)			980	61	140	340	140	3100	2600	4600	2400	470	3800	2100	1800	1700	390	180	170	3700	1200	390	86	500	2100	-	2700	2900	940	1100	830
Chloride	**250 (5)**		210	23	31	29	31	120	380	1300	240	24	650	53	190	150	150	39	55	750	71	16	-	-	-	-	300	440	41	180	51
Ammonia (Free)	**0.3 (1)** **Types 3,5 and 7 $^{\text{(see note 3)}}$**		0.4	0.064	< 0.050	< 0.050	< 0.050	0.29	2.5	21	2.6	< 0.050	16	0.25	0.35	0.3	0.78	< 0.050	< 0.050	7.4	0.68	< 0.050	-	-	-	-	1.3	1.3	0.29	1.3	0.068
Ammonium			73	1.7	2	15	3.4	53	280	620	230	7.3	510	99	91	110	8.3	1.8	0.85	790	140	1.6	-	-	-	-	370	490	23	82	45
Nitrite			0.037	< 0.020	0.023	0.042	0.28	< 0.020	0.027	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.025	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	-	< 0.020	< 0.020	0.17	< 0.020	< 0.020
Nitrate	**50 (5)**		2.8	8.6	19	5	14	< 0.50	< 0.50	3.9	< 0.50	< 0.50	< 0.50	1.3	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.76	0.91	19	< 0.50	< 0.50	-	< 0.50	< 0.50	0.6	0.81	< 0.50
Sulphate	**250 (5)**		< 1.0	54	29	97	25	260	< 1.0	< 1.0	< 1.0	85	< 1.0	< 1.0	15	13	28	34	38	< 1.0	11	33	32	73	120	-	340	< 1.0	11	53	45
Cyanide (Total) Low-Level	**0.001 (AA), 0.005 (95%ile) (1&2)**		< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.013	< 0.0050	< 0.0050	< 0.0050	-	-	-	-	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Sulphide			-	< 0.050	< 0.050	< 0.050	-	-	-	-	-	-	-	-	-	-	< 0.050	< 0.050	< 0.050	< 0.050	-	< 0.050	< 0.050	< 0.050	< 0.050	-	-	-	-	< 0.050	-
Potassium			66	1.7	4.9	7.8	4.2	46	170	330	110	18	230	89	96	61	1.7	1.7	1.5	330	43	6.2	-	-	-	-	160	170	88	50	19
Magnesium			52	3.9	8.1	6.6	7.5	46	55	110	52	15	120	76	62	48	27	16	16	150	40	13	-	-	-	-	74	71	0.54	43	19
Sodium	**200 (5)**		160	12	19	12	16	100	300	910	210	21	550	240	140	110	65	19	20	660	62	9.3	-	-	-	-	280	310	240	150	40

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of 1 µg/l has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l OR 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Note 5 - These EQS refer to bioavailable concentrations of the substances.

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	Lagoon	Pond3a	Pond3b	Pond4	Pond5	SW1	SW3	SW4	SW5	SW6	SW7	SW9	SW10	SW13	SW14
HEAVY METALS	**µg/l**																
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.31	0.42	0.39	0.45	0.67	0.22	< 0.20	< 0.20	0.21	0.66	0.27	< 0.20	0.74	0.31	0.3
Boron (diss.filt)	**1000 (5)**		36	31	36	18	42	12	21	12	10	240	< 10	18	290	< 10	< 10
Barium (diss.filt)	**700 (8)**		14	12	14	5.1	8	12	30	17	13	66	11	16	73	9.6	10
Beryllium (diss.filt)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	**0.09 (AA) & 0.6 (MAC) (1) 0.6 (AA)** **$CaCO_3$ 50 - <100 mg/l**		< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
Chromium (diss.filt)	**50 (5)**		6.5	7.2	7	6.5	6.2	< 0.50	< 0.50	1.0	5.1	< 0.50	6.2	< 0.50	< 0.50	6.5	6.8
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	34.94	3.5	2.1	2	2	2.1	2.2	1.0	2.4	2.2	1.5	3.3	1.0	1.5	2	2.3
Iron (diss.)	**1000 (AA) (1&2)**		15	88	8.3	8.2	110	18	20	15	220	330	260	< 5.0	340	300	310
Mercury (diss.filt)	**0.07 MAC (1&2)**		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	276.92	3.5	180	0.63	0.99	6.3	170	780	540	130	14	47	260	34	36	50
Molybdenum (diss.filt)	**70 (8)**		0.28	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	14.98	1.1	1.5	0.95	1.1	2.9	1.0	1.4	1.9	1.3	1.5	1.3	0.85	1.4	1.1	1.2
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	9.64	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Antimony (diss.filt)	**5 (5)**		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Selenium (diss.filt)	**10(5)**		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.52	0.51	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	37.15	20	< 2.5	< 2.5	< 2.5	5.4	6.4	< 2.5	3.6	2.9	4.9	6.7	5.9	5.4	2.9	2.6
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.2	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
Speciated TPH	**ug/l**																
Aliphatics																	
EC C5-C6	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C6-C8	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatics																	
EC C5-C7	**10 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C7-C8	**700 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	58	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	58	< 5.0	< 5.0	< 5.0
otal Aliphatics & Aromatics >C5-3			< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	58	< 10	< 10	< 10
BTEX/MTBE/GRO	**µg/l**																
MTBE	**15 (5*)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	**300 (8)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p/m-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Polyaromatic Hydrocabons	**µg/l**																
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.1	< 0.010	< 0.010	< 0.010
Acenaphthylene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)anthracene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)			< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA 16			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	1.1	< 0.20	< 0.20	< 0.20
INORGANICS	**mg/l**																
Dissolved Organic Carbon			26	34	34	25	38	21	24	28	23	21	22	19	32	23	23
pH	**6 - 9**		8.0	8.3	8.3	8.2	8	7.7	7.8	8.1	8.1	8.4	8.1	7.5	7.6	8.2	8.2
Alkalinity (Total)			110	120	120	87	130	96	110	82	86	82	80	92	110	74	74
Chloride	**250 (5)**		16	28	28	25	33	24	26	23	24	26	23	24	26	24	32
Ammonia (Free)	**0.3 (1)** **Types 3,5 and 7 $^{\text{(see note 3)}}$**		0.065	< 0.050	< 0.050	< 0.050	0.14	< 0.050	< 0.050	0.053	< 0.050	< 0.050	< 0.050	< 0.050	0.061	< 0.050	< 0.050
Ammonium			1.4	0.28	0.32	0.24	3	1.2	0.37	1.0	0.49	0.28	0.38	1.4	3.2	0.18	0.42
Nitrite			0.020	0.09	0.095	0.036	0.07	0.057	0.038	0.079	0.096	0.027	0.060	0.071	0.020	0.043	0.048
Nitrate	**50 (5)**		2.1	5.7	6.9	1.5	3.3	24	22	11	14	5.4	8.4	22	5.7	7.6	7.5
Sulphate	**250 (5)**		25	12	13	15	22	20	25	15	17	13	14	21	12	12	12
Cyanide (Total) Low-Level	**0.001 (AA), 0.005 (95%ile) (1&2)**		**0.013**	< 0.0050	< 0.0050	< 0.0050	< 0.0050	**0.014**	**0.0090**	**0.0070**	**0.0070**	< 0.0050	**0.0060**	**0.012**	< 0.0050	< 0.0050	< 0.0050
Calcium			33	33	33	24	32	33	35	38	30	22	25	32	21	24	25
Potassium			5.4	5.9	6.1	5.6	7.7	3.5	3.4	3.8	2.6	1.9	2.3	3.1	1.9	2	2
Magnesium			3.0	6.3	6.3	5.9	8.3	4.6	5.4	6.8	5.3	4.1	4.7	4.7	4.0	4.5	4.5
Sodium	**200 (5)**		9.9	14	15	12	16	12	12	13	12	12	11	12	12	12	14

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:
Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of 1 µg/l has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l OR 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/
Note 5 - These EQS refer to bioavailable concentrations of the substances.

Sample Point / Determinands	DUP1	BH404	% dff	DUP2	BH646	% dff	NIEA BH646	% dff (NIEA)	DUP3	BH647A	% dff	DUP4	BH614	% dff	NIEA BH614	% dff (NIEA)	DUP5	BH122	% dff	NIEA BH122	% dff (NIEA)	DUP6	BH202	% dff	NIEA BH202	% dff (NIEA)	DUP 7	BH203	% dff	DUP8	BH637	% dff	NIEA BH637	% dff (NIEA)	DUP9	BH622	% dff	NIEA BH622	% dff (NIEA)	DUP10	SW7	% dff	NIEA SW7	% dff (NIEA)
HEAVY METALS																																												
Arsenic (diss.filt)	-	-	-	7.2	9.6	-25%	13.58	-	3.70	3.60	3%	0.44	0.21	110%	-	-	0.76	0.44	73%	0.97	-	0.94	1.5	-37%	-	-	3.1	4.5	-31%	1.5	1.1	36%	7.48	-	0.85	1.4	-39%	-	-	0.33	0.27	22%	0.29	-7%
Boron (diss.filt)	-	-	-	1700	1800	-6%	-	-	230.00	270.00	-15%	27	26	4%	-	-	75	70	7%	-	-	450	460	-2%	-	-	420	430	-2%	120	100	20%	-	-	84	96	-13%	-	-	< 10	< 10	-	-	-
Barium (diss.filt)	-	-	-	130	140	-7%	-	-	12.00	< 5.0	-	33	33	0%	-	-	23	23	0%	-	-	100	110	-9%	-	-	82	110	-25%	170	160	6%	-	-	-	-	-	-	-	11	11	-	-	-
Beryllium (diss.filt)	-	-	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0		-	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	-	-	-	-	-	-	-	< 1.0	< 1.0	-	-	-
Cadmium (diss.filt)	-	-	-	0.11	0.12	-8%	<0.05	-	< 0.11	< 0.11	-	< 0.11	< 0.11	-	-	-	< 0.11	< 0.11		<0.05	-	< 0.11	0.21	-	-	-	< 0.11	< 0.11	-	< 0.11	< 0.11	-	<0.05	-	0.14	< 0.11	-	-	-	< 0.11	< 0.11		<0.05	-
Chromium (diss.filt)	-	-	-	19	21	-10%	0.29	7186%	0.80	0.88	-9%	< 0.50	0.56	-	-	-	0.7	0.69	1%	<0.25	-	< 0.50	< 0.50	-	0.46	-	2.7	3.9	-31%	< 0.50	< 0.50	-	7.22	<LOD Field&Dup	< 0.50	< 0.50		-	-	6.1	6.2	-2%	<0.25	-
Copper (diss.filt)	-	-	-	1.9	2.5	-24%	<1.00		31.00	31.00	0%	0.86	0.57	51%	-	-	2	6.9	-71%	1.66	315%	0.67	1.2	-44%	<1.00	-	5.3	5.1	4%	< 0.50	< 0.50	-	<1.00	-	1.7	0.73	133%	-	-	2.4	3.3	-27%	1.17	183%
Iron (diss.)	-	-	-	65000	62000	5%	56800.00	9%	730.00	610.00	20%	210	< 5.0	-	-	-	680	50	1260%	1540.00	-97%	1700	4100	-59%	21800.00	-81%	46000	63000	-27%	2800	1800	56%	22600.00	-92%	-	-	-	-	-	260	260	0%	300	-13%
Mercury (diss.filt)	-	-	-	< 0.05	< 0.05	-	-	-	< 0.05	< 0.05		< 0.05	< 0.05	-	-	-	< 0.05	< 0.05	-	-	-	< 0.05	< 0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	< 0.05	-	-	-	< 0.05	< 0.05	-	-	-	< 0.05	< 0.05	-	-	-
Manganese (diss.filt)	-	-	-	1700	1800	-6%	1970.00	-9%	2.00	1.00	100%	300	92	226%	-	-	860	580	48%	950.00	-39%	1600	1600	0%	1880.00	-15%	2500	2600	-4%	4100	4000	3%	4390.00	-9%	-	-	-	-	-	58	47	23%	120	-61%
Molybdenum (diss.filt)	-	-	-	0.66	2.2	-70%	-	-	11.00	11.00	0%	0.44	0.38	16%	-	-	< 0.20	< 0.20	-	-	-	< 0.20	< 0.20	-	-	-	0.51	0.41	24%	0.42	0.59	-29%	-	-	-	-	-	-	-	< 0.20	< 0.20	-	-	-
Nickel (diss.filt)	-	-	-	68	70	-3%	2.49	2708%	14.00	14.00	0%	2	1.2	67%	-	-	1.9	9.7	-80%	2.06	370%	2.7	3.4	-21%	2.54	34%	10	9.4	6%	3.0	3.9	-23%	65.90	-94%	11	9.4	17%	-	-	1.3	1.3	0%	1.23	5%
Lead (diss.filt)	-	-	-	4	4.7	-15%	<0.25	-	0.87	< 0.50		< 0.50	< 0.50	-	-	-	< 0.50	< 0.50	-	<0.25	-	< 0.50	1	-	<0.25	-	2.4	2.9	-17%	< 0.50	< 0.50	-	<0.25	-	< 0.50	< 0.50	-	-	-	< 0.50	< 0.50		<0.05	
Antimony (diss.filt)	-	-	-	2.5	2.4	4%	-	-	0.74	0.70	6%	< 0.50	< 0.50	-	-	-	< 0.50	< 0.50	-	-	-	< 0.50	< 0.50	-	-	-	0.58	0.6	-3%	< 0.50	< 0.50	-	-	-	-	-	-	-	-	< 0.50	< 0.50	-	-	-
Selenium (diss.filt)	-	-	-	2.4	< 0.50		<0.2	-	8.60	8.80	-2%	< 0.50	< 0.50	-	-	-	< 0.50	< 0.50	-	0.22	-	1.4	1.3	8%	<0.2	-	< 0.50	< 0.50	-	< 0.50	< 0.50	-	0.37	<LOD Field&Dup	< 0.50	< 0.50	-	-	-	< 0.50	< 0.50		<0.2	
Zinc (diss.filt)	-	-	-	130	170	-24%	1.73	9729%	3.70	< 2.5	-	9.8	9.1	8%	-	-	15	14	7%	4.06	-	20	29	-31%	1.79	1520%	80	110	-27%	< 2.5	< 2.5	-	2.32	<LOD Field&Dup	48	37	30%	-	-	4.0	6.7	-40%	2.24	200%
Iron (Total)	4100	3800	8%	-	-	-	-	-	-	-	-	210	< 5.0	-	-	-	720	140	414%	-	-			-	-	-	-	-	-	2800	1800	56%	22600	-92%	20	2100	-99%	-	-	-	-	-	-	-
Manganese (Total)	14000	14000	0%	-	-	-	-	-	-	-	-	300	92	226%	-	-	880	580	52%	-	-			-	-	-	-	-	-	4100	4000	3%	-	-	8900	8400	6%	-	-	-	-	-	-	-
Manganese [II]	1100	2200	-50%	-	-	-	-	-	-	-	-	39	51	-24%	-	-	200	56	257%	-	-			-	-	-	-	-	-	400	430	-7%	-	-	1200	2600	-54%	-	-	-	-	-	-	-
Manganese [IV]	13000	12000	8%	-	-	-	-	-	-	-	-	260	40	550%	-	-	660	520	27%	-	-			-	-	-	-	-	-	3700	3600	3%	-	-	7700	5800	33%	-	-	-	-	-	-	-
Iron [II]	< 20	< 20		-	-	-	-	-	-	-	-	< 20	< 20	-	-	-	< 20	40	-	-	-			-	-	-	-	-	-	50	60	-17%	-	-	< 20	20	-	-	-	-	-	-	-	-
Iron [III]	4100	3800	8%	-	-	-	-	-	-	-	-	220	< 20	-	-	-	670	< 20	-	-	-			-	-	-	-	-	-	2800	1700	65%	-	-	21	2000	-99%	-	-	-	-	-	-	-
Chromium III (diss.filt)	-	-	-	< 20	21	-	-	-	< 20	< 20	-	< 20	< 20	-	-	-	< 20	< 20	-	-	-	< 20	< 20	-	-	-	[B] < 20	[B] < 20	-	< 20	< 20	-	-	-	-	-	-	-	-	< 20	< 20	-	-	-
Chromium VI (diss.filt)	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	0.34	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	[B] < 0.10	[B] < 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
Phenols																																												
Phenols, Total				1.3	1.2	8%	-	-	< 0.030	< 0.030	-	< 0.030	< 0.030	-	-	-	< 0.030	< 0.030	-	-	-	< 0.030	< 0.030	-	-	-	< 0.030	< 0.030	-	< 0.030	< 0.030	-	-	-	< 0.030	< 0.030	-	-	-	< 0.030	< 0.030	-	-	-
TPH																																												
TPH >C6-C8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-
TPH >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-
TPH >C10-C12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-
TPH >C12-C16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-
TPH >C16-C21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-
TPH >C21-C25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	93	39	138%	-	-	-	-	-	-	-
TPH >C25-C35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	680	320	113%	-	-	-	-	-	-	-
TPH >C35-C40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	10	150%	-	-	-	-	-	-	-
Total TPH >C6-C40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	800	370	116%	-	-	-	-	-	-	-
Speciated TPH																																												
Aliphatics																																												-
EC C5-C6	< 0.10	< 0.10		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C6-C8	< 0.10	< 0.10		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C8-C10	< 0.10	< 0.10		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C10-C12	< 0.10	< 0.10		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C12-C16	< 0.10	< 0.10		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C16-C21	< 0.10	< 0.10		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C21-C35	< 0.10	< 0.10		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C35-C44	< 0.10	< 0.10		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
Total Aliphatics >C5-C35	< 5.0	< 5.0		< 5.0	< 5.0	-	-	-	< 5.0	< 5.0	-	< 5.0	< 5.0	-	-	-	< 5.0	< 5.0	-	-	-	< 5.0	< 5.0	-	-	-	< 5.0	< 5.0	-	< 5.0	< 5.0	-	-	-	-	-	-	-	-	< 5.0	< 5.0	-	-	-
Aromatics																																												-
EC C5-C7	< 0.10	330		37	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C7-C8	**620**	**790**	-22%	81	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C8-C10	< 0.10	150		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C10-C12	**1900**	**3700**	-49%	190	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C12-C16	370	730	-49%	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C16-C21	< 0.10	< 0.10		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C21-C35	< 0.10	< 0.10		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
EC>C35-C44	< 0.10	< 0.10		< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	-	-	< 0.10	< 0.10	-	< 0.10	< 0.10	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-	-
Total Aromatics >EC5-EC35	2900	5700	-49%	310	< 5.0	-	-	-	< 5.0	< 5.0	-	< 5.0	< 5.0	-	-	-	< 5.0	< 5.0	-	-	-	< 5.0	< 5.0	-	-	-	< 5.0	< 5.0	-	< 5.0	< 5.0	-	-	-	-	-	-	-	-	< 5.0	< 5.0	-	-	-
otal Aliphatics & Aromatics >C5-C3	2900	5700	-49%	310	< 10	-	-	-	< 10	< 10	-	< 10	< 10	-	-	-	< 10	< 10	-	-	-	< 10	< 10	-	-	-	< 10	< 10	-	< 10	< 10	-	-	-	-	-	-	-	-	< 10	< 10	-	-	-
BTEX/MTBE/GRO																																												
GRO >C5-C12																																												-
Benzene	**1400**	**1700**	-18%	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	<1.0	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	<1.0	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	-	-	-	-	-	<1.0	-	< 1.0	< 1.0	-	<1.0	-
Toluene	**370**	**440**	-16%	71	61	16%	-	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	<1.0	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	<1.0	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	-	-	-	-	-	<1.0	-	< 1.0	< 1.0	-	<1.0	-
Ethylbenzene	**320**	**360**	-11%	31	29	7%	-	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	<1.0	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	<1.0	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	-	-	-	-	-	<1.0	-	< 1.0	< 1.0	-	<1.0	-
p/m-Xylene	74	69	7%	62	60	3%	-	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	-	-	-	-	-	-	-	< 1.0	< 1.0	-	-	-
o-Xylene	49	45	9%	24	21	14%	-	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	< 1.0	< 1.0	-	-	-	-	-	-	-	-	< 1.0	< 1.0	-	-	-
Sum of detected Xylenes	123	114	8%	-	-	-	-	-	-	-	-	-	-	-	<3.0	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	<3.0	-	-	-	-	<3.0	-
Sum of detected BTEX	2213	2614	-15%																																									-
PCBs																																												
PCB congener 81	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 77	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 105	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 114	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 123	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 126	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 156	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 157	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 167	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 169	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB congener 189	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PCBs (12 Congeners)	-	-	-	-	-	-	-	-	< 0.010	< 0.010	-	-	< 0.010	-	-	-	-	< 0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polyaromatic Hydrocabons																																												
Naphthalene (aq)	-	-	-	< 0.010	< 0.010	-	0.778	<LoDs (Field & Dup)	0.58	0.49	18%	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	<0.008	-	< 0.010	< 0.010	-	0.656	<LoDs (Field & Dup)	0.32	0.27	19%	< 0.010	< 0.010	-	0.043	<LOD Field&Dup	< 0.010	< 0.010	-	0.034	<LOD Field&Dup	< 0.010	< 0.010	-	<0.005	<LOD Field&Dup
Acenaphthylene (aq)	-	-	-	< 0.010	< 0.010	-	0.02	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	<0.003	-	< 0.010	< 0.010	-	0.152	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.006	<LOD Field&Dup	< 0.010	< 0.010	-	0.013	<LOD Field&Dup	< 0.010	< 0.010	-	0.001	<LOD Field&Dup
Acenaphthene (aq)	-	-	-	< 0.010	< 0.010	-	0.17	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	0.004	-	< 0.010	< 0.010	-	0.160	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.068	<LOD Field&Dup	< 0.010	< 0.010	-	0.088	<LOD Field&Dup	< 0.010	< 0.010	-	0.003	<LOD Field&Dup
Fluorene (aq)	-	-	-	< 0.010	< 0.010	-	0.084	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	<0.003	-	< 0.010	< 0.010	-	0.061	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.07	<LOD Field&Dup	< 0.010	< 0.010	-	0.03	<LOD Field&Dup	< 0.010	< 0.010	-	0.002	<LOD Field&Dup
Phenanthrene (aq)	-	-	-	< 0.010	< 0.010	-	0.187	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	0.016	<LoDs (Field & Dup)	< 0.010	< 0.010	-	0.082	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.043	<LOD Field&Dup	< 0.010	< 0.010	-	0.055	<LOD Field&Dup	< 0.010	< 0.010	-	0.004	<LOD Field&Dup
Anthracene (aq)	-	-	-	< 0.010	< 0.010	-	0.021	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	<0.005	-	< 0.010	< 0.010	-	0.026	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.014	<LOD Field&Dup	< 0.010	< 0.010	-	0.017	<LOD Field&Dup	< 0.010	< 0.010	-	0.001	<LOD Field&Dup
Fluoranthene (aq)	-	-	-	< 0.010	< 0.010	-	0.065	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	0.010	<LoDs (Field & Dup)	< 0.010	< 0.010	-	0.034	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.011	<LOD Field&Dup	< 0.010	< 0.010	-	0.021	<LOD Field&Dup	< 0.010	< 0.010	-	<0.002	<LOD Field&Dup
Pyrene (aq)	-	-	-	< 0.010	< 0.010	-	0.081	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	0.007	<LoDs (Field & Dup)	< 0.010	< 0.010	-	0.024	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.008	<LOD Field&Dup	< 0.010	< 0.010	-	0.022	<LOD Field&Dup	< 0.010	< 0.010	-	0.001	<LOD Field&Dup
Benzo(a)anthracene (aq)	-	-	-	< 0.010	< 0.010	-	0.152	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	<0.001	-	< 0.010	< 0.010	-	0.004	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.001	<LOD Field&Dup	< 0.010	< 0.010	-	0.003	<LOD Field&Dup	< 0.010	< 0.010	-	<0.001	<LOD Field&Dup
Chrysene (aq)	-	-	-	< 0.010	< 0.010	-	0.107	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	0.001	<LoDs (Field & Dup)	< 0.010	< 0.010	-	0.005	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.002	<LOD Field&Dup	< 0.010	< 0.010	-	0.006	<LOD Field&Dup	< 0.010	< 0.010	-	<0.001	<LOD Field&Dup
Benzo(b)fluoranthene (aq)	-	-	-	< 0.010	< 0.010	-	0.021	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	0.001	<LoDs (Field & Dup)	< 0.010	< 0.010	-	0.003	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.001	<LOD Field&Dup	< 0.010	< 0.010	-	0.009	<LOD Field&Dup	< 0.010	< 0.010	-	<0.001	<LOD Field&Dup
Benzo(k)fluoranthene (aq)	-	-	-	< 0.010	< 0.010	-	0.013	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	<0.001		< 0.010	< 0.010	-	0.001	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	<0.001	<LOD Field&Dup	< 0.010	< 0.010	-	0.007	<LOD Field&Dup	< 0.010	< 0.010	-	<0.001	<LOD Field&Dup
Benzo(a)pyrene (aq)	-	-	-	< 0.010	< 0.010	-	0.032	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	<0.002	-	< 0.010	< 0.010	-	0.040	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.013	<LOD Field&Dup	< 0.010	< 0.010	-	0.012	<LOD Field&Dup	< 0.010	< 0.010	-	0.001	<LOD Field&Dup
Indeno(1,2,3-cd)pyrene (aq)	-	-	-	< 0.010	< 0.010	-	0.013	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	<0.001	-	< 0.010	< 0.010	-	<0.001	-	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.002	<LOD Field&Dup	< 0.010	< 0.010	-	<0.001	<LOD Field&Dup	< 0.010	< 0.010	-	<0.002	<LOD Field&Dup
Dibenzo(a,h)anthracene (aq)	-	-	-	< 0.010	< 0.010	-	<0.004	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	<0.004	-	< 0.010	< 0.010	-	<0.004	-	< 0.010	< 0.010	-	< 0.010	< 0.010	-	<0.004	<LOD Field&Dup	< 0.010	< 0.010	-	<0.004	<LOD Field&Dup	< 0.010	< 0.010	-	<0.004	<LOD Field&Dup
Benzo(g,h,i)perylene (aq)	-	-	-	< 0.010	< 0.010	-	0.032	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	-	<0.002	-	< 0.010	< 0.010	-	0.003	<LoDs (Field & Dup)	< 0.010	< 0.010	-	< 0.010	< 0.010	-	0.003	<LOD Field&Dup	< 0.010	< 0.010	-	0.006	<LOD Field&Dup	< 0.010	< 0.010	-	<0.003	<LOD Field&Dup
PAH, Total Detected USEPA 16	-	-	-	< 0.20	< 0.20	-	-	<LoDs (Field & Dup)	0.58	0.49	-	< 0.20	< 0.20	-	-	-	< 0.20	< 0.20	-	-	-	< 0.20	< 0.20	-	-	-	0.32	0.27	-	< 0.20	< 0.20	-	-	-	< 0.20	< 0.20	-	-	-	< 0.20	< 0.20	-	-	-
INORGANICS																																												
Dissolved Organic Carbon	-	-	-	41	37	11%	-	-	180	210	-14%	3.5	3.8	-8%	-	-	4.5	11	-59%	-	-	160	160	0%	-	-	120	26	362%	87	78	12%	-	-	-	-	-	-	-	23	22	5%	-	-
Total Inorganic Carbon	220	220	0%	-	-	-	-	-	-	-	-	96	94	2%	-	-	70	82	-15%	-	-				-	-	-	-	-	110	98	12%	-	-	130	130	0%	-	-	-	-	-	-	-
Total Organic Carbon	240	250	-4%	-	-	-	-	-	-	-	-	3.4	3.4	0%	-	-	4.5	3.5	29%	-	-				-	-	-	-	-	86	78	10%	-	-	120	110	9%	-	-	-	-	-	-	-
Dissolved Methane	< 0.050	< 0.050	-	-	-	-	-	-	-	-	-	< 0.050	< 0.050	-	-	-	< 0.050	< 0.050	-	-	-				-	-	-	-	-	1.8	1.3	38%	-	-	0.11	0.41	-73%	-	-	-	-	-	-	-
pH	-	-	-	6.8	6.8	0%	-	-	7.4	7.5	-1%	7.5	7.6	-1%	-	-	7.1	6.8	4%	6.5	5%	7.2	7.1	1%	-	-	6.5	6.5	0%	7.7	7.9	-3%	-	-	7.9	7.9	0%	-	-	8.1	8.1	0%	-	-
Dissolved CO2	500	170	194%	-	-	-	-	-	-	-	-	28	22	27%	-	-	49	110	-55%	-	-				-	-				17	9.8	73%	-	-	15	13	15%	-	-		-	-	-	-
Alkalinity (Total)	910	910	0%	3000	2900	3%	-	-	880	940	-6%	400	390	3%	-	-	290	340	-15%	-	-	620	570	9%	-	-	980	930	5%	460	410	12%	-	-	530	530	0%	-	-	78	80	-3%	-	-
Chloride	-	-	-	450	440	2%	-	-	25	41	-39%	15	16	-6%	-	-	24	29	-17%	-	-	44	43	2%	-	-	47	44	7%	37	34	9%	-	-	-	-	-	-	-	22	23	-4%	-	-
Ammonia (Free)	-	-	-	1.4	1.3	8%	-	-	0.13	0.29	-55%	< 0.050	< 0.050	-	-	-	< 0.050	< 0.050	-	-	-	0.19	0.14	36%	-	-	0.12	0.1	20%	0.23	0.24	-4%	-	-	-	-	-	-	-	< 0.050	< 0.050	-	-	-
	-	-	-	-	-	-	-	-	11	23	-52%	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium	-	-	-	500	490	2%	-	-	0.22	0.17	29%	0.65	1.6	-59%	-	-	8.3	15	-45%	-	-	30	28	7%	-	-	89	73	22%	9.7	6.6	47%	-	-	-	-	-	-	-	0.31	0.38	-18%	-	-
Ammoniacal Nitrogen	-	-	-	-	-	-	-	-	< 0.50	0.6	-	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-	-	-	-	-	-	7.8	9.3	-16%	-	-	-	-	-	-	-
Nitrite	< 0.020	< 0.020	-	< 0.020	< 0.020	-	-	-	11	11	0%	< 0.020	< 0.020	-	-	-	< 0.020	0.042	-	-	-	< 0.020	< 0.020		-	-	< 0.020	< 0.020	-	< 0.020	< 0.020	-	-	-	0.068	0.12	-43%	-	-	0.056	0.060	-7%	-	-
Nitrate	< 0.50	< 0.50	-	< 0.50	< 0.50	-	-	-	< 0.0050	< 0.0050	-	< 0.50	0.91	-	-	-	3.5	5	-30%	-	-	< 0.50	< 0.50		-	-	0.5	0.99	-49%	< 0.50	< 0.50	-	-	-	< 0.50	< 0.50	-	-	-	8.4	8.4	0%	-	-
Sulphate	30	31	-3%	89	< 1.0	-	54.40	-	-	-	-	31	33	-6%	-	-	110	97	13%	103.00	-6%	21	19	11%	17.20	-	9.3	7.6	22%	42	45	-7%	39.70	13%	20	17	18%	-	-	13	14	-7%	11.70	20%
Cyanide (Total) Low-Level	-	-	-	< 0.0050	< 0.0050	-	-	-	-	-	-	< 0.0050	< 0.0050	-	-	-	< 0.0050	< 0.0050	-	-	-	< 0.0050	< 0.0050	-	-	-	< 0.0050	< 0.0050		0.0090	0.011	-	-		< 0.0050	< 0.0050	-	-	-	0.0060	0.0060	0%	-	-
Sulphide	< 0.050	< 0.050	-	-	-	-	-	-	-	-	-	< 0.050	< 0.050	-	-	-	< 0.050	< 0.050	-	-	-	-	-	-	-	-	-	-	-	< 0.050	< 0.050	-	-	-	< 0.050	< 0.050	-	-	-	-	-	-	-	-
Calcium	-	-	-	-	-	-	265.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96.77	-	-	-	-	-	-	-	102.51		-	-	-	-	-	26	25	4%	29.84	-16%
Potassium	-	-	-	160	170	-6%	-	-	87	88	-1%	6.2	6.2	0%	-	-	8.5	7.8	9%			30	29	3%	-	-	37	36	3%	10	8.1	23%	13.27	-39%	-	-	-	-	-	2.2	2.3	-4%	2.66	-13%
Magnesium	-	-	-	68	71	-4%	-	-	0.85	0.54	57%	14	13	8%	-	-	6.8	6.6	3%			16	15	7%	-	-	29	29	0%	17	16	6%	-		-	-	-	-	-	4.7	4.7	0%	-	-
Sodium	-	-	-	310	310	0%	349.00	-11%	240	240	0%	10	9.3	8%	-	-	13	12	8%	14.26	-16%	29	29	0%	31.08	-	51	49	4%	28	25	12%	32.76	-24%	-	-	-	-	-	11	11	0%	12.49	-12%

	TSV	BH208	BH209	BH303	BH405	BH406	BH615D	BH615S	BH616	BH617	BH645	BH646	BH647A	BH649B
VOC's	ug/l	11/01/2022	11/01/2022	11/01/2022	12/01/2022	12/01/2022	15/02/2022	15/02/2022	17/01/2022	17/01/2022	17/01/2022	17/01/2022	15/02/2022	15/02/2022
Dichlorodifluoromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chloromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Vinyl chloride	**0.5 (5)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromomethane		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroethane		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichlorofluoromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
trans-1,2-Dichloroethene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
cis-1,2-Dichloroethene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromochloromethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1-Trichloroethane	**100 (4)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tetrachloromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloropropene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**	< 0.10	< 0.10	**5400**	**1400**	< 0.10	< 0.10	< 0.10	<0.10	<0.10	6.4	<0.10	< 0.10	< 0.10
1,2-Dichloroethane	**10 (AA)(1&2)**	< 0.20	< 0.20	**22**	**80**	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichloroethene	**10 (5)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibromomethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromodichloromethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	**74 (AA) 95th%ile (380) (1), 74 (AA) 95th%ile (370) (2)**	< 0.10	< 0.10	< 0.10	**140**	< 0.10	< 0.10	< 0.10	<0.10	<0.10	33	61	< 0.10	< 0.10
trans-1,3-Dichloropropene		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	**300 (2), 400(1)**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	**10 (1 &2)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichloropropane		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dibromochloromethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene		< 0.10	< 0.10	5.9	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1,2-Tetrachloroethane		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Ethylbenzene	**300 (7)**	< 0.10	< 0.10	22	190	< 1.0	< 0.10	< 0.10	<0.10	<0.10	28	29	< 0.10	< 0.10
m,p-Xylene		< 0.10	< 0.10	34	30	< 1.0	< 0.10	< 0.10	<0.10	<0.10	25	60	< 0.10	< 0.10
o-Xylene		< 0.10	< 0.10	< 0.10	14	< 1.0	< 0.10	< 0.10	<0.10	<0.10	10	21	< 0.10	< 0.10
Styrene	**20 (5)**	< 0.10	< 0.10	< 0.10	**39**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tribromomethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichloropropane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
N-Propylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2-Chlorotoluene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3,5-Trimethylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	3.3	< 0.10	< 0.10	< 0.10
4-Chlorotoluene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
tert-Butylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,4-Trimethylbenzene		< 0.10	< 0.10	< 0.10	6.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	11	13	< 0.10	< 0.10
sec-Butylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
4-iso-Propyltoluene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,4-Dichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
n-Butylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dibromo-3-chloropropane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2,4-Trichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Hexachlorobutadiene	**0.6 (MAC) (1,2)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichlorobenzene	**0.4 (1,2)**	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Methyl tertiary butyl ether (MTBE)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	27	< 1.0	< 0.10	< 0.10

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO

	TSV	BH101	BH102	BH108	BH111	BH119	BH201	BH216	BH217	BH618D	BH619D	BH619S	BH620	BH623D	BH626	BH627	BH628	BH629	BH630	BH631	BH653	BH654S
VOC's	ug/l																					
Dichlorodifluoromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chloromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Vinyl chloride	**0.5 (5)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromomethane		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroethane		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichlorofluoromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
trans-1,2-Dichloroethene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
cis-1,2-Dichloroethene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromochloromethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1-Trichloroethane	**100 (4)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tetrachloromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloropropene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**12**	< 0.10	< 0.10	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	**63**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.10
1,2-Dichloroethane	**10 (AA)(1&2)**	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichloroethene	**10 (5)**	< 0.10	< 0.10	< 0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibromomethane		< 0.10	< 0.10	< 0.20	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromodichloromethane		< 0.50	< 0.50	< 1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene		< 1.0	< 1.0	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	**74 (AA) 95th%ile (380) (1), 74 (AA) 95th%ile (370) (2)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 0.10	< 0.10	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	7.7	< 1.0	< 1.0	**410**	< 1.0	< 0.10	< 0.10	< 1.0
trans-1,3-Dichloropropene		< 1.0	< 1.0	< 0.20	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	**300 (2), 400(1)**	< 0.1	< 0.1	< 0.10	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	**10 (1 &2)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichloropropane		< 0.20	< 0.20	< 0.10	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dibromochloromethane		< 1.0	< 1.0	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane		< 0.50	< 0.50	< 1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1,2-Tetrachloroethane		< 0.20	< 0.20	< 0.10	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Ethylbenzene	**300 (7)**	< 0.10	< 0.10	< 5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	100	< 0.10	< 0.10	**430**	< 0.10	< 0.10	< 0.10	< 0.10
m,p-Xylene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	8.2	< 0.10	< 0.10	74	< 0.10	< 0.10	< 0.10	< 0.10
o-Xylene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	32	< 0.10	< 0.10	< 0.10	< 0.10
Styrene	**20 (5)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**120**	< 0.10	< 0.10	< 0.10	< 0.10
Tribromomethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	17	< 0.10	< 0.10	< 0.10	< 0.10
Bromobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichloropropane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
N-Propylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2-Chlorotoluene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3,5-Trimethylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
4-Chlorotoluene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
tert-Butylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,4-Trimethylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
sec-Butylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
4-iso-Propyltoluene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,4-Dichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
n-Butylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dibromo-3-chloropropane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2,4-Trichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Hexachlorobutadiene	**0.6 (MAC) (1,2)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichlorobenzene	**0.4 (1,2)**	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Methyl tertiary butyl ether (MTBE)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO

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	TSV	BH208	BH209	BH303	BH405	BH406	BH615D	BH615S	BH616	BH617	BH645	BH646	BH647A	BH649B	BH653	BH654S	BHW1
SVOC's	**ug/l**																
N-Nitrosodimethylamine		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Phenol	**7.7 (1&2) 46 (95th%ile) (1&2)**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2-Chlorophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Bis-(2-Chloroethyl)Ether		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
1,3-Dichlorobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
1,4-Dichlorobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
1,2-Dichlorobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2-Methylphenol (o-Cresol)		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Bis(2-Chloroisopropyl)Ether		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Hexachloroethane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
N-Nitrosodi-n-propylamine		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
4-Methylphenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Nitrobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Isophorone		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2-Nitrophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2,4-Dimethylphenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Bis(2-Chloroethoxy)Methane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2,4-Dichlorophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
1,2,4-Trichlorobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Naphthalene	**2.4 (1) 1.2 (2)**	< 0.050	< 0.050	< 0.050	**340**	**5.1**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.39	-
4-Chloroaniline		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Hexachlorobutadiene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
4-Chloro-3-Methylphenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2-Methylnaphthalene		< 0.050	< 0.050	< 0.050	10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Hexachlorocyclopentadiene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2,4,6-Trichlorophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2,4,5-Trichlorophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2-Chloronaphthalene	**160**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2-Nitroaniline		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Acenaphthylene		< 0.050	< 0.050	< 0.050	43	0.61	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Dimethylphthalate		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2,6-Dinitrotoluene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Acenaphthene		< 0.050	< 0.050	< 0.050	17	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.94	-
3-Nitroaniline		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Dibenzofuran		< 0.050	< 0.050	< 0.050	1.6	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
4-Chlorophenylphenylether		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2,4-Dinitrotoluene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Fluorene		< 0.050	< 0.050	< 0.050	1.1	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Diethyl Phthalate		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
4-Nitroaniline		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
2-Methyl-4,6-Dinitrophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Azobenzene		< 0.050	< 0.050	< 0.050	0.11	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
4-Bromophenylphenyl Ether		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Hexachlorobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Pentachlorophenol	**0.4 (AA) & 1 (MAC) (1&2)**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Phenanthrene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.29	-
Anthracene	**0.1 (MAC 0.4) (1 & 2)**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Carbazole		< 0.050	< 0.050	< 0.050	0.6	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Di-N-Butyl Phthalate		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Fluoranthene	**0.0063 (AA) & 0.12 (MAC) (1&2)**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	**0.29**	-
Pyrene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.26	-
Butylbenzyl Phthalate		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Benzo[a]anthracene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Chrysene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Bis(2-Ethylhexyl)Phthalate	**1.3 (1&2)**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Di-N-Octyl Phthalate		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Benzo[b]fluoranthene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Benzo[k]fluoranthene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Benzo[a]pyrene	**0.05 (MAC 0.1) (1 & 2)**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Indeno(1,2,3-c,d)Pyrene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Dibenz(a,h)Anthracene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Benzo[g,h,i]perylene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Methyl parathion		-	-	-	-	-	-	-	-	-	< 0.0075	< 0.0075	-	-		-	< 0.0075
4-Nitrophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard *Total PAH = Sum of 4:- Benzo(b) & (k)fluoranthene,Indeno(123cd)pyrene, Benzo(ghi)perylene
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO

	TSV	BH104	BH108	BH618D	BH619D	BH619S	BH620	BH623D	BH626	BH627	BH628	BH629	BH630	BH631	BH653	BH654S
SVOC's	ug/l															
N-Nitrosodimethylamine		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenol	**7.7 (1&2) 46 (95th%ile) (1&2)**	-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chlorophenol		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylphenol (o-Cresol)		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Methylphenol		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrobenzene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Isophorone		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitrophenol		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	**2.4 (1) 1.2 (2)**	-	-	< 0.050	< 0.050	< 0.050	< 0.050	1.5	**24**	< 0.050	< 0.050	**1100**	0.22	< 0.050	< 0.050	0.39
4-Chloroaniline		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	1.2	< 0.050	< 0.050	50	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	**160**	-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitroaniline		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	0.35	4.4	< 0.050	< 0.050	250	< 0.050	< 0.050	< 0.050	< 0.050
Dimethylphthalate		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	0.25	55	< 0.050	< 0.050	74	0.90	< 0.050	< 0.050	0.94
3-Nitroaniline		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzofuran		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	7.0	< 0.050	< 0.050	23	< 0.050	< 0.050	< 0.050	< 0.050
4-Chlorophenylphenylether		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	5.9	< 0.050	< 0.050	42	< 0.050	< 0.050	< 0.050	< 0.050
Diethyl Phthalate		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitroaniline		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Azobenzene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	**0.4 (AA) & 1 (MAC) (1&2)**	-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	0.15	8.4	< 0.050	< 0.050	26	0.20	< 0.050	< 0.050	0.29
Anthracene	**0.1 (MAC 0.4) (1 & 2)**	-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	**0.84**	< 0.050	< 0.050	**2.3**	< 0.050	< 0.050	< 0.050	< 0.050
Carbazole		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.75	< 0.050	< 0.050	5.2	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	**0.0063 (AA) & 0.12 (MAC) (1&2)**	-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	**0.82**	< 0.050	< 0.050	**2.2**	**0.29**	< 0.050	< 0.050	**0.29**
Pyrene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.84	< 0.050	< 0.050	2.4	0.25	< 0.050	< 0.050	0.26
Butylbenzyl Phthalate		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]anthracene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Chrysene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	**1.3 (1&2)**	-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[b]fluoranthene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[k]fluoranthene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]pyrene	**0.05 (MAC 0.1) (1 & 2)**	-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Methyl parathion		< 0.0075	< 0.0075	-	-	-	-	-	-	-	-	-	-	-		-
4-Nitrophenol		-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard *Total PAH = Sum of 4:- Benzo(b) & (k)fluoranthene,Indeno(123cd)pyrene, Benzo(ghi)perylene
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO

Sample Point / Determinands	**TSV**	**BH104**	**BH108**
	ug/l		
Demeton-O		< 0.20	< 0.20
Phorate		< 0.20	< 0.20
Demeton-S		< 0.20	< 0.20
Disulfoton		< 0.20	< 0.20
Fenthion		< 0.20	< 0.20
Trichloronate		< 0.20	< 0.20
Prothiofos		< 0.20	< 0.20
Fensulphothion		< 0.20	< 0.20
Sulprofos		< 0.20	< 0.20
Azinphos-Methyl		< 0.20	< 0.20
Coumaphos		< 0.20	< 0.20
Parathion		< 0.20	< 0.20
Diazinon	**0.1 (AA)(1&2), 0.02 (95%ile) (1), 0.26 (95%ile)(2)**	< 0.50	< 0.50
Ethion		< 0.50	< 0.50
Dichlorvos	**0.0006 (AA)(1), 0.0007(MAC)(1), 0.00006(AA)(2), 0.00007)MAC)(2)**	< 0.50	< 0.50
Mevinphos		< 0.20	< 0.20
Fenitrothion		< 0.20	< 0.20
Malathion		< 0.20	< 0.20
Alpha-HCH		< 0.020	< 0.020
Gamma-HCH (Lindane)		< 0.020	< 0.020
Beta-HCH		< 0.020	< 0.020
Delta-HCH		< 0.020	< 0.020
Heptachlor		< 0.020	< 0.020
Aldrin		< 0.020	< 0.020
Heptachlor Epoxide		< 0.020	< 0.020
Gamma-Chlordane		< 0.020	< 0.020
Alpha-Chlordane		< 0.020	< 0.020
Endosulfan I		< 0.020	< 0.020
4,4-DDE		< 0.020	< 0.020
Dieldrin		< 0.020	< 0.020
Endrin		< 0.020	< 0.020
4,4-DDD		< 0.020	< 0.020
Endosulfan II		< 0.020	< 0.020
Endrin Aldehyde		< 0.020	< 0.020
4,4-DDT		< 0.020	< 0.020
Endosulfan Sulphate		< 0.020	< 0.020
Methoxychlor		< 0.020	< 0.020
Endrin Ketone		< 0.020	< 0.020

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4. Freshwater EQS (AA)
5. UK Drinking Water Standard *Total PAH = Sum of 4:- Benzo(b) & (k)fluoranthene,Indeno(123cd)pyrene, Benzo(ghi)perylene
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for

Sample Point / Determinands	TSV	BH645	BH646	BHW1
	ug/l			
Demeton-O		< 0.20	< 0.20	< 0.20
Phorate		< 0.20	< 0.20	< 0.20
Demeton-S		< 0.20	< 0.20	< 0.20
Disulfoton		< 0.20	< 0.20	< 0.20
Fenthion		< 0.20	< 0.20	< 0.20
Trichloronate		< 0.20	< 0.20	< 0.20
Prothiofos		< 0.20	< 0.20	< 0.20
Fensulphothion		< 0.20	< 0.20	< 0.20
Sulprofos		< 0.20	< 0.20	< 0.20
Azinphos-Methyl		< 0.20	< 0.20	< 0.20
Coumaphos		< 0.20	< 0.20	< 0.20
Parathion		< 0.20	< 0.20	< 0.20
Diazinon	**0.1 (AA)(1&2), 0.02 (95%ile) (1), 0.26 (95%ile)(2)**	< 0.50	< 0.50	< 0.50
Ethion		< 0.50	< 0.50	< 0.50
Dichlorvos	**0.0006 (AA)(1), 0.0007(MAC)(1), 0.00006(AA)(2), 0.00007)MAC)(2)**	< 0.50	< 0.50	< 0.50
Mevinphos		< 0.20	< 0.20	< 0.20
Fenitrothion		< 0.20	< 0.20	< 0.20
Malathion		< 0.20	< 0.20	< 0.20
Alpha-HCH		< 0.020	< 0.020	< 0.020
Gamma-HCH (Lindane)		< 0.020	< 0.020	< 0.020
Beta-HCH		< 0.020	< 0.020	< 0.020
Delta-HCH		< 0.020	< 0.020	< 0.020
Heptachlor		< 0.020	< 0.020	< 0.020
Aldrin		< 0.020	< 0.020	< 0.020
Heptachlor Epoxide		< 0.020	< 0.020	< 0.020
Gamma-Chlordane		< 0.020	< 0.020	< 0.020
Alpha-Chlordane		< 0.020	< 0.020	< 0.020
Endosulfan I		< 0.020	< 0.020	< 0.020
4,4-DDE		< 0.020	< 0.020	< 0.020
Dieldrin		< 0.020	< 0.020	< 0.020
Endrin		< 0.020	< 0.020	< 0.020
4,4-DDD		< 0.020	< 0.020	< 0.020
Endosulfan II		< 0.020	< 0.020	< 0.020
Endrin Aldehyde		< 0.020	< 0.020	< 0.020
4,4-DDT		< 0.020	< 0.020	< 0.020
Endosulfan Sulphate		< 0.020	< 0.020	< 0.020
Methoxychlor		< 0.020	< 0.020	< 0.020
Endrin Ketone		< 0.020	< 0.020	< 0.020

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APPENDIX 10 – GROUNDWATER & SURFACE WATERS SUMMARY – ROUND 2

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	CEMP Pond 3A	CEMP Pond 5	CEMP-DS	CEMP-DS	CEMP-DS	CEMP-POMD 3A	CEMP-POND 3	CEMP-POND 3A	CEMP-POND 5	CEMP-Pond 5	CEMP-POND3A	CEMP-US	CEMP-US	CEMP-US	Pond 5
HEAVY METALS	**µg/l**																
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.31	0.75	0.69	0.27	0.38	0.51	0.81	0.25	0.39	2.2	0.44	0.39	0.24	0.89	0.68
Boron (diss.filt)	**1000 (5)**		51	41	490	700	< 10	680	600	580	560	100	630	650	700	370	28
Barium (diss.filt)	**700 (8)**		15	< 5.0	5.4	9	11	12	5.9	9.1	8.5	11	11	11	8.6	13	< 5.0
Beryllium (diss.filt)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	**0.09 (AA) & 0.6 (MAC) (1) 0.6 (AA) (2)** **$CaCO_3$ 50 - <100 mg/l**		< 0.11	< 0.11	-	< 0.11	< 0.11	< 0.11	< 0.11	-	-	**1.5**	< 0.11	-	< 0.11	**0.23**	< 0.11
Chromium (diss.filt)	**50 (5)**		< 0.50	< 0.50	< 0.50	< 0.50	4.8	< 0.50	< 0.50	0.68	< 0.50	4.3	< 0.50	< 0.50	< 0.50	14	< 0.50
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	**1.5**	0.96	2.3	1.3	3.4	1.9	1.9	1.2	1.2	6	1.4	1.2	0.97	**56**	0.94
Iron (diss.)	**1000 (AA) (1&2)**		5.4	110	100	210	260	25	110	55	240	160	18	26	210	470	100
Mercury (diss.filt)	**0.07 MAC (1&2)**		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	4.8	1.8	2.4	50	12	7.5	3.2	54	28	57	68	0.89	38	30	1.4
Molybdenum (diss.filt)	**70 (8)**		< 0.20	< 0.20	< 0.20	< 0.20	0.72	< 0.20	0.28	< 0.20	< 0.20	**1200**	< 0.20	< 0.20	< 0.20	**2200**	< 0.20
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.3	2	1.7	0.86	4.3	1.2	2.7	1.1	0.85	4	1.3	1	0.92	6.1	1.7
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.3	< 0.50	< 0.50	< 0.50	0.9	< 0.50
Antimony (diss.filt)	**5 (5)**		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	4.6	< 0.50	< 0.50	< 0.50	**5.8**	< 0.50
Selenium (diss.filt)	**10 (5)**		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	6.8	< 0.50	< 0.50	< 0.50	9.2	< 0.50
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	< 2.5	< 2.5	4.5	3.6	5.7	5.3	< 2.5	4.7	4.2	4.5	< 2.5	< 2.5	3.7	23	< 2.5
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.12	0.12	< 0.10	**5.8**	**4.2**	1.6	< 0.10	0.1	< 0.10	1.4	**4.8**	< 0.10	**5.9**	**4.1**	0.15
Phenols	**ug/l**																
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
Speciated TPH	**ug/l**																
Aliphatics																	
EC C5-C6	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C6-C8	**15000 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35			150	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35			150	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatics																	
EC C5-C7	**10 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C7-C8	**700 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35	**90 (7)**		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
tal Aliphatics & Aromatics >C5-3			150	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
BTEX/MTBE/GRO	**µg/l**																
MTBE	**15 (5*)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	**300 (8)**		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p/m-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.9
o-Xylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.6
Polyaromatic Hydrocabons	**µg/l**																
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)anthracene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)	**-**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA 16 (aq)	**-**		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
INORGANICS	**mg/l**																
Dissolved Organic Carbon			5.2	7.6	21	3.8	5	6.1	11	31	31	9.6	36	21	4.1	5.3	6.6
pH	**6-9**		7.9	7.9	8.1	8.3	8.6	7.6	8.1	8	7.8	8.2	8.3	7.8	8.3	8.4	7.7
Alkalinity (Total)			120	120	130	100	95	140	150	110	90	120	170	190	95	91	120
Chloride	**250 (5)**		30	32	33	30	31	29	34	26	26	29	39	32	25	27	33
Ammonia (Free)	**0.3 (1)** **Types 1,2,4 and 6 $^{\text{(see note 3)}}$**		< 0.050	< 0.050	0.24	0.11	0.092	< 0.050	0.17	**0.31**	0.057	< 0.050	**0.72**	**0.67**	0.068	0.1	< 0.050
Ammonium			0.22	0.45	4.9	1.4	0.55	1.1	2.9	6.9	2	0.67	9.1	22	0.74	0.83	1.5
Nitrite			0.084	0.054	0.086	0.06	0.021	0.12	0.068	0.094	0.077	< 0.020	0.13	0.16	0.047	0.02	0.051
Nitrate	**50 (5)**		7.4	< 0.50	1.8	7.6	7.7	5.4	0.86	6.9	6.9	< 0.50	9.8	9	7	5.4	17
Sulphate	**250 (5)**		16	15	17	18	13	26	18	13	13	14	27	17	14	11	20
Cyanide (Total) Low-Level	**0.001 (AA), 0.005 (95%ile) (1&2)**		< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Calcium			35	30	27	-	25	33	-	24	24	36	-	32	-	24	28
Potassium			6.8	7.3	6.8	1.9	3	6.3	7.9	2.2	1.8	9.2	6.7	6.2	1.8	2.6	6.7
Magnesium			6.8	7.9	7.2	5	5.2	6.2	7.3	4.6	4.6	8.6	6.4	6.2	4.9	4.8	7.5
Sodium	**200 (5)**		17	17	15	12	14	16	19	12	12	24	16	15	12	29	15
Electrical Conductivity			330	300	230	-	250	320	-	310	300	310	310	220	-	240	310

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Notes:
Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of 1 µg/l has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l OR 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/
Note 5 - These EQS refer to bioavailable concentrations of the substances.l

	TSV	**CEMP-POND 3**
VOC's	**ug/l**	
Dichlorodifluoromethane		< 0.10
Chloromethane		< 0.10
Vinyl chloride	**0.5 (5)**	< 0.10
Bromomethane		< 2.0
Chloroethane		< 0.20
Trichlorofluoromethane		< 0.10
1,1-Dichloroethene		< 0.10
trans-1,2-Dichloroethene		< 0.10
1,1-Dichloroethane		< 0.10
cis-1,2-Dichloroethene		< 0.10
Bromochloromethane		< 0.50
Trichloromethane		< 0.10
1,1,1-Trichloroethane	**100 (4)**	< 0.10
Tetrachloromethane		< 0.10
1,1-Dichloropropene		< 0.10
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**	< 0.10
1,2-Dichloroethane	**10 (AA)(1&2)**	< 0.20
Trichloroethene	**10 (5)**	< 0.10
1,2-Dichloropropane		< 0.10
Dibromomethane		< 0.10
Bromodichloromethane		< 0.50
cis-1,3-Dichloropropene		< 1.0
Toluene	**74 (AA) 95th%ile (380) (1), 74 (AA) 95th%ile (370) (2)**	< 0.10
trans-1,3-Dichloropropene		< 1.0
1,1,2-Trichloroethane	**300 (2), 400(1)**	< 0.1
Tetrachloroethene	**10 (1 &2)**	< 0.10
1,3-Dichloropropane		< 0.20
Dibromochloromethane		< 1.0
1,2-Dibromoethane		< 0.50
Chlorobenzene		< 0.10
1,1,1,2-Tetrachloroethane		< 0.20
Ethylbenzene	**300 (7)**	< 0.10
m,p-Xylene		< 0.10
o-Xylene		< 0.10
Styrene	**20 (5)**	< 0.10
Tribromomethane		< 1.0
Isopropylbenzene		< 0.10
Bromobenzene		< 0.10
1,2,3-Trichloropropane		< 5
N-Propylbenzene		< 0.10
2-Chlorotoluene		< 0.10
1,3,5-Trimethylbenzene		< 0.10
4-Chlorotoluene		< 0.10
tert-Butylbenzene		< 0.10
1,2,4-Trimethylbenzene		< 0.10
sec-Butylbenzene		< 0.10
1,3-Dichlorobenzene		< 0.10
4-iso-Propyltoluene		< 0.10
1,4-Dichlorobenzene		< 0.10
n-Butylbenzene		< 0.10
1,2-Dichlorobenzene		< 0.10
1,2-Dibromo-3-chloropropane		< 5
1,2,4-Trichlorobenzene		< 0.10
Hexachlorobutadiene	**0.6 (MAC) (1,2)**	< 0.10
1,2,3-Trichlorobenzene	**0.4 (1,2)**	< 0.20
Methyl tertiary butyl ether (MTBE)		< 0.10

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Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l OR 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/
Note 5 - These EQS refer to bioavailable concentrations of the substances.l

	TSV	CEMP-POND 3
SVOC's	ug/l	
N-Nitrosodimethylamine		< 0.050
Phenol	**7.7 (1&2) 46 (95th%ile) (1&2)**	< 0.050
2-Chlorophenol		< 0.050
Bis-(2-Chloroethyl)Ether		< 0.050
1,3-Dichlorobenzene		< 0.050
1,4-Dichlorobenzene		< 0.050
1,2-Dichlorobenzene		< 0.050
2-Methylphenol (o-Cresol)		< 0.050
Bis(2-Chloroisopropyl)Ether		< 0.050
Hexachloroethane		< 0.050
N-Nitrosodi-n-propylamine		< 0.050
4-Methylphenol		< 0.050
Nitrobenzene		< 0.050
Isophorone		< 0.050
2-Nitrophenol		< 0.050
2,4-Dimethylphenol		< 0.050
Bis(2-Chloroethoxy)Methane		< 0.050
2,4-Dichlorophenol		< 0.050
1,2,4-Trichlorobenzene		< 0.050
Naphthalene	**2.4 (1) 1.2 (2)**	< 0.050
4-Chloroaniline		< 0.050
Hexachlorobutadiene		< 0.050
4-Chloro-3-Methylphenol		< 0.050
2-Methylnaphthalene		< 0.050
Hexachlorocyclopentadiene		< 0.050
2,4,6-Trichlorophenol		< 0.050
2,4,5-Trichlorophenol		< 0.050
2-Chloronaphthalene	**160**	< 0.050
2-Nitroaniline		< 0.050
Acenaphthylene		< 0.050
Dimethylphthalate		< 0.050
2,6-Dinitrotoluene		< 0.050
Acenaphthene		< 0.050
3-Nitroaniline		< 0.050
Dibenzofuran		< 0.050
4-Chlorophenylphenylether		< 0.050
2,4-Dinitrotoluene		< 0.050
Fluorene		< 0.050
Diethyl Phthalate		< 0.050
4-Nitroaniline		< 0.050
2-Methyl-4,6-Dinitrophenol		< 0.050
Azobenzene		< 0.050
4-Bromophenylphenyl Ether		< 0.050
Hexachlorobenzene		< 0.050
Pentachlorophenol	**0.4 (AA) & 1 (MAC) (1&2)**	< 0.050
Phenanthrene		< 0.050
Anthracene	**0.1 (MAC 0.4) (1 & 2)**	< 0.050
Carbazole		< 0.050
Di-N-Butyl Phthalate		< 0.050
Fluoranthene	**0.0063 (AA) & 0.12 (MAC) (1&2)**	< 0.050
Pyrene		< 0.050
Butylbenzyl Phthalate		< 0.050
Benzo[a]anthracene		< 0.050
Chrysene		< 0.050
Bis(2-Ethylhexyl)Phthalate	**1.3 (1&2)**	< 0.050
Di-N-Octyl Phthalate		< 0.050
Benzo[b]fluoranthene		< 0.050
Benzo[k]fluoranthene		< 0.050
Benzo[a]pyrene	**0.05 (MAC 0.1) (1 & 2)**	< 0.050
Indeno(1,2,3-c,d)Pyrene		< 0.050
Dibenz(a,h)Anthracene		< 0.050
Benzo[g,h,i]perylene		< 0.050
Methyl parathion		-
4-Nitrophenol		< 0.050

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH214	BH215	BH405	BH408	BH407	BH406	BH303	BH208	BH121	BH617	BH301	BH649	BH647A	BH665	BH674	BH672	BH671	BH666	BH668	BH659S	BH659D	BH660A	BH667	BH669	BH670	BH673	BH675	BH676
	µg/l																													
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		6.4	1.8	2.3	0.42	3.7	2.4	7.8	< 0.20	< 0.20	-	0.46	2.8	4.3	-	-	-	-	-	-	1.9	3.4	4.1	2.4	5.2	4.4	6.4	1.1	4.5
Boron (diss.filt)	1000 (5)		3900	1500	840	530	630	1300	1300	910	850	-	150	650	200	-	-	-	-	-	-	1200	910	680	200	870	380	510	190	690
Barium (diss.filt)	700 (8)		170	100	150	10	13	390	180	33	48	-	60	380	< 5.0	-	-	-	-	-	-	390	410	370	160	200	400	130	55	210
Beryllium (diss.filt)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	-	-	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	0.09 (AA) & 0.6 (MAC) (1) 0.6 (AA) (2) $CaCO_3$ 50 - <100 mg/l		< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	0.13	0.24	-	< 0.11	< 0.11	< 0.11	-	-	-	-	-	-	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	0.3	< 0.11	< 0.11
Chromium (diss.filt)	50 (5)		21	15	0.95	< 0.50	< 0.50	1.5	1.7	< 0.50	< 0.50	-	< 0.50	0.9	< 0.50	-	-	-	-	-	-	15	10	5.5	1.8	10	2.1	2.5	0.83	< 0.50
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	2.2	0.99	< 0.50	< 0.50	< 0.50	1.2	2.7	0.51	1.1	-	0.56	3.7	11	-	-	-	-	-	-	< 0.50	< 0.50	0.68	1.4	< 0.50	1.9	7.7	1.4	< 0.50
Iron (diss.)	1000 (AA) (1&2)		26000	45000	36	56	46	4500	7500	8.4	< 5.0	-	170	51	550	-	-	-	-	-	-	53000	100	4900	46	110	79	350	9.5	15
Mercury (diss.filt)	0.07 MAC (1&2)		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	-	-	-	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	420	1000	6000	450	1600	9300	3200	1000	520	-	1300	13000	2.5	-	-	-	-	-	-	1000	9100	6200	3300	3200	9500	3400	2700	530
Molybdenum (diss.filt)	70 (8)		2.3	1.2	0.4	0.78	0.98	2.9	< 0.20	< 0.20	< 0.20	-	0.42	2.8	11	-	-	-	-	-	-	1.8	6.8	3.2	4.6	2	4.4	4.3	0.39	50
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	170	41	23	0.96	4.3	22	14	6.7	15	-	9.5	35	24	-	-	-	-	-	-	9.2	19	24	16	7.1	23	60	8.8	5.8
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	1.5	0.82	< 0.50	< 0.50	< 0.50	< 0.50	6.3	< 0.50	< 0.50	-	< 0.50	< 0.50	< 0.50	-	-	-	-	-	-	1.6	0.98	< 0.50	< 0.50	0.66	< 0.50	< 0.50	< 0.50	< 0.50
Antimony (diss.filt)	5 (5)		3.4	1.4	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	< 0.50	< 0.50	1.1	-	-	-	-	-	-	1.1	1.1	1	0.8	0.79	0.5	2.7	< 0.50	< 0.50
Selenium (diss.filt)	10 (5)		2.5	< 0.50	< 0.50	< 0.50	< 0.50	1.2	0.73	< 0.50	< 0.50	-	< 0.50	< 0.50	7.6	-	-	-	-	-	-	1.6	2.1	2.5	0.59	< 0.50	0.51	0.73	< 0.50	< 0.50
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	93	61	6.3	10	4.7	34	33	5.9	10	-	4.6	17	< 2.5	-	-	-	-	-	-	68	80	87	11	50	37	390	13	7.9
Iron (Total)			-	-	-	55	46	-	-	-	< 5.0	6100	-	51	-	44000	450	170	250	590	460	-	4700	6600	1600	9000	1900	2600	1300	260
Manganese (Total)			-	-	-	440	1600	-	-	-	540	1000	-	13000	-	13000	3400	10000	6600	3200	3200	-	12000	8900	5600	6600	16000	5700	4600	790
Manganese [II]			-	-	-	390	430	-	-	-	100	190	-	2600	-	3200	70	1300	510	1000	110	-	3500	3000	770	1500	630	1000	1200	110
Manganese [IV]			-	-	-	59	1200	-	-	-	520000	1000000	-	13000000	-	8800	110	6500	4000	1300	3100	-	5600	3300	2500	1800	8900	2400	17000000	3300000
Iron [II]			-	-	-	< 20	< 20	-	-	-	< 20	11000	-	< 20	-	25000	40	< 20	< 20	80	130	-	50	9000	< 20	50	20	< 20	< 20	< 20
Iron [III]			-	-	-	56	46	-	-	-	< 20	< 20	-	51	-	19000	27	130	220	210	< 20	-	51	< 20	45	55	59	350	< 20	< 20
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		21	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	< 20	< 20	< 20	-	-	-	-	-	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.44	< 0.10	< 0.10	< 0.10	< 0.10	1.2	1.3	1.4	1.5	-	< 0.10	< 0.10	0.5	-	-	-	-	-	-	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.1	< 0.10
Phenols	ug/l																													
1-Naphthol	-		-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	-	-	-	-	-	-	-	< 0.0050	< 0.0050
Trimethylphenols			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	-	-	-	-	-	-	-	< 0.0050	0.21
Cresols	-		-	-	-	-	-	-	-	-	-	-	-	-	-	0.33	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	-	-	-	-	-	-	-	< 0.0050	0.13
Phenol	-		-	-	-	-	-	-	-	-	-	-	-	-	-	0.11	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.011	-	-	-	-	-	-	-	< 0.0050	0.068
Resorcinol	-		-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	-	-	-	-	-	-	-	< 0.0050	< 0.0050
Xylenols	-		-	-	-	-	-	-	-	-	-	-	-	-	-	0.054	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	-	-	-	-	-	-	-	0.098	0.12
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		< 0.030	< 0.030	0.046	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	0.45	0.49	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	0.14	< 0.030	< 0.030	0.059	< 0.030	-	-
Speciated TPH	ug/l																													
Aliphatics																														
EC C5-C6	15000 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C6-C8	15000 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	300 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	65	< 0.10	< 0.10	< 0.10	< 0.10	17	< 0.10	19	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	300 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	27	33	< 0.10	33	< 0.10	< 0.10	25	20	26	< 0.10	30	< 0.10	< 0.10	< 0.10	< 0.10
EC>C12-C16	300 (7)		< 0.10	38	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35			430	250	92	< 0.10	270	< 0.10	200	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	540	< 0.10	< 0.10	300	< 0.10	< 0.10	< 0.10	< 0.10
EC>C35-C44			60	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35			490	290	92	< 5.0	270	< 5.0	200	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	27	98	< 5.0	33	< 5.0	< 5.0	42	560	45	< 5.0	330	< 5.0	< 5.0	< 5.0	< 5.0
Aromatics																														
EC C5-C7	10 (7)		< 0.10	< 0.10	110	< 0.10	< 0.10	< 0.10	110	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	750	58	< 0.10
EC>C7-C8	700 (7)		22	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	41	< 0.10
EC>C8-C10	300 (7)		80	53	220	< 0.10	< 0.10	< 0.10	200	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	390	880	< 0.10	< 0.10	< 0.10	< 0.10	20	< 0.10	450	< 0.10	580	< 0.10	6400	16	< 0.10
EC>C10-C12	90 (7)		350	140	60	< 0.10	< 0.10	< 0.10	350	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	980	600	< 0.10	80	< 0.10	< 0.10	120	800	2600	< 0.10	2800	< 0.10	5500	420	< 0.10
EC>C12-C16	90 (7)		180	68	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	250	950	< 0.10	< 0.10	< 0.10	< 0.10	180	380	1300	< 0.10	990	< 0.10	4500	150	< 0.10
EC>C16-C21	90 (7)		94	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	110	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	21	66	< 0.10	61	< 0.10	220	25	< 0.10
EC>C21-C35	90 (7)		21	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	83	94	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	72	76	< 0.10	88	79	87	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	180	< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35			750	260	380	< 5.0	< 5.0	< 5.0	660	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	1700	2600	< 5.0	80	< 5.0	< 5.0	320	1300	4600	< 5.0	4500	250	18000	710	< 5.0
Total Aliphatics & Aromatics >C5-35			1200	550	480	< 10	270	< 10	860	< 10	< 10	< 10	< 10	< 10	< 10	1700	2700	< 10	110	< 10	< 10	360	1800	4600	< 10	4900	260	18000	710	< 10
BTEX/MTBE/GRO	µg/l																													
MTBE	15 (5*)		2.9	1.7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		3.40	4.30	< 1.0	< 1.0	< 1.0	< 1.0	9700	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	800	290	< 0.10	150	< 0.10	< 0.10	< 1.0	950	1100	< 1.0	6700	780	68	< 1.0	< 1.0
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		3	2	< 1.0	< 1.0	< 1.0	< 1.0	1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	110	24	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	100	18	< 1.0	360
Ethylbenzene	300 (8)		19	2.1	< 1.0	< 1.0	< 1.0	< 1.0	1400	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	78	27	< 0.10	< 0.10	< 0.10	< 0.10	8.3	24	59	< 1.0	510	120	110	< 1.0	37
p/m-Xylene			24	14	< 1.0	< 1.0	< 1.0	< 1.0	120	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	25	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	64	20	51	< 1.0	46	14	29	< 1.0	26
o-Xylene			10	7	< 1.0	< 1.0	< 1.0	< 1.0	60	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	16	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	30	< 1.0	32	11	29	< 1.0	19
PCBs	µg/l																													
PCB congener 81			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
PCB congener 77			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
PCB congener 105			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
PCB congener 114			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
PCB congener 118			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
PCB congener 123			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
PCB congener 126			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
PCB congener 156			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
PCB congener 157			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
PCB congener 167			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
PCB congener 169			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
PCB congener 189			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Total PCBs (12 Congeners)			-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Polyaromatic Hydrocabons	µg/l																													
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		< 0.010	< 0.010	2.3	< 0.010	< 0.010	< 0.010	150	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	320	8.7	0.64	21	3.3	0.56	5.6	290	1100	0.75	1200	76	1500	230	1.5
Acenaphthylene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	60	49	< 0.010	< 0.010	4.4	< 0.010	0.47	32	290	< 0.010	200	< 0.010	150	3.3	0.9
Acenaphthene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	6.5	22	< 0.010	< 0.010	1.1	< 0.010	1.2	44	42	< 0.010	22	< 0.010	50	5.6	0.79
Fluorene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	3.4	1.2	< 0.010	< 0.010	0.6	< 0.010	0.38	7.8	24	< 0.010	10	< 0.010	2.1	0.38	0.13
Phenanthrene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	3.1	< 0.010	< 0.010	< 0.010	0.24	< 0.010	< 0.010	6.6	18	< 0.010	7.1	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.4	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.2	2.2	< 0.010	1.1	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.84	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.6	2.3	< 0.010	1.7	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.92	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	2.1	3	< 0.010	2	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)anthracene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)	-		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA 16 (aq)	-		< 0.20	< 0.20	2.3	< 0.20	< 0.20	< 0.20	150	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	390	81	0.64	21	9.6	0.56	7.7	380	1500	0.75	1400	76	1700	240	3.3
INORGANICS	mg/l																													
Dissolved Organic Carbon			1300	520	300	44	79	26	4	210	2.4		6.6	150	90	-	-	-	-	-	-	260	290	200	16	190	140	290	95	18
Total Inorganic Carbon			-	-		50	96	-	-	-	34	98	-	180	-	550	210	190	260	480	190	-	360	290	110	290	220	620	100	190
Total Organic Carbon			-	-		35	81	-	-	-	2	12	-	160	-	300	190	52	150	120	95	-	290	200	16	210	140	290	100	17
Dissolved Methane			-	-		< 0.050	1.2	-	-	-	< 0.050	< 0.050	-	< 0.050	-	< 0.050	0.3	0.15	0.081	1.2	1.9	-	0.68	1	0.43	0.9	0.73	0.2	1	0.066
pH	6-9		7.5	7	7.5	8	8.2	7	7	6.8	6.9	6.8	7.1	7.1	11.3	-	-	-	-	-	-	6.6	6.7	6.8	6.7	6.6	6.7	6.8	7.7	7.3
Dissolved CO2			-	-		4.3	4.5	-	-	-	40	140	-	110		300	60	110	78	430	87	-	560	410	170	650	330	860	16	72
Alkalinity (Total)			3500	1500	970	210	400	970	980	180	140	410	330	760	760	2300	870	810	1100	2000	810	1500	1500	1200	460	1200	920	2600	420	790
Chloride	250 (5)		1400	270	210	63	160	150	110	32	30	-	30	210	19	-	-	-	-	-	-	240	210	220	63	130	65	120	32	52
Ammonia (Free)	0.3 (1) Types 1,2,4 and 6 $^{\text{(see note 3)}}$		< 0.050	1.6	0.73	0.89	0.28	0.28	0.32	< 0.050	< 0.050	-	< 0.050	0.43	1.7	-	-	-	-	-	-	0.27	0.22	0.23	< 0.050	0.15	0.11	0.19	0.15	0.34
Ammonium			0.9	340	54	21	3.6	65	79	5.1	3.5	-	6	72	< 0.050	-	-	-	-	-	-	140	94	89	19	94	47	74	6.7	36
Nitrite			0.027	0.052	0.078	0.045	0.039	0.041	0.025	0.054	0.065	0.045	0.056	0.058	0.23	< 0.020	4.6	0.094	< 0.020	0.023	0.024	< 0.020	0.02	0.054	< 0.020	0.048	0.12	0.31	< 0.020	0.022
Nitrate	50 (5)		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.6	17	21	2.9	13	11	< 0.50	< 0.50	4.8	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.5	< 0.50	< 0.50	< 0.50	< 0.50	1.3	< 0.50	< 0.50
Sulphate	250 (5)		< 1.0	< 1.0	27	34	7.6	17	12	33	28	31	79	29	17	28	190	110	70	< 1.0	62	< 1.0	46	5.9	54	24	40	110	110	36
Cyanide (Total) Low-Level	0.001 (AA), 0.005 (95%ile) (1&2)		< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	-	< 0.0050	< 0.0050	< 0.0050	-	-	-	-	-	-	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Sulphide			-	-		< 0.050	< 0.050	-	-	-	< 0.050	< 0.050	-	< 0.050	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium			370	110	89	1.5	1.5	56	53	4.5	4.5	-	17	56	64	-	-	-	-	-	-	79	64	69	15	60	39	63	8.5	45
Magnesium			110	52	59	16	26	46	50	9.2	7.3	-	14	44	< 0.20	-	-	-	-	-	-	68	68	61	20	50	49	39	24	47
Sodium	200 (5)		850	210	130	22	70	110	100	18	16	-	20	140	200	-	-	-	-	-	-	190	280	130	78	110	59	100	25	57

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of 1 µg/l has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l OR 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Note 5 - These EQS refer to bioavailable concentrations of the substances.l

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH677	BH678	BH679
	µg/l				
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		4.1	5.8	2.3
Boron (diss.filt)	**1000 (5)**		310	430	290
Barium (diss.filt)	**700 (8)**		140	91	120
Beryllium (diss.filt)			< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	**0.09 (AA) & 0.6 (MAC) (1) 0.6 (AA) (2)** **$CaCO_3$ 50 - <100 mg/l**		< 0.11	< 0.11	< 0.11
Chromium (diss.filt)	**50 (5)**		3.1	0.63	1.1
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	0.6	2	0.66
Iron (diss.)	**1000 (AA) (1&2)**		5300	58	930
Mercury (diss.filt)	**0.07 MAC (1&2)**		< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	3600	810	920
Molybdenum (diss.filt)	**70 (8)**		1.3	2.4	180
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	3.8	9.7	4.6
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	< 0.50	< 0.50	< 0.50
Antimony (diss.filt)	**5 (5)**		< 0.50	0.61	0.84
Selenium (diss.filt)	**10 (5)**		< 0.50	< 0.50	< 0.50
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	3.1	71	10
Iron (Total)			7300	240	1500
Manganese (Total)			4900	18000	1100
Manganese [II]			1100	3500	480
Manganese [IV]			3600000	810000	2500000
Iron [II]			< 20	< 20	< 20
Iron [III]			5300	58	2300
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		< 20	< 20	< 20
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		< 0.10	< 0.10	< 0.10
Phenols	**ug/l**				
1-Naphthol	-		< 0.0050	< 0.0050	< 0.0050
Trimethylphenols			< 0.0050	< 0.0050	< 0.0050
Cresols	-		< 0.0050	< 0.0050	< 0.0050
Phenol	-		0.008	0.017	< 0.0050
Resorcinol	-		< 0.0050	< 0.0050	< 0.0050
Xylenols	-		0.15	0.086	0.11
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		-	-	-
Speciated TPH	**ug/l**				
Aliphatics					
EC C5-C6	**15000 (7)**		< 0.10	< 0.10	< 0.10
EC>C6-C8	**15000 (7)**		< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10
EC>C10-C12	**300 (7)**		< 0.10	< 0.10	< 0.10
EC>C12-C16	**300 (7)**		< 0.10	< 0.10	< 0.10
EC>C16-C21			< 0.10	< 0.10	< 0.10
EC>C21-C35			< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35			< 5.0	< 5.0	< 5.0
Aromatics					
EC C5-C7	**10 (7)**		< 0.10	< 0.10	< 0.10
EC>C7-C8	**700 (7)**		< 0.10	< 0.10	< 0.10
EC>C8-C10	**300 (7)**		< 0.10	< 0.10	< 0.10
EC>C10-C12	**90 (7)**		< 0.10	< 0.10	< 0.10
EC>C12-C16	**90 (7)**		< 0.10	< 0.10	< 0.10
EC>C16-C21	**90 (7)**		< 0.10	< 0.10	< 0.10
EC>C21-C35	**90 (7)**		< 0.10	< 0.10	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35			< 5.0	< 5.0	< 5.0
Total Aliphatics & Aromatics >C5-35			< 10	< 10	< 10
BTEX/MTBE/GRO	**µg/l**				
MTBE	**15 (5*)**		< 1.0	< 1.0	< 1.0
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		17	< 1.0	< 1.0
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		< 1.0	< 1.0	< 1.0
Ethylbenzene	**300 (8)**		< 1.0	< 1.0	< 1.0
p/m-Xylene			< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	< 1.0
PCBs	**µg/l**				
PCB congener 81			-	-	-
PCB congener 77			-	-	-
PCB congener 105			-	-	-
PCB congener 114			-	-	-
PCB congener 118			-	-	-
PCB congener 123			-	-	-
PCB congener 126			-	-	-
PCB congener 156			-	-	-
PCB congener 157			-	-	-
PCB congener 167			-	-	-
PCB congener 169			-	-	-
PCB congener 189			-	-	-
Total PCBs (12 Congeners)			-	-	-
Polyaromatic Hydrocabons	**µg/l**				
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.98	< 0.010	< 0.010
Acenaphthylene (aq)	-		< 0.010	< 0.010	< 0.010
Acenaphthene (aq)	-		< 0.010	< 0.010	< 0.010
Fluorene (aq)	-		< 0.010	< 0.010	< 0.010
Phenanthrene (aq)	-		< 0.010	< 0.010	< 0.010
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		< 0.010	< 0.010	< 0.010
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		< 0.010	< 0.010	< 0.010
Pyrene (aq)	-		< 0.010	< 0.010	< 0.010
Benzo(a)anthracene (aq)	-		< 0.010	< 0.010	< 0.010
Chrysene (aq)	-		< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)	-		< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)	-		< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA 16 (aq)	-		0.98	< 0.20	< 0.20
INORGANICS	**mg/l**				
Dissolved Organic Carbon			26	7.3	18
Total Inorganic Carbon			160	170	140
Total Organic Carbon			26	7	18
Dissolved Methane			0.62	0.77	0.14
pH	**6-9**		7.5	7.5	7.6
Dissolved CO2			40	46	32
Alkalinity (Total)			660	720	590
Chloride	**250 (5)**		53	43	48
Ammonia (Free)	**0.3 (1)** **Types 1,2,4 and 6 $^{\text{(see note 3)}}$**		0.33	0.36	0.44
Ammonium			23	27	27
Nitrite			< 0.020	0.37	< 0.020
Nitrate	**50 (5)**		< 0.50	< 0.50	< 0.50
Sulphate	**250 (5)**		73	100	420
Cyanide (Total) Low-Level	**0.001 (AA), 0.005 (95%ile) (1&2)**		< 0.0050	< 0.0050	< 0.0050
Sulphide			< 0.050	< 0.050	< 0.050
Potassium			20	35	29
Magnesium			34	31	29
Sodium	**200 (5)**		46	45	43

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of 1 µg/l has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l OR 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Note 5 - These EQS refer to bioavailable concentrations of the substances.l

	TSV	BH665	BH674	BH672	BH671	BH666	BH668	BH659S	BH659D	BH660A	BH667	BH669	BH670	BH673	BH675	BH676	BH677	BH678	BH679
VOC's	ug/l																		
Dichlorodifluoromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chloromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Vinyl chloride	**0.5 (5)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromomethane		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroethane		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichlorofluoromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
trans-1,2-Dichloroethene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
cis-1,2-Dichloroethene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromochloromethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1-Trichloroethane	**100 (4)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tetrachloromethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloropropene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**	**800**	**290**	< 0.10	**150**	< 0.10	< 0.10	< 0.10	**950**	**1100**	< 0.10	**6700**	**780**	**68**	< 0.10	< 0.10	17	< 0.10	< 0.10
1,2-Dichloroethane	**10 (AA)(1&2)**	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	**140**	< 0.20	< 0.20	< 0.20
Trichloroethene	**10 (5)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibromomethane		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromodichloromethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	**74 (AA) 95th%ile (380) (1), 74 (AA) 95th%ile (370) (2)**	**110**	24	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**100**	18	< 0.10	**360**	< 0.10	< 0.10	< 0.10
trans-1,3-Dichloropropene		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	**300 (2), 400(1)**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	**10 (1 &2)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichloropropane		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dibromochloromethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1,2-Tetrachloroethane		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Ethylbenzene	**300 (7)**	78	27	< 0.10	< 0.10	< 0.10	< 0.10	8.3	24	59	< 0.10	**510**	120	110	< 0.10	37	< 0.10	< 0.10	< 0.10
m,p-Xylene		25	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	64	20	51	< 0.10	46	14	29	< 0.10	26	< 0.10	< 0.10	< 0.10
o-Xylene		16	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	30	< 0.10	32	11	29	< 0.10	19	< 0.10	< 0.10	< 0.10
Styrene	**20 (5)**	**290**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**100**	< 0.10	< 0.10	< 0.10
Tribromomethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichloropropane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
N-Propylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2-Chlorotoluene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3,5-Trimethylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
4-Chlorotoluene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
tert-Butylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,4-Trimethylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
sec-Butylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
4-iso-Propyltoluene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,4-Dichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
n-Butylbenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dibromo-3-chloropropane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2,4-Trichlorobenzene		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Hexachlorobutadiene	**0.6 (MAC) (1,2)**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichlorobenzene	**0.4 (1,2)**	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Methyl tertiary butyl ether (MTBE)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard

	TSV	BH665	BH674	BH672	BH671	BH666	BH668	BH659S	BH659D	BH660A	BH667	BH669	BH670	BH673	BH675	BH676	BH677	BH678	BH679
SVOC's	ug/l																		
N-Nitrosodimethylamine		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenol	**7.7 (1&2) 46 (95th%ile) (1&2)**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	3.7	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chlorophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylphenol (o-Cresol)		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	4.2	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Methylphenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	4.5	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Isophorone		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitrophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol		< 0.050	0.79	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	**2.4 (1) 1.2 (2)**	**380**	**12**	0.68	**23**	**3.6**	0.73	**6.8**	**370**	**2000**	0.75	**2000**	**92**	**2300**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloroaniline		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene		6	3	< 0.050	< 0.050	0.45	< 0.050	0.47	14	85	0.23	51	0.25	7.7	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	**160**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitroaniline		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene		80	86	0.73	3.1	5.3	1	0.85	48	520	0.54	370	4.9	250	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dimethylphthalate		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene		< 0.050	1.2	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene		7.2	6	< 0.050	2.4	< 0.050	0.27	1.6	60	80	0.23	44	2.8	4.9	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
3-Nitroaniline		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzofuran		2.4	1.1	< 0.050	< 0.050	0.19	< 0.050	< 0.050	5.7	34	< 0.050	8.7	< 0.050	1.3	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chlorophenylphenylether		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene		< 0.050	1.8	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	1.5	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene		3.7	1.9	0.18	0.26	0.64	< 0.050	0.5	9.7	63	0.11	12	0.26	2.9	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Diethyl Phthalate		0.83	1.5	0.94	0.49	0.2	1.9	0.42	1.7	0.8	0.75	< 0.050	1	1.9	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitroaniline		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Azobenzene		< 0.050	< 0.050	1.1	1.1	0.76	1.2	1.8	1.4	0.67	0.31	< 0.050	1.1	10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.3	< 0.050	< 0.050	0.46	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	**0.4 (AA) & 1 (MAC) (1&2)**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene		4.2	0.85	0.49	0.57	0.65	0.36	0.6	8.3	67	0.41	8.2	0.46	1.7	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Anthracene	**0.1 (MAC 0.4) (1 & 2)**	**0.79**	**0.69**	**0.23**	**0.21**	**0.17**	**0.11**	0.1	**1.2**	**3.7**	**0.12**	**1.6**	< 0.050	**0.92**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Carbazole		6.5	17	0.12	1.7	0.73	0.38	0.19	5.1	17	0.21	11	5.5	75	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate		< 0.050	< 0.050	< 0.050	0.76	< 0.050	0.69	0.46	< 0.050	< 0.050	0.92	0.24	0.77	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	**0.0063 (AA) & 0.12 (MAC) (1&2)**	**1.3**	**0.23**	**0.17**	**0.14**	**0.24**	**0.18**	**0.2**	**1.8**	**3.4**	**0.22**	**1.9**	**0.21**	**0.38**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pyrene		1.7	0.39	0.11	0.16	0.38	0.17	0.29	2.5	4.2	0.2	2.4	0.25	0.5	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Butylbenzyl Phthalate		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]anthracene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.22	< 0.050	0.08	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Chrysene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.21	< 0.050	0.14	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	**1.3 (1&2)**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[b]fluoranthene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[k]fluoranthene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]pyrene	**0.05 (MAC 0.1) (1 & 2)**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitrophenol		< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard *Total PAH = Sum of 4:-Benzo(b) & (k)fluoranthene, Indeno(123cd)pyrene,Benzo(ghi)perylene
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH401	BH206	BH404	BH409	BH410	BH402S	BH402D	BH403	BH411	BH626	BH628	BH627	BH630	BH629	BH632	BH201	BH625	BH663B	BH662	BH664	BH661	BH658	BH656	BH657
HEAVY METALS	µg/l																									
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		-	7.5	-	1.8	4.3	-	-	-	1.5	-	-	-	-	-	0.45	28	18	-	< 0.20	1.6	6.4	0.6	1.9	2.5
Boron (diss.filt)	1000 (5)		-	**1100**	-	**1200**	**1100**	-	-	-	840	-	-	-	-	-	720	670	960	-	46	200	230	79	840	180
Barium (diss.filt)	700 (8)		-	110	-	80	160	-	-	-	38	-	-	-	-	-	120	150	97	-	44	37	53	88	270	170
Beryllium (diss.filt)			-	< 1.0	-	< 1.0	< 1.0	-	-	-	< 1.0	-	-	-	-	-	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (diss.filt)	0.09 (AA) & 0.6 (MAC) (1) 0.6 (AA) (2) $CaCO_3$ 50 - <100 mg/l		-	-	-	-	-	-	-	-	**0.15**	-	-	-	-	-	< 0.11	< 0.11	< 0.11	-	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
Chromium (diss.filt)	50 (5)		-	2.6	-	0.81	< 0.50	-	-	-	2.1	-	-	-	-	-	< 0.50	0.83	2.1	-	4.4	8.7	5.8	4.7	5.1	7.5
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	-	0.51	-	0.87	0.62	-	-	-	1.5	-	-	-	-	-	1.5	2.7	2.5	-	3	24	4.7	2.1	4.2	7.7
Iron (diss.)	1000 (AA) (1&2)		-	**13000**	-	**16000**	**11000**	-	-	-	**3100**	-	-	-	-	-	**3200**	**11000**	**62000**	-	19	350	**21000**	44	**15000**	**2500**
Mercury (diss.filt)	0.07 MAC (1&2)		-	< 0.05	-	< 0.05	< 0.05	-	-	-	< 0.05	-	-	-	-	-	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	-	**4300**	-	**15000**	**17000**	-	-	-	170	-	-	-	-	-	**6200**	**2300**	**4600**	-	**780**	140	**6100**	**2100**	**7100**	**5000**
Molybdenum (diss.filt)	70 (8)		-	0.38	-	0.37	1.2	-	-	-	1.1	-	-	-	-	-	0.52	2.4	0.66	-	0.48	2.2	3.8	0.99	2.1	3.7
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	-	**21**	-	**21**	**47**	-	-	-	6	-	-	-	-	-	3.7	**21**	10	-	4.2	12	4.6	3.5	10	**23**
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	-	< 0.50	-	F	0.66	-	-	-	1.1	-	-	-	-	-	0.94	2	5.2	-	< 0.50	7.4	2.5	< 0.50	1	0.96
Antimony (diss.filt)	5 (5)		-	< 0.50	-	< 0.50	< 0.50	-	-	-	< 0.50	-	-	-	-	-	< 0.50	0.62	< 0.50	-	< 0.50	1.2	< 0.50	< 0.50	0.6	< 0.50
Selenium (diss.filt)	10(5)		-	< 0.50	-	1.5	< 0.50	-	-	-	2	-	-	-	-	-	< 0.50	< 0.50	< 0.50	-	< 0.50	< 0.50	< 0.50	< 0.50	1.2	0.94
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	-	**65**	-	**42**	34	-	-	-	**93**	-	-	-	-	-	21	26	35	-	10	**120**	**160**	16	**1800**	**160**
Iron (Total)			34000	13000	11000	16000	12000	79000	400	40000	3100	27000	2500	13000	1400	670	3100	11000	61000	-	210	3000	27000	1800	20000	4500
Manganese (Total)			6700	4400	12000	15000	17000	42000	21000	1800	180	37000	1100	11000	12000	9800	6300	2300	4400	3600	770	170	6500	2300	7500	6000
Manganese [II]			5000	3900	6000	5200	6300	32000	18000	450	170	1200	170	1400	390	900	540	480	310	3700	140	27	2100	450	2400	580
Manganese [IV]			1900	400	6000	9800	11000	10000	3000	1500	< 1.0	3700000	1100000	11000000	12000000	9800000	6200000	2300000	4600000	560	640	110	4000	1600	4700	4400
Iron [II]			< 20	< 20	< 20	< 20	< 20	11000	< 20	< 20	< 20	4100	< 20	3500	390	< 20	< 20	640	8500	130	< 20	30	7200	60	3500	60
Iron [III]			34000	13000	11000	16000	11000	68000	400	40000	3100	23000	2500	9900	1000	650	3200	11000	53000	34	< 20	320	14000	< 20	11000	2400
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		-	< 20	-	< 20	< 20	-	-	-	< 20	-	-	-	-	-	< 20	< 20	< 20	-	< 20	< 20	< 20	< 20	< 20	< 20
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		-	< 0.10	-	< 0.10	< 0.10	-	-	-	1.1	-	-	-	-	-	< 0.10	< 0.10	< 0.10	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenols	ug/l																									
1-Naphthol	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0050	< 0.0050	-	-	-	-
Trimethylphenols			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0050	< 0.0050	-	-	-	-
Cresols	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0050	0.009	-	-	-	-
Phenol	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0050	< 0.0050	-	-	-	-
Resorcinol	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0050	< 0.0050	-	-	-	-
Xylenols	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.0050	0.007	-	-	-	-
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		-	< 0.030	-	< 0.030	0.047	-	-	-	< 0.030	0.19	< 0.030	< 0.030	< 0.030	0.32	< 0.030	< 0.030	< 0.030	-	< 0.030	< 0.030	1	0.14	< 0.030	1.6
Speciated TPH	ug/l																									
Aliphatics																										
EC C5-C6	15000 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C6-C8	15000 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	300 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	10	< 0.10	< 0.10	< 0.10	17	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	300 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	97	< 0.10	< 0.10	< 0.10	28	< 0.10	< 0.10	< 0.10	< 0.10	13	< 0.10
EC>C12-C16	300 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	98	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35			< 0.10	< 0.10	250	< 0.10	190	< 0.10	220	150	< 0.10	210	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	110	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatics >C5-C35			< 5.0	< 5.0	250	< 5.0	190	< 5.0	220	150	< 5.0	210	< 5.0	< 5.0	< 5.0	210	< 5.0	< 5.0	< 5.0	46	< 5.0	< 5.0	< 5.0	< 5.0	120	< 5.0
Aromatics																										
EC C5-C7	10 (7)		< 0.10	< 0.10	**110**	< 0.10	< 0.10	< 0.10	**160**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**36**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C7-C8	700 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C8-C10	300 (7)		< 0.10	< 0.10	230	< 0.10	< 0.10	< 0.10	200	< 0.10	< 0.10	93	< 0.10	< 0.10	< 0.10	120	< 0.10	< 0.10	< 0.10	120	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C10-C12	90 (7)		< 0.10	< 0.10	**560**	< 0.10	**270**	< 0.10	**560**	**140**	< 0.10	**310**	< 0.10	< 0.10	< 0.10	79	< 0.10	< 0.10	< 0.10	**230**	< 0.10	< 0.10	< 0.10	< 0.10	50	< 0.10
EC>C12-C16	90 (7)		< 0.10	< 0.10	17	< 0.10	10	< 0.10	< 0.10	**95**	< 0.10	**340**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	49	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C16-C21	90 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**100**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>C21-C35	90 (7)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	12	< 0.10
EC>C35-C44			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatics >EC5-EC35			< 5.0	< 5.0	920	< 5.0	280	< 5.0	920	240	< 5.0	840	< 5.0	< 5.0	< 5.0	230	< 5.0	< 5.0	< 5.0	400	< 5.0	< 5.0	< 5.0	< 5.0	63	< 5.0
Total Aliphatics & Aromatics >C5-35			< 10	< 10	1200	< 10	470	< 10	1100	390	< 10	1100	< 10	< 10	< 10	440	< 10	< 10	< 10	440	< 10	< 10	< 10	< 10	180	< 10
BTEX/MTBE/GRO	µg/l																									
MTBE	15 (5*)		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		< 1.0	< 1.0	**3000**	**18**	**3400**	8.20	**9000**	< 1.0	< 1.0	**360**	< 1.0	< 1.0	< 1.0	**13000**	8.30	3.1	**19**	-	< 1.0	< 1.0	< 1.0	< 1.0	1.00	< 1.0
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		< 1.0	< 1.0	**790**	1.7	8.8	1.1	**1100**	< 1.0	< 1.0	30	< 1.0	< 1.0	< 1.0	**620**	< 1.0	< 1.0	2.4	-	< 1.0	< 1.0	**79**	< 1.0	< 1.0	< 1.0
Ethylbenzene	300 (8)		< 1.0	< 1.0	**750**	< 1.0	9.7	< 1.0	21	< 1.0	< 1.0	**1700**	< 1.0	< 1.0	< 1.0	**1600**	< 1.0	1.4	15	-	< 1.0	< 1.0	1.2	< 1.0	1	< 1.0
p/m-Xylene			< 1.0	< 1.0	34	< 1.0	5.4	< 1.0	28	< 1.0	< 1.0	27	< 1.0	< 1.0	< 1.0	140	< 1.0	< 1.0	5.1	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene			< 1.0	< 1.0	20	< 1.0	6.6	< 1.0	20	< 1.0	< 1.0	14	< 1.0	< 1.0	< 1.0	88	< 1.0	< 1.0	3.2	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Polyaromatic Hydrocabons	µg/l																									
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		-	**2.4**	-	< 0.010	**89**	-	-	-	0.88	**130**	< 0.010	< 0.010	< 0.010	**8.5**	< 0.010	**2.2**	**33**	**61**	< 0.010	< 0.010	0.72	0.51	0.9	0.33
Acenaphthylene (aq)	-		-	< 0.010	-	< 0.010	8.9	-	-	-	< 0.010	7.6	< 0.010	< 0.010	< 0.010	27	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.11	< 0.010	< 0.010
Acenaphthene (aq)	-		-	< 0.010	-	< 0.010	7.2	-	-	-	< 0.010	20	< 0.010	< 0.010	< 0.010	3.9	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.55	< 0.010	< 0.010
Fluorene (aq)	-		-	< 0.010	-	< 0.010	0.52	-	-	-	< 0.010	1	< 0.010	< 0.010	< 0.010	1.2	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.29	< 0.010	< 0.010
Phenanthrene (aq)	-		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene (aq)	-		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)anthracene (aq)	-		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)	-		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)	-		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)	-		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		-	< 0.010	-	< 0.010	< 0.010	-	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA 16 (aq)	-		-	2.4	-	< 0.20	110	-	-	-	0.88	150	< 0.20	< 0.20	< 0.20	41	< 0.20	2.2	33	61	< 0.20	< 0.20	0.72	1.5	0.9	0.33
INORGANICS	mg/l																									
Dissolved Organic Carbon			-	220		180	210	-	-	-	59	-	-	-	-	-	53	160	87	-	2.6	6.8	74	8.8	190	98
Total Inorganic Carbon			150	200	180	190	210	170	150	410	98	130	41	38	31	140	170	260	160	53	43	23	180	130	650	210
Total Organic Carbon			170	310	220	180	220	220	200	130	59	39	2.8	4.9	3.7	130	54	160	84	16	< 2.0	6.7	76	8	210	96
Dissolved Methane			< 0.050	0.55	0.33	0.15	< 0.050	0.35	1.3	0.38	0.68	< 0.050	0.57	< 0.050	< 0.050	< 0.050	0.15	3.1	1.1	0.84	< 0.050	0.14	< 0.050	1.50	1.7	1.6
pH	6-9		-	7.2	-	7.1	7.2	-	-	-	8.1	6.9	7.1	6.8	6.9	7.4	8.2	7.4	6.9		7.4	7.3	7.3	7.4	7.1	7.2
Dissolved CO2			110	100	20	140	120	180	48	250	6	150	30	57	36	52	8.7	83	160	38	15	11	67	44	450	120
Alkalinity (Total)			640	850	730	800	860	700	610	1700	410	530	170	160	130	580	700	1100	680	220	180	97	730	550	2700	880
Chloride	250 (5)		-	180	-	180	200	-	-	-	47	-	-	-	-	-	52	**290**	56	-	27	26	37	33	200	72
Ammonia (Free)	0.3 (1) Types 1,2,4 and 6 $^{\text{(see note 3)}}$		-	**0.37**	-	0.28	**0.34**	-	-	-	**0.36**	-	-	-	-	-	**2.2**	**1.5**	0.3	-	< 0.050	0.075	0.13	0.14	**0.45**	0.1
Ammonium			-	53	-	55	54	-	-	-	6.1	-	-	-	-	-	32	130	80	-	4.7	9.6	14	13	85	17
Nitrite			0.1	0.098	0.1	0.085	0.068	0.077	0.097	0.062	0.048	0.034	0.023	0.037	0.02	0.037	0.032	0.044	0.041	< 0.020	0.52	0.022	< 0.020	< 0.020	0.02	0.14
Nitrate	50 (5)		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	13	0.84	< 0.50	1.6	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	7.9	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate	250 (5)		4.7	**290**	55	160	88	23	75	< 1.0	33	11	15	15	66	130	5	20	< 1.0	26	16	30	42	62	24	12
Cyanide (Total) Low-Level	0.001 (AA), 0.005 (95%ile) (1&2)		-	< 0.0050		< 0.0050	< 0.0050				< 0.0050	-	-	-	-	-	< 0.0050	< 0.0050	< 0.0050		< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Sulphide			< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Potassium			-	26	-	3.3	64	-	-	-	13	-	-	-	-	-	26	83	40	-	1.4	5.8	14	5.4	73	12
Magnesium			-	51	-	80	47	-	-	-	26	-	-	-	-	-	30	52	30	-	7.4	3.6	37	10	48	44
Sodium	200 (5)		-	150	-	98	130	-	-	-	49	-	-	-	-	-	140	200	74	-	14	14	36	16	150	140

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4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:
Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of 1 µg/l has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l OR 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

	TSV	**BH663B**	**BH662**	**BH664**
VOC's	**ug/l**			
Dichlorodifluoromethane		< 0.10	< 0.10	< 0.10
Chloromethane		< 0.10	< 0.10	< 0.10
Vinyl chloride	**0.5 (5)**	< 0.10	< 0.10	< 0.10
Bromomethane		< 2.0	< 2.0	< 2.0
Chloroethane		< 0.20	< 0.20	< 0.20
Trichlorofluoromethane		< 0.10	< 0.10	< 0.10
1,1-Dichloroethene		< 0.10	2.4	2.1
trans-1,2-Dichloroethene		< 0.10	< 0.10	< 0.10
1,1-Dichloroethane		< 0.10	< 0.10	< 0.10
cis-1,2-Dichloroethene		< 0.10	< 0.10	< 0.10
Bromochloromethane		< 0.50	< 0.50	< 0.50
Trichloromethane		< 0.10	< 0.10	< 0.10
1,1,1-Trichloroethane	**100 (4)**	< 0.10	< 0.10	< 0.10
Tetrachloromethane		< 0.10	< 0.10	< 0.10
1,1-Dichloropropene		< 0.10	< 0.10	< 0.10
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**	**4700**	< 0.10	< 0.10
1,2-Dichloroethane	**10 (AA)(1&2)**	< 0.20	< 0.20	< 0.20
Trichloroethene	**10 (5)**	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane		< 0.10	< 0.10	< 0.10
Dibromomethane		< 0.10	< 0.10	< 0.10
Bromodichloromethane		< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene		< 1.0	< 1.0	< 1.0
Toluene	**74 (AA) 95th%ile (380) (1), 74 (AA) 95th%ile (370) (2)**	**510**	< 0.10	< 0.10
trans-1,3-Dichloropropene		< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	**300 (2), 400(1)**	< 0.1	< 0.1	< 0.1
Tetrachloroethene	**10 (1 &2)**	< 0.10	< 0.10	< 0.10
1,3-Dichloropropane		< 0.20	< 0.20	< 0.20
Dibromochloromethane		< 1.0	< 1.0	< 1.0
1,2-Dibromoethane		< 0.50	< 0.50	< 0.50
Chlorobenzene		< 0.10	< 0.10	< 0.10
1,1,1,2-Tetrachloroethane		< 0.20	< 0.20	< 0.20
Ethylbenzene	**300 (7)**	170	< 0.10	< 0.10
m,p-Xylene		33	< 0.10	< 0.10
o-Xylene		33	< 0.10	< 0.10
Styrene	**20 (5)**	< 0.10	< 0.10	< 0.10
Tribromomethane		< 1.0	< 1.0	< 1.0
Isopropylbenzene		< 0.10	< 0.10	< 0.10
Bromobenzene		< 0.10	< 0.10	< 0.10
1,2,3-Trichloropropane		< 5	< 5	< 5
N-Propylbenzene		< 0.10	< 0.10	< 0.10
2-Chlorotoluene		< 0.10	< 0.10	< 0.10
1,3,5-Trimethylbenzene		< 0.10	< 0.10	< 0.10
4-Chlorotoluene		< 0.10	< 0.10	< 0.10
tert-Butylbenzene		< 0.10	< 0.10	< 0.10
1,2,4-Trimethylbenzene		< 0.10	< 0.10	< 0.10
sec-Butylbenzene		< 0.10	< 0.10	< 0.10
1,3-Dichlorobenzene		< 0.10	< 0.10	< 0.10
4-iso-Propyltoluene		< 0.10	< 0.10	< 0.10
1,4-Dichlorobenzene		< 0.10	< 0.10	< 0.10
n-Butylbenzene		< 0.10	< 0.10	< 0.10
1,2-Dichlorobenzene		< 0.10	< 0.10	< 0.10
1,2-Dibromo-3-chloropropane		< 5	< 5	< 5
1,2,4-Trichlorobenzene		< 0.10	< 0.10	< 0.10
Hexachlorobutadiene	**0.6 (MAC) (1,2)**	< 0.10	< 0.10	< 0.10
1,2,3-Trichlorobenzene	**0.4 (1,2)**	< 0.20	< 0.20	< 0.20
Methyl tertiary butyl ether (MTBE)		< 0.10	< 0.10	< 0.10

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	TSV	BH663B	BH662	BH664
SVOC's	ug/l			
N-Nitrosodimethylamine		< 0.050	< 0.050	< 0.050
Phenol	**7.7 (1&2) 46 (95th%ile) (1&2)**	< 0.050	< 0.050	< 0.050
2-Chlorophenol		< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether		< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene		< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene		< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene		< 0.050	< 0.050	< 0.050
2-Methylphenol (o-Cresol)		< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether		< 0.050	< 0.050	< 0.050
Hexachloroethane		< 0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine		< 0.050	< 0.050	< 0.050
4-Methylphenol		< 0.050	< 0.050	< 0.050
Nitrobenzene		< 0.050	< 0.050	< 0.050
Isophorone		< 0.050	< 0.050	< 0.050
2-Nitrophenol		< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol		< 0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane		< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol		< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene		< 0.050	< 0.050	< 0.050
Naphthalene	**2.4 (1) 1.2 (2)**	**130**	< 0.050	< 0.050
4-Chloroaniline		< 0.050	< 0.050	< 0.050
Hexachlorobutadiene		< 0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol		< 0.050	< 0.050	< 0.050
2-Methylnaphthalene		0.9	< 0.050	< 0.050
Hexachlorocyclopentadiene		< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol		< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol		< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	**160**	< 0.050	< 0.050	< 0.050
2-Nitroaniline		< 0.050	< 0.050	< 0.050
Acenaphthylene		2.4	< 0.050	< 0.050
Dimethylphthalate		< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene		< 0.050	< 0.050	< 0.050
Acenaphthene		5	< 0.050	< 0.050
3-Nitroaniline		< 0.050	< 0.050	< 0.050
Dibenzofuran		0.23	< 0.050	< 0.050
4-Chlorophenylphenylether		< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene		< 0.050	< 0.050	< 0.050
Fluorene		0.41	< 0.050	< 0.050
Diethyl Phthalate		1	< 0.050	< 0.050
4-Nitroaniline		< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol		< 0.050	< 0.050	< 0.050
Azobenzene		16	< 0.050	< 0.050
4-Bromophenylphenyl Ether		< 0.050	< 0.050	< 0.050
Hexachlorobenzene		< 0.050	< 0.050	< 0.050
Pentachlorophenol	**0.4 (AA) & 1 (MAC) (1&2)**	< 0.050	< 0.050	< 0.050
Phenanthrene		0.57	< 0.050	< 0.050
Anthracene	**0.1 (MAC 0.4) (1 & 2)**	**0.21**	< 0.050	< 0.050
Carbazole		1.4	< 0.050	< 0.050
Di-N-Butyl Phthalate		1.2	< 0.050	< 0.050
Fluoranthene	**0.0063 (AA) & 0.12 (MAC) (1&2)**	**0.2**	< 0.050	< 0.050
Pyrene		0.23	< 0.050	< 0.050
Butylbenzyl Phthalate		< 0.050	< 0.050	< 0.050
Benzo[a]anthracene		0.15	< 0.050	< 0.050
Chrysene		0.25	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	**1.3 (1&2)**	< 0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate		< 0.050	< 0.050	< 0.050
Benzo[b]fluoranthene		< 0.050	< 0.050	< 0.050
Benzo[k]fluoranthene		< 0.050	< 0.050	< 0.050
Benzo[a]pyrene	**0.05 (MAC 0.1) (1 & 2)**	< 0.050	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene		< 0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene		< 0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene		< 0.050	< 0.050	< 0.050
4-Nitrophenol		< 0.050	< 0.050	< 0.050

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5. UK Drinking Water Standard *Total PAH = Sum of 4:- Benzo(b) & (k)fluoranthene, Indeno(123cd)pyrene, Benzo(ghi)perylene
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO

are not accredited.

APPENDIX 11 - GROUNDWATER & SURFACE WATERS LABORATORY TEST CERTIFICATES

DIGITAL APPENDIX

APPENDIX 12 – QA/QC DUPLICATE/TRIPLICATE TESTING

Sample Point / Determinands	DUP1	BH404	DUP2	BH646	DUP3	BH647A	DUP4	BH614	DUP5	BH122	DUP6	BH202	DUP 7	BH203	DUP8	BH637	DUP9	BH622	DUP10	SW7
HEAVY METALS																				
Arsenic (diss.filt)	-	-	7.2	9.6	3.70	3.60	0.44	0.21	0.76	0.44	0.94	1.5	3.1	4.5	1.5	1.1	0.85	1.4	0.33	0.27
Boron (diss.filt)	-	-	1700	1800	230.00	270.00	27	26	75	70	450	460	420	430	120	100	84	96	< 10	< 10
Barium (diss.filt)	-	-	130	140	12.00	< 5.0	33	33	23	23	100	110	82	110	170	160	-	-	11	11
Beryllium (diss.filt)	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Cadmium (diss.filt)	-	-	0.11	0.12	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	0.21	< 0.11	< 0.11	< 0.11	< 0.11	0.14	< 0.11	< 0.11	< 0.11
Chromium (diss.filt)	-	-	19	21	0.80	0.88	< 0.50	0.56	0.7	0.69	< 0.50	< 0.50	2.7	3.9	< 0.50	< 0.50	< 0.50	< 0.50	6.1	6.2
Copper (diss.filt)	-	-	1.9	2.5	31.00	31.00	0.86	0.57	2	6.9	0.67	1.2	5.3	5.1	< 0.50	< 0.50	1.7	0.73	2.4	3.3
Iron (diss.)	-	-	65000	62000	730.00	610.00	210	< 5.0	680	50	1700	4100	46000	63000	2800	1800	-	-	260	260
Mercury (diss.filt)	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese (diss.filt)	-	-	1700	1800	2.00	1.00	300	92	860	580	1600	1600	2500	2600	4100	4000	-	-	58	47
Molybdenum (diss.filt)	-	-	0.66	2.2	11.00	11.00	0.44	0.38	< 0.20	< 0.20	< 0.20	< 0.20	0.51	0.41	0.42	0.59	-	-	< 0.20	< 0.20
Nickel (diss.filt)	-	-	68	70	14.00	14.00	2	1.2	1.9	9.7	2.7	3.4	10	9.4	3.0	3.9	11	9.4	1.3	1.3
Lead (diss.filt)	-	-	4	4.7	0.87	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1	2.4	2.9	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Antimony (diss.filt)	-	-	2.5	2.4	0.74	0.70	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.58	0.6	< 0.50	< 0.50	-	-	< 0.50	< 0.50
Selenium (diss.filt)	-	-	2.4	< 0.50	8.60	8.80	< 0.50	< 0.50	< 0.50	< 0.50	1.4	1.3	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Zinc (diss.filt)	-	-	130	170	3.70	< 2.5	9.8	9.1	15	14	20	29	80	110	< 2.5	< 2.5	48	37	4.0	6.7
Iron (Total)	4100	3800	-	-	-	-	210	< 5.0	720	140			-	-	2800	1800	20	2100	-	-
Manganese (Total)	14000	14000	-	-	-	-	300	92	880	580			-	-	4100	4000	8900	8400	-	-
Manganese [II]	1100	2200	-	-	-	-	39	51	200	56			-	-	400	430	1200	2600	-	-
Manganese [IV]	13000	12000	-	-	-	-	260	40	660	520			-	-	3700	3600	7700	5800	-	-
Iron [II]	< 20	< 20	-	-	-	-	< 20	< 20	< 20	40			-	-	50	60	< 20	20	-	-
Iron [III]	4100	3800	-	-	-	-	220	< 20	670	< 20			-	-	2800	1700	21	2000	-	-
Chromium III (diss.filt)	-	-	< 20	21	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	[B] < 20	[B] < 20	< 20	< 20	-	-	< 20	< 20
Chromium VI (diss.filt)	-	-	< 0.10	< 0.10	< 0.10	0.34	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	[B] < 0.10	[B] < 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
Phenols																				
Phenols, Total			1.3	1.2	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
TPH																				
TPH >C6-C8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-
TPH >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-
TPH >C10-C12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-
TPH >C12-C16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-
TPH >C16-C21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.10	< 0.10	-	-
TPH >C21-C25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	93	39	-	-
TPH >C25-C35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	680	320	-	-
TPH >C35-C40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	10	-	-
Total TPH >C6-C40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	800	370	-	-
Speciated TPH																				
Aliphatics																				
EC C5-C6	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C6-C8	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C8-C10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C10-C12	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C12-C16	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C16-C21	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C21-C35	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C35-C44	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
Total Aliphatics >C5-C35	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	-	-	< 5.0	< 5.0
Aromatics																				
EC C5-C7	< 0.10	330	37	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C7-C8	**620**	**790**	81	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C8-C10	< 0.10	150	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C10-C12	**1900**	**3700**	190	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C12-C16	370	730	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C16-C21	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C21-C35	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
EC>C35-C44	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	-	-	< 0.10	< 0.10
Total Aromatics >EC5-EC35	2900	5700	310	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	-	-	< 5.0	< 5.0
otal Aliphatics & Aromatics >C5-3	2900	5700	310	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	-	-	< 10	< 10
BTEX/MTBE/GRO																				
GRO >C5-C12																				
Benzene	**1400**	**1700**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Toluene	**370**	**440**	71	61	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Ethylbenzene	**320**	**360**	31	29	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
p/m-Xylene	74	69	62	60	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
o-Xylene	49	45	24	21	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Sum of detected Xylenes	123	114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum of detected BTEX	2213	2614																		
PCBs																				
PCB congener 81	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
PCB congener 77	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
PCB congener 105	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
PCB congener 114	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
PCB congener 123	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
PCB congener 126	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
PCB congener 156	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
PCB congener 157	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
PCB congener 167	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
PCB congener 169	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
PCB congener 189	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
Total PCBs (12 Congeners)	-	-	-	-	< 0.010	< 0.010	-	< 0.010	-	< 0.010	-	-	-	-	-	-	-	-	-	-
Polyaromatic Hydrocabons																				
Naphthalene (aq)	-	-	< 0.010	< 0.010	0.58	0.49	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.32	0.27	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)anthracene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(b)fluoranthene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(k)fluoranthene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(a)pyrene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-cd)pyrene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenzo(a,h)anthracene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo(g,h,i)perylene (aq)	-	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PAH, Total Detected USEPA 16	-	-	< 0.20	< 0.20	0.58	0.49	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.32	0.27	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
INORGANICS																				
Dissolved Organic Carbon	-	-	41	37	180	210	3.5	3.8	4.5	11	160	160	120	26	87	78	-	-	23	22
Total Inorganic Carbon	220	220	-	-	-	-	96	94	70	82			-	-	110	98	130	130	-	-
Total Organic Carbon	240	250	-	-	-	-	3.4	3.4	4.5	3.5			-	-	86	78	120	110	-	-
Dissolved Methane	< 0.050	< 0.050	-	-	-	-	< 0.050	< 0.050	< 0.050	< 0.050			-	-	1.8	1.3	0.11	0.41	-	-
pH	-	-	6.8	6.8	7.4	7.5	7.5	7.6	7.1	6.8	7.2	7.1	6.5	6.5	7.7	7.9	7.9	7.9	8.1	8.1
Dissolved CO2	500	170	-	-	-	-	28	22	49	110					17	9.8	15	13		-
Alkalinity (Total)	910	910	3000	2900	880	940	400	390	290	340	620	570	980	930	460	410	530	530	78	80
Chloride	-	-	450	440	25	41	15	16	24	29	44	43	47	44	37	34	-	-	22	23
Ammonia (Free)	-	-	1.4	1.3	0.13	0.29	< 0.050	< 0.050	< 0.050	< 0.050	0.19	0.14	0.12	0.1	0.23	0.24	-	-	< 0.050	< 0.050
	-	-	-	-	11	23	-	-	-	-			-	-	-	-	-	-	-	-
Ammonium	-	-	500	490	0.22	0.17	0.65	1.6	8.3	15	30	28	89	73	9.7	6.6	-	-	0.31	0.38
Ammoniacal Nitrogen	-	-	-	-	< 0.50	0.6	-	-	-	-			-	-	-	-	7.8	9.3	-	-
Nitrite	< 0.020	< 0.020	< 0.020	< 0.020	11	11	< 0.020	< 0.020	< 0.020	0.042	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.068	0.12	0.056	0.060
Nitrate	< 0.50	< 0.50	< 0.50	< 0.50	< 0.0050	< 0.0050	< 0.50	0.91	3.5	5	< 0.50	< 0.50	0.5	0.99	< 0.50	< 0.50	< 0.50	< 0.50	8.4	8.4
Sulphate	30	31	89	< 1.0	-	-	31	33	110	97	21	19	9.3	7.6	42	45	20	17	13	14
Cyanide (Total) Low-Level	-	-	< 0.0050	< 0.0050	-	-	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0090	0.011	< 0.0050	< 0.0050	0.0060	0.0060
Sulphide	< 0.050	< 0.050	-	-	-	-	< 0.050	< 0.050	< 0.050	< 0.050	-	-	-	-	< 0.050	< 0.050	< 0.050	< 0.050	-	-
Calcium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	25
Potassium	-	-	160	170	87	88	6.2	6.2	8.5	7.8	30	29	37	36	10	8.1	-	-	2.2	2.3
Magnesium	-	-	68	71	0.85	0.54	14	13	6.8	6.6	16	15	29	29	17	16	-	-	4.7	4.7
Sodium	-	-	310	310	240	240	10	9.3	13	12	29	29	51	49	28	25	-	-	11	11

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

__Notes:__

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH,

	DUP2	**BH646**	**DUP3**	**BH647A**
VOC's				
Dichlorodifluoromethane	< 0.10	< 0.10	< 0.10	< 0.10
Chloromethane	< 0.10	< 0.10	< 0.10	< 0.10
Vinyl chloride	< 0.10	< 0.10	< 0.10	< 0.10
Bromomethane	< 2.0	< 2.0	< 2.0	< 2.0
Chloroethane	< 0.20	< 0.20	< 0.20	< 0.20
Trichlorofluoromethane	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethene	< 0.10	< 0.10	< 0.10	< 0.10
trans-1,2-Dichloroethene	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethane	< 0.10	< 0.10	< 0.10	< 0.10
cis-1,2-Dichloroethene	< 0.10	< 0.10	< 0.10	< 0.10
Bromochloromethane	< 0.50	< 0.50	< 0.50	< 0.50
Trichloromethane	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1-Trichloroethane	< 0.10	< 0.10	< 0.10	< 0.10
Tetrachloromethane	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloropropene	< 0.10	< 0.10	< 0.10	< 0.10
Benzene	< 1.0	< 1.0	< 0.10	< 0.10
1,2-Dichloroethane	< 0.20	< 0.20	< 0.20	< 0.20
Trichloroethene	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane	< 0.10	< 0.10	< 0.10	< 0.10
Dibromomethane	< 0.10	< 0.10	< 0.10	< 0.10
Bromodichloromethane	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	71	61	< 0.10	< 0.10
trans-1,3-Dichloropropene	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichloropropane	< 0.20	< 0.20	< 0.20	< 0.20
Dibromochloromethane	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1,2-Tetrachloroethane	< 0.20	< 0.20	< 0.20	< 0.20
Ethylbenzene	31	29	< 0.10	< 0.10
m,p-Xylene	62	60	< 1.0	< 1.0
o-Xylene	24	21	< 1.0	< 1.0
Styrene	< 0.10	< 0.10	< 0.10	< 0.10
Tribromomethane	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	< 0.10	< 0.10	< 0.10	< 0.10
Bromobenzene	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichloropropane	< 5	< 5	< 5	< 5
N-Propylbenzene	< 0.10	< 0.10	< 0.10	< 0.10
2-Chlorotoluene	< 0.10	< 0.10	< 0.10	< 0.10
1,3,5-Trimethylbenzene	< 0.10	< 0.10	< 0.10	< 0.10
4-Chlorotoluene	< 0.10	< 0.10	< 0.10	< 0.10
tert-Butylbenzene	< 0.10	< 0.10	< 0.10	< 0.10
1,2,4-Trimethylbenzene	13	13	< 0.10	< 0.10
sec-Butylbenzene	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichlorobenzene	< 0.10	< 0.10	< 0.10	< 0.10
4-iso-Propyltoluene	< 0.10	< 0.10	< 0.10	< 0.10
1,4-Dichlorobenzene	< 0.10	< 0.10	< 0.10	< 0.10
n-Butylbenzene	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichlorobenzene	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dibromo-3-chloropropane	< 5	< 5	< 5	< 5
1,2,4-Trichlorobenzene	< 0.10	< 0.10	< 0.10	< 0.10
Hexachlorobutadiene	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichlorobenzene	< 0.20	< 0.20	< 0.20	< 0.20
Methyl tertiary butyl ether (MTBE)	< 1.0	< 1.0	< 0.10	< 0.10

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2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard
6. Irish Drinking Water Standard

	DUP2	BH646	DUP3	BH647A
SVOC's				
N-Nitrosodimethylamine	< 0.050	< 0.050	< 0.050	< 0.050
Phenol	< 0.050	< 0.050	< 0.050	< 0.050
2-Chlorophenol	< 0.050	< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	< 0.050	< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylphenol (o-Cresol)	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	< 0.050	< 0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	< 0.050	< 0.050	< 0.050	< 0.050
4-Methylphenol	< 0.050	< 0.050	< 0.050	< 0.050
Nitrobenzene	< 0.050	< 0.050	< 0.050	< 0.050
Isophorone	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitrophenol	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol	< 0.050	< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloroaniline	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	< 0.050	< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	< 0.050	< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitroaniline	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene	< 0.050	< 0.050	< 0.050	< 0.050
Dimethylphthalate	< 0.050	< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	< 0.050	< 0.050	< 0.050	< 0.050
3-Nitroaniline	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzofuran	< 0.050	< 0.050	< 0.050	< 0.050
4-Chlorophenylphenylether	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene	< 0.050	< 0.050	< 0.050	< 0.050
Diethyl Phthalate	**3.3**	< 0.050	< 0.050	< 0.050
4-Nitroaniline	< 0.050	< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	< 0.050	< 0.050	< 0.050	< 0.050
Azobenzene	< 0.050	< 0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene	< 0.050	< 0.050	< 0.050	< 0.050
Anthracene	< 0.050	< 0.050	< 0.050	< 0.050
Carbazole	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate	**1.3**	< 0.050	< 0.050	< 0.050
Fluoranthene	< 0.050	< 0.050	< 0.050	< 0.050
Pyrene	< 0.050	< 0.050	< 0.050	< 0.050
Butylbenzyl Phthalate	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]anthracene	< 0.050	< 0.050	< 0.050	< 0.050
Chrysene	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[k]fluoranthene	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]pyrene	< 0.050	< 0.050	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	< 0.050	< 0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene	< 0.050	< 0.050	< 0.050	< 0.050
Methyl parathion	< 0.0075	< 0.0075		
4-Nitrophenol	< 0.050	< 0.050	< 0.050	< 0.050

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard *Total PAH = Sum of 4:- Benzo(b) & (k)fluoranthene Indeno(123cd)pyrene Benzo(ghi)perylene
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water,

Sample Point / Determinands	TSV	DUP2	BH646
	ug/l		
Demeton-O		< 0.20	< 0.20
Phorate		< 0.20	< 0.20
Demeton-S		< 0.20	< 0.20
Disulfoton		< 0.20	< 0.20
Fenthion		< 0.20	< 0.20
Trichloronate		< 0.20	< 0.20
Prothiofos		< 0.20	< 0.20
Fensulphothion		< 0.20	< 0.20
Sulprofos		< 0.20	< 0.20
Azinphos-Methyl		< 0.20	< 0.20
Coumaphos		< 0.20	< 0.20
Parathion		< 0.20	< 0.20
Diazinon	0.1 (AA)(1&2), 0.02 (95%ile) (1), 0.26 (95%ile)(2)	< 0.50	< 0.50
Ethion		< 0.50	< 0.50
Dichlorvos	0.0006 (AA)(1), 0.0007(MAC)(1), 0.00006(AA)(2), 0.00007)MAC)(2)	< 0.50	< 0.50
Mevinphos		< 0.20	< 0.20
Fenitrothion		< 0.20	< 0.20
Malathion		< 0.20	< 0.20
Alpha-HCH		< 0.020	< 0.020
Gamma-HCH (Lindane)		< 0.020	< 0.020
Beta-HCH		< 0.020	< 0.020
Delta-HCH		< 0.020	< 0.020
Heptachlor		< 0.020	< 0.020
Aldrin		< 0.020	< 0.020
Heptachlor Epoxide		< 0.020	< 0.020
Gamma-Chlordane		< 0.020	< 0.020
Alpha-Chlordane		< 0.020	< 0.020
Endosulfan I		< 0.020	< 0.020
4,4-DDE		< 0.020	< 0.020
Dieldrin		< 0.020	< 0.020
Endrin		< 0.020	< 0.020
4,4-DDD		< 0.020	< 0.020
Endosulfan II		< 0.020	< 0.020
Endrin Aldehyde		< 0.020	< 0.020
4,4-DDT		< 0.020	< 0.020
Endosulfan Sulphate		< 0.020	< 0.020
Methoxychlor		< 0.020	< 0.020
Endrin Ketone		< 0.020	< 0.020

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
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4. Freshwater EQS (AA)
5. UK Drinking Water Standard *Total PAH = Sum of 4:- Benzo(b) & (k)fluoranthene Indeno(123cd)pyrene Benzo(ghi)perylene
6. Irish Drinking Water Standard

APPENDIX 13 – MPRT EMP'S HISTORICAL DATA REVIEW SUMMARY

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH02																									
HEAVY METALS	**µg/l**		20/07/2016	27/09/2016	10/07/2017	02/08/2017	18/10/2017	10/01/2018	12/01/2018	11/04/2018	17/04/2018	26/06/2018	27/06/2018	01/10/2018	03/10/2018	07/01/2019	09/01/2019	09/04/2019	11/04/2019	04/07/2019	05/07/2019	15/10/2019	31/10/2019	17/02/2020	19/02/2020	13/10/2020	21/04/2021	20/07/2021
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**					6.06	5.84		10.00		10.00		10.00		10.00		10.00		10.00		10.00	10.00			10.00	10.00	37.60	24.58
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**					0.125	0.025		**1**		**1**		**1**		**1**		**1**		**1**		**1**	**1**			**1**	**1**	0.025	0.025
Chromium (diss.filt)	**50 (5)**					0.317	0.344		2.5		2.5		2.5		2.5		2.5		0.617		2	1.5			0.73	0.40	0.48	0.51
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**				0.125	0.125		14.2		18.4		10.2		19.5		29.3		29.9		23.3	29.8			13.4	5.57	0.125	0.25
Iron (diss.)	**1000 (AA) (1&2)**					**21800**	**25400**		**22600**		**24400**		**32700**		**37800**		**48100**		**56600**		**58700**	**45600**			**50500**	**8565**	**49700**	**29900**
Mercury (diss.filt)	**0.07 MAC (1&2)**					0.0025	0.0025		0.0025		0.0025		0.0025		0.0025		0.0025		0.0025		0.0025	0.0025			0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**				**5770.0**	**6210.0**		**6040.0**		**3530.0**		**2930.0**		**2890.0**		**3290.0**		**3200.0**		**2910.0**	**2010.0**			**1380.0**	**1022.9**	**877.0**	**707.5**
Molybdenum (diss.filt)	**70 (8) ?**																											
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**				13.2	14.3		**19.4**		**19.5**		**15.9**		14.9		**17.4**		**18.8**		**18.3**	**22.6**			**19**	**16.5**	**21.6**	**21.8**
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**				0.125	0.125		**10**		**10**		**10**		**10**		**10**		**10**		**10**	**10**			**10**	**10**	0.125	0.025
Antimony (diss.filt)	**5 (5)**																											
Selenium (diss.filt)	**10(5)**	**10**				2.83	4.61												0.5		0.5	0.5			0.5	0.344	0.49	0.36
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**				2.5	1.09		4.12		4.1		3.89		4.42		6.78		7.32		8.03	6.5			6.88	2.36	1.22	1.22
Iron (Total)						57700	64100	41200		50300		76900															65500	66100
Manganese (Total)						6030	6200	5940		3710		3280															907	775
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**																		0.31		1.00	0.75			0.37	0.40	0.48	0.51
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**																		0.025		0.025	0.025			0.025	0.025	0.025	0.025
Aluminium (diss.filt)						50	50		20		20		20		20		20		20		43	20			20	20	20	20
Vanadium (diss.filt)						0.125	0.125																			0.30	0.62	0.55
Phenols	**ug/l**																											
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**				1.25			22.50		22.50		22.50				22.50		22.50					22.50	22.50		**240.00**	22.50	22.50
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	**15000 (7)**							10		10		10				10		10		10			10	10		10	10	10
EC>C6-C8	**15000 (7)**							12.5		12.5		12.5				12.5		12.5		12.5			12.5	12.5		12.5	12.5	12.5
EC>C8-C10	**300 (7)**							7.5		7.5		7.5				7.5		7.5		7.5			7.5	7.5		7.5	7.5	7.5
EC>C10-C12	**300 (7)**							5		5		5						5					5	5				
EC>C12-C16	**300 (7)**							5		5		5						5					5	5				
EC>C16-C21								5		5		5						5					5	5				
EC>C21-C35								5		5		5						5					5	5				
EC>C35-C44								5		5		5						5					5	5				
Aromatics																												
EC C5-C7	**10 (7)**							1		1		1				1		1		4.1			2.7	2.08		2.25	3.534	2.796
EC>C7-C8	**700 (7)**							2.5		2.5		2.5				2.5		2.5		2.5			2.5	2.5		2.5	2.5	2.5
EC>C8-C10	**300 (7)**							25		25		25				25		25										
EC>C10-C12	**90 (7)**									5		5						60					15	5				
EC>C12-C16	**90 (7)**									5		5						**180**					5	5				
EC>C16-C21	**90 (7)**									5		5						**220**					5	5				
EC>C21-C35	**90 (7)**									5		5						**170**					5	5				
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**				3			3.7		3.2		2.76				3.76		0.5		4.1			2.7	2.08		2.25	3.43	2.72
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**				0.5			0.5		0.5		0.5				0.5		0.5		0.5			0.5	0.5		0.5	0.5	0.5
Ethylbenzene	**300 (8)**				0.5			0.5		0.5		0.5				0.5		0.5		0.5			0.5	0.5		0.5	0.5	0.5
p/m-Xylene					0.5			1		1		1				1		1		1			1	1		1	1	1
o-Xylene					0.5			0.5		0.5		0.5				0.5		0.5		0.5			1	0.5		0.5	0.5	0.5
Sum of detected Xylenes	**500 (8)**																			1.5			1.5	1.5		1.5	1.5	1.5
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**				0.5			0.302		0.276		0.153				0.004		0.089		0.125			0.8198	0.817		0.01	1.291	0.048
Acenaphthylene (aq)	**-**							0.046		0.008		0.03				0.003		0.037		0.058			0.2003	0.022		0.016		0.005
Acenaphthene (aq)	**-**							0.488		0.132		0.056				0.014		0.245		0.312			1.267	0.396		0.009	0.242	0.061
Fluorene (aq)	**-**							0.083		0.042		0.086				0.02		0.13		0.155			0.518	0.099		0.014	0.12	0.054
Phenanthrene (aq)	**-**							0.071		0.039		0.029				0.021		0.056		0.072			0.315	0.166		0.062	0.637	0.039
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**							0.02		0.013		0.005				0.009		0.013		0.011			0.02	0.0025		0.0025	0.014	0.026
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**							0.028		0.022		0.008				0.013		0.021		0.036			0.094	0.038		0.028	0.315	0.015
Pyrene (aq)	**-**							0.024		0.021		0.009				0.012		0.018		0.033			0.083	0.039		0.019	0.106	0.014
Benzo(a)anthracene (aq)	**-**							0.0005		0.0005		0.0005				0.0005		0.002		0.012			0.018	0.004		0.003	0.002	0.022
Chrysene (aq)	**-**							0.0005		0.0005		0.0005				0.0005		0.003		0.012			0.018	0.009		0.005	0.006	0.028
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**							0.0005		0.01		0.0005						0.002		**0.027**			**0.021**	0.003		0.003	0.002	**0.028**
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**							0.0005		0.01		0.0005						0.0005		**0.023**			**0.021**	0.004		0.002	0.002	**0.035**
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**							0.001		0.001		0.001				0.001		0.001		**0.009**			**0.011**	**0.004**		**0.004**	0.001	**0.05**
Indeno(1,2,3-cd)pyrene (aq)	**-**							0.0005		0.0005		0.0005				0.006		0.003		0.003			0.025	0.002		0.003	0.001	0.037
Dibenzo(a,h)anthracene (aq)	**-**							0.002		0.002		0.002				0.002		0.002		0.004			0.002	0.005		0.002	0.002	0.014
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**							0.001		0.001		0.001				0.005		0.002		0.002			0.03	0.001		0.002	0.001	0.023
INORGANICS	**mg/l**																											
Dissolved Organic Carbon			35	44		31.5	33.6	38.1		61.5		37.8		35.1		35.1		38.5		51			57	32.8		40.2	66.8	
pH	**6 - 9 (2&4)**		7.1	6.9		6.9	7.6	6.8		6.8		7.3		6.9		7		7		7			6.9	7.3		6.9	6.8	7.1
Alkalinity (Total)			930	960		933	917	1040		1129		946		869		918		995		1100			1222	890		916	1340	1138
Chloride	**250 (5)**		150	170		150	155	172		168		152		148		161		150		92			155	138		147	156	161
Ammoniacal Nitrogen			0.084	0.093		47.8	55	52		57.4		52		50		54		84		62			70.34	52.9		36.99	62.78	71.94
Nitrite			0.02	0.01		0.025	0.005	0.009		0.0025		0.046		0.006		0.016		0.01		0.01			0.01	0.01		0.01	0.01	0.01
Nitrate	**50 (5)**		0.25	0.25		0.03	0.03	0.03		0.03		0.03		0.03		0.03		0.15		0.125			0.125	0.125		0.125	0.125	0.125
Sulphate	**250 (5)**					4.16	3.87		5.6		7.1		5.12		4.54		12.5		9.35		5.8	6.48			4.92	5.43	6.51	6.51
Sulphide																												
Calcium						206	199		220		227		203		170		190		194		215	226			155	181	284	232
Potassium						55	54.5		60.7		64.8		62.3		59.6		61.4		62.5		68.4	74.9			59.5	62.67	71.17	71.69
Magnesium						36.6	37.4		44.6		49.2		38.9		36.9		40.7		42.3		52	56.5			39.9	42.81	59.71	52.30
Sodium	**200(5)**					136	134		146		164		138		124		129		132		156	168			124	128.99	145.70	175.00
Biochemical Oxygen Demand							3.8	4.4		4.5		2.5		3		2.5		2.5		7.5			7.1	4.2		4.40	8.30	5.30
Chemical Oxygen Demand							124	112		180		45		99		44		45		174			40	107		48.00	184.00	45.00
Conductivity						2198	2161	2530		2598		2150		2119		2200		2310		2590			2700	2090		2250	2952	2645
Total Oxidisable Nitrogen						0.03	0.03	0.03		0.03		0.03		0.03		0.03		0.15		0.15			0.15	0.15		0.15	0.15	0.15
Total Phosphorus							0.125	0.36		0.73		0.125		0.125		0.125		0.125		0.125			0.125	0.125		0.125	0.125	0.31

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4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)			BH04																							
HEAVY METALS	µg/l		26/10/2021	02/02/2022	20/07/2016	09/08/2016	27/09/2016	09/01/2017	11/01/2017	06/03/2017	08/03/2017	20/07/2017	15/08/2017	31/08/2017	19/10/2017	12/01/2018	22/02/2018	17/04/2018	27/06/2018	03/07/2018	03/10/2018	17/10/2018	19/10/2018	09/01/2019	14/01/2019	11/04/2019	30/04/2019	05/07/2019
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		13.31	22.27					12.50			8.30			7.81	10.00		10.00	10.00		10.00			10.00		10.00		10.00
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025	0.025					5.000			0.125			0.025	1.000		1.000	1.000		1.000			1.000		1.000		1.000
Chromium (diss.filt)	50 (5)		0.41	0.48					12.500			0.502	1.490	1.490	0.663	6.430		8.170	2.500		2.500			2.500		2.740		1.600
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	0.125	0.125					10.000			0.426			0.361	7.770		2.500	2.500		2.500			5.049		2.500		2.500
Iron (diss.)	1000 (AA) (1&2)		27300	33246					9670			6200			4870	13500		6600	8460		8570			9000		6270		6520
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025					0.0025			0.0025			0.0025	0.0025		0.0025	0.0025		0.0025			0.0025		0.0025		0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	586.8	663.7					16100			19600			18400	17600		21000	18700		17500			18300		19800		18500
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	21.4	20.4					38.40			36.50			43.20	46.90		46.90	42.30		52.60			47.70		48.80		45.10
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.125	0.125					12.5			0.125			0.125	10		10	10		10			10		10		10
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10	0.35	0.373								3.30	0.10	0.10	6.75											0.50		0.50
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	0.5	0.5					10.00			1.91			1.44	4.11		3.42	3.60		3.21			3.57		3.20		3.49
Iron (Total)			45000	61100					13100		15300	11500			16100		17000	11200		10200								
Manganese (Total)			569	740					20200		22300	19600			18200		17900	20900		18100								
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.41	0.48																						1.37		0.80
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025	0.025									0.025	0.025												0.025		0.025
Aluminium (diss.filt)			20	20					50			50			50	20		20	20		20			20		20		20
Vanadium (diss.filt)			0.37	0.48								0.125			0.308													
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		480.00	22.50				1.25		13.00		3.00					22.50	22.50		22.50			22.50		22.50		22.50	
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)		10	10				25		25			10	10			10	10		10			10		10		10	
EC>C6-C8	15000 (7)		12.5	12.5				30		30			12.5	12.5			12.5	12.5		12.5			12.5		12.5		12.5	
EC>C8-C10	300 (7)		7.5	7.5				0.05		0.05			7.5	7.5			7.5	7.5		7.5			7.5		7.5		7.5	
EC>C10-C12	300 (7)							3.5									5	5		5			60		70		60	
EC>C12-C16	300 (7)							5		25							5	5		5			5		5		5	
EC>C16-C21								2.5		221							5	5		5			5		5		5	
EC>C21-C35								10		50							5	5		5			5		10		5	
EC>C35-C44								2.5		15							5	5		5			5		10		5	
Aromatics																												
EC C5-C7	10 (7)		2.506	2.55				0.025		0.025			1	1			1	1		1			1		1		1	
EC>C7-C8	700 (7)		2.5	2.5				0.025		0.025			2.5	2.5			2.5	2.5		2.5			2.5		2.5		2.5	
EC>C8-C10	300 (7)							0.025					25	25			25	25		25			25		25		25	
EC>C10-C12	90 (7)							3.5									5	5		5			60		70		60	
EC>C12-C16	90 (7)							3		15							5	5		5			170		190		140	
EC>C16-C21	90 (7)							15		100							5	5		5			190		250		200	
EC>C21-C35	90 (7)							15		100							5	5		5			5		170		100	
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		2.463	2.46				5.00		2.00		0.50	0.50	0.50			0.50	0.50		0.50			1.58		0.50		0.50	
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.5	0.5				5.00		2.00		0.50	0.50	0.50			0.50	0.50		0.50			0.50		0.50		0.50	
Ethylbenzene	300 (8)		0.5	0.5				5.00		2.00		0.50	0.50	0.50			0.50	0.50		0.50			0.50		0.50		0.50	
p/m-Xylene			1	1				5.00		2.00		0.50	1.00	1.00			1.00	1.00		1.00			1.00		1.00		1.00	
o-Xylene			0.5	0.5				5.00		2.00		0.50	0.50	0.50			0.50	0.50		0.50			0.50		0.50		0.50	
Sum of detected Xylenes	500 (8)		1.5	1.5																								
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.068	0.217								0.500	0.015	0.015			0.004	0.038		0.021			0.528		0.054		0.059	
Acenaphthylene (aq)	-		0.009	0.03									0.015	0.015			0.002	0.013		0.006			0.107		0.009		0.058	
Acenaphthene (aq)	-		0.058	0.0158									0.001	0.001			0.001	0.014		0.007			0.132		0.010		0.017	
Fluorene (aq)	-		0.099	0.089									0.002	0.002			0.002	0.020		0.011			0.125		0.024		0.012	
Phenanthrene (aq)	-		0.026	0.085									0.003	0.003			0.003	0.003		0.007			0.036		0.024		0.008	
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.017	0.014									0.003	0.003			0.003	0.003		0.003			0.005		0.006		0.003	
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.017	0.046									0.019	0.019			0.001	0.022		0.019			0.080		0.028		0.022	
Pyrene (aq)	-		0.012	0.037									0.027	0.027				0.027		0.026			0.178		0.046		0.032	
Benzo(a)anthracene (aq)	-		0.0005	0.007									0.001	0.001			0.001	0.001		0.001			0.001		0.001		0.001	
Chrysene (aq)	-		0.002	0.01									0.001	0.001			0.001	0.001		0.001			0.001		0.001		0.001	
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.0005	0.008									0.001	0.001			0.001	0.001		0.001			0.001				0.001	
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.0005	0.006									0.001	0.001			0.001	0.001		0.001			0.001				0.001	
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		0.001	0.01									0.001	0.001			0.001	0.001		0.001			0.012		0.126		0.001	
Indeno(1,2,3-cd)pyrene (aq)	-		0.002	0.01									0.001	0.001			0.001	0.001		0.001			0.001		0.011		0.001	
Dibenzo(a,h)anthracene (aq)	-		0.002	0.002									0.002	0.002			0.002	0.002		0.002			0.002		0.017		0.002	
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.001	0.007									0.001	0.001			0.001	0.001		0.001			0.003		0.013		0.001	
INORGANICS	mg/l																											
Dissolved Organic Carbon			56.6	52.8	170	100	93		34		38.2	28.7			45.7		38.3	36.3		33.4		42.5			37.9		38.7	
pH	6 - 9 (2&4)		7.1	6.8	7.7	7.2	6.9				7.6	6.9			7.1		6.8	7.5		6.9		7.2			6.8		7.5	
Alkalinity (Total)			1080	1033	1100	1500	1700		991		1124	957			1157		1119	1030		993		1185			1119		1060	
Chloride	250 (5)		666	159	330	310	400		216		225	177			238		223	222		204		247			219		235	
Ammoniacal Nitrogen			1.92	66.46	2.5	1.2	0.87		49		62	58			69		61	65		63		71			65		67	
Nitrite			0.01	0.01	0.047	0.01	0.87		0.009		0.028	0.027			0.0025		0.0025	0.016		0.0025		0.0025			0.0025		0.01	
Nitrate	50 (5)		0.125	0.125	0.25	0.25	400		0.03		0.03	0.03			0.03		0.03	0.03		0.03		0.03			0.03		0.15	
Sulphate	250 (5)		6.31	6.28								24.90			30.10	31.10		23.10	22.40		27.30			27.00		23.00		21.10
Sulphide																												
Calcium			210	209					207.00			185.00			210.00	222.00		181.00	179.00		216.00			211.00		183.00		187.00
Potassium			69.29	70.16					53.90			54.60			70.90	64.90		59.30	59.10		70.20			60.90		74.10		61.90
Magnesium			50.04	50.40					54.00			51.20			68.30	60.80		53.10	54.00		67.20			60.90		62.80		54.30
Sodium	200(5)		173.00	164.00					166.00			153.00			199.00	194.00		187.00	171.00		212.00			182.00		195.00		172.00
Biochemical Oxygen Demand			12.00	4.50											2.5		13.5	2.5		2.5		2.5			2.7		2.5	
Chemical Oxygen Demand			422.00	50.00											156		106	102		92		104			98		101	
Conductivity			7280	2510								2353			2959		2803	2604		2505		2900			2760		2600	
Total Oxidisable Nitrogen			0.15	0.15					0.03		0.03	0.03			0.03		0.03	0.03		0.03		0.03			0.03		0.15	
Total Phosphorus			0.37	0.125											0.125		0.125	0.125		0.125		0.125			0.125		0.125	

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																										
HEAVY METALS	**µg/l**		17/07/2019	15/10/2019	23/10/2019	19/02/2020	25/02/2020	27/02/2020	27/07/2020	30/07/2020	26/08/2020	05/10/2020	23/11/2020	17/02/2021	14/04/2021	02/08/2021	02/11/2021	27/01/2022	20/07/2016	09/08/2016	19/07/2017	20/07/2017	15/08/2017	31/08/2017	24/10/2017	27/06/2018	03/07/2018	03/10/2018
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			10.00		10.00				10.00	7.72	10.00	10.60	7.04	8.89	6.97	7.05	6.39			8.91				10.70	10.00		21.60
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l			**1.000**		**1.000**				**1.000**	0.025	**1.000**	0.025	0.025	0.025	0.025	0.025	0.025			0.125				0.025	**1.000**		**1.000**
Chromium (diss.filt)	50 (5)			0.910		1.500				5.890	0.604	0.570	0.735	0.690	0.864	0.633	0.885	0.730			0.125		0.731	0.731	0.125	2.500		2.500
Copper (diss.filt)	1 (AA) bioavailable $^{(see\ Note\ 1)}$ (1) $^{(see\ Note\ 4)}$ (2)	34.94		2.500		2.500				2.500	0.414	2.500	0.339	0.307	0.774	0.500	0.411	0.287			0.125				0.500	2.500		2.500
Iron (diss.)	1000 (AA) (1&2)			**6930**		**17200**				58	**7213**	260	**8945**	**5881**	**4809**	**5628**	**1891**	714			600				736	20		
Mercury (diss.filt)	0.07 MAC (1&2)			0.0025		0.0025				0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025							0.0025	0.0025		0.0025
Manganese (diss.filt)	123 (AA) ($^{see\ note\ 1}$)	276.92		**16800**		**17200**				**16500**	**16800**	**17233**	**16300**	**16600**	**17900**	**16500**	**18000**	**18400**			**10800**				**10300**	**3950**		**5060**
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{(see\ note\ 5)}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		**52.90**		**54.20**				**51.90**	**47.00**	**47.65**	**57.10**	**52.70**	**58.28**	**49.80**	**55.10**	**55.30**			12.30				**16.50**	6.96		7.13
Lead (diss.filt)	1.2$^{(see\ note\ 5)}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		**10**		**10**				**10**	0.125	**10**	0.125	0.125	0.125	0.125	0.125	0.125			0.125				0.125	**10**		**10**
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10		0.50		0.50				6.91	0.37	0.24	0.38	0.32	0.42	0.27	0.43	0.31			0.39		0.10	0.10	0.46			
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{(see\ Note\ 2)}$	37.15		6.29		3.86				2.20	0.50	2.07	1.47	1.48	2.49	1.67	0.50	1.02			0.50				0.50	1.00		3.76
Iron (Total)													11654	7899	9600	13700	15600	9961			69100				108000		3420	
Manganese (Total)													16900	16800	17900	17900	17000	19900			11500				12400		4050	
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)			0.46		0.75				0.60	0.60	0.57	0.74	0.69	0.82	0.63	0.88	0.71										
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)			0.025		0.025				0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025					0.025	0.025				
Aluminium (diss.filt)				20		20				20	20	20	20	20	20	20	20	20			50				50	20		20
Vanadium (diss.filt)											0.298	0.125	0.602	0.125	0.659	0.125	0.436	0.279			0.125				0.125			
Phenols	**ug/l**																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		**50.00**		22.50		**100.00**					22.50				22.50	22.50	**300.00**				**10.00**					22.50	
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	15000 (7)		10		10		10	10			10	10				10	10	10					10	10			10	
EC>C6-C8	15000 (7)		12.5		12.5		12.5	12.5			12.5	12.5				12.5	12.5	12.5					12.5	12.5			12.5	
EC>C8-C10	300 (7)		7.5		7.5		7.5	7.5			7.5	7.5				7.5	7.5	7.5					7.5	7.5			7.5	
EC>C10-C12	300 (7)		80		5		5																				5	
EC>C12-C16	300 (7)		5		5		5																				5	
EC>C16-C21			5		5		5																				5	
EC>C21-C35			5		5		5																				5	
EC>C35-C44			5		5		5																				5	
Aromatics																												
EC C5-C7	10 (7)		1		1		5.64	1			1	1				1	1	1					1	1			1	
EC>C7-C8	700 (7)		2.5		2.5		2.5	2.5			2.5	2.5				2.5	2.5	2.5					2.5	2.5			2.5	
EC>C8-C10	300 (7)																						25	25			25	
EC>C10-C12	90 (7)		80		5		5																				5	
EC>C12-C16	90 (7)		**180**		5		5																				5	
EC>C16-C21	90 (7)		**260**		5		5																				5	
EC>C21-C35	90 (7)		5		5		5																				5	
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		0.50		0.50		5.64	0.50			0.50	0.50				0.50	1.02	0.50				1.30	0.50	0.50			0.50	
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50		0.50		0.50	0.50			0.50	0.50				0.50	0.50	0.50				0.50	0.50	0.50			0.50	
Ethylbenzene	300 (8)		0.50		0.50		0.50	0.50			0.50	0.50				0.50	0.50	0.50				0.50	0.50	0.50			0.50	
p/m-Xylene			1.00		1.00		1.00	1.00			1.00	1.00				1.00	1.00	1.00				0.50	1.00	1.00			1.00	
o-Xylene			0.50		0.50		0.50	0.50			0.50	0.50				0.50	0.50	0.50				0.50	0.50	0.50			0.50	
Sum of detected Xylenes	500 (8)		1.50		1.50		1.50	1.50			1.50	1.50				1.50	1.50	1.50										
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.100		**2.006**		0.004					0.123				0.611	1.441	**2.582**				0.500	0.004	0.004			0.014	
Acenaphthylene (aq)	-		0.034		0.296		0.002					0.002				0.085	0.231	0.152					0.002	0.002			0.002	
Acenaphthene (aq)	-		0.025		0.142		0.001					0.024				0.067	0.204	0.124					0.055	0.055			0.023	
Fluorene (aq)	-		0.040		0.514		0.002					0.018				0.041	0.117	0.066					0.036	0.036			0.027	
Phenanthrene (aq)	-		0.047		0.338		0.003					0.110				0.111	0.083	0.324					0.015	0.015			0.025	
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.003		0.016		0.003					0.008				0.073	0.050	0.021					0.016	0.016			0.005	
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.029		0.142		0.001					0.067				0.026	0.034	0.125					0.016	0.016			0.017	
Pyrene (aq)	-		0.030		0.187		0.001					0.070				0.028	0.078	0.089					0.014	0.014			0.017	
Benzo(a)anthracene (aq)	-		0.002		0.001		0.001					0.006				0.002	0.001	0.001					0.001	0.001			0.001	
Chrysene (aq)	-		0.002		0.004		0.001					0.009				0.005	0.001	0.002					0.001	0.001			0.001	
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.002		0.002		0.001					0.007				0.003	0.001	0.001					0.001	0.001			0.001	
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001		0.001		0.001					0.008				0.004	0.001	0.001					0.001	0.001			0.001	
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		0.001		0.001		0.001					**0.012**				**0.005**	0.001	0.001					0.001	0.001			0.001	
Indeno(1,2,3-cd)pyrene (aq)	-		0.001		0.004		0.001					0.013				0.002	0.002	0.001					0.001	0.001			0.003	
Dibenzo(a,h)anthracene (aq)	-		0.002		0.002		0.002					0.007				0.002	0.002	0.002					0.002	0.002			0.003	
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.001		0.004		0.001					0.009				0.001	0.002	0.001					0.001	0.001			0.003	
INORGANICS	**mg/l**																											
Dissolved Organic Carbon			33.1		41		55.8		37.2		40.2	43.3	40.8	90.5	41.31		60	44.1	41	20	6.8				7		4.6	
pH	6 - 9 (2&4)		7		7		6.8		6.8		6.8	6.7	6.8	7	6.8	6.9	6.9	6.8	8.2	8.1	7.2				7.1		7.3	
Alkalinity (Total)			1059		1140		1277		1113		1069	1049	1264	1145	1173	1056	1438	1120	120	530	407				449		310	
Chloride	250 (5)		87		**255**		**314**		205		234	179	231	211	191	213	**279**	214	31	43	23				23		20	
Ammoniacal Nitrogen			67		79.25		91.39		89.7		61.12	41.07	75.95	106.29	54.53	84.5	117.72	81.81	0.12	0.73	12				14		10.7	
Nitrite			0.01		0.01		0.01		0.01		0.021	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.64	0.01	0.0025				0.0025		0.0025	
Nitrate	50 (5)		0.125		0.125		0.125		0.15		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.54	0.25	0.08				0.03		0.03	
Sulphate	250 (5)			26.90		22.70				17.70	18.96	20.71	20.22	18.44	16.10	16.83	18.42	17.55			1.50				3.33	2.22		1.36
Sulphide																												
Calcium				207.00		203.00				191.00	199.70	191.31	218.00	180.00	177.00	168.00	218.00	182.00			112.00				113.00	73.80		78.60
Potassium				70.20		76.60				70.50	65.98	61.66	76.51	69.38	74.84	62.17	89.92	72.56			16.90				17.40	11.60		13.30
Magnesium				63.30		74.40				60.10	59.44	56.12	66.93	56.71	58.53	54.37	79.20	59.01			15.50				15.80	9.01		9.51
Sodium	200(5)			**201.00**		**282.00**				192.00	191.40	180.38	**204.00**	197.00	192.00	177.00	**258.00**	**201.00**			31.20				27.50	27.50		22.60
Biochemical Oxygen Demand			2.1		2.7		4.0		2.7		2.2	2.7	2.8	4.0	2.5	2.5	4.7	1.5							4.5		2.5	
Chemical Oxygen Demand			87		109		200		97		105	104	117	105	113	101	166	108							69		10	
Conductivity			2520		2830		3260		2690		2670	2630	2980	2760	2803	2558	3400	2743			863				904		632	
Total Oxidisable Nitrogen			0.15		0.15		0.15		0.15		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15			0.08				0.03		0.03	
Total Phosphorus			0.125		0.125		0.125		0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.38	0.125							0.4		0.125	

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH05																								
HEAVY METALS	**µg/l**		17/10/2018	19/10/2018	09/01/2019	22/01/2019	11/04/2019	01/05/2019	05/07/2019	23/07/2019	15/10/2019	24/10/2019	19/02/2020	04/03/2020	06/10/2020	19/04/2021	03/08/2021	03/11/2021	31/01/2022	20/07/2016	09/08/2016	27/09/2016	17/04/2018	27/06/2018	28/06/2018	03/10/2018	17/10/2018	19/10/2018
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)				10.00		26.40		33.10		38.90		10.00		10.00	9.85	11.74	14.70	14.64				10.00	10.00		10.00		
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) | CaCO$_3$ >200 mg/l				**1.000**		**1.000**		**1.000**		**1.000**		**1.000**		**1.000**	0.025	0.025	0.025	0.025				**1.000**	**1.000**		**2.010**		
Chromium (diss.filt)	50 (5)				2.500		0.908		0.250		0.250		0.025		0.125	0.125	0.125	0.125	0.125				**57.700**	25.700		21.600		
Copper (diss.filt)	1 (AA) bioavailable (see Note 1) (1) (see Note 4) (2)	34.94			2.500		5.010		7.000		5.540		2.500		2.500	0.125	0.500	0.125	0.125				20.100	9.170		12.900		
Iron (diss.)	1000 (AA) (1&2)				**6350**		**12200**		**14800**		**18400**		**6440**		77	**3163**	**1083**	981	**4822**				**27400**	**27900**		**27700**		
Mercury (diss.filt)	0.07 MAC (1&2)				0.0025		0.0025		0.0025		0.0025		0.0025		0.0025	0.0025	0.0025	0.0025					0.0025	0.0025		0.0025		
Manganese (diss.filt)	123 (AA) (see note 1)	276.92			**5100**		**6220**		**5600**		**5360**		**5660**		**3896**	**4150**	**2746**	**3438**	**3504**				**168000**			**123000**		
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4(see note 5) (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98			7.95		9.70		7.63		10.20		**30.50**		8.55	6.12	6.17	4.80	5.06				**83.60**	**71.00**		**65.60**		
Lead (diss.filt)	1.2(see note 5) (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64			**10**		**10**		**10**		**10**		**10**		**10**	0.125	0.125	0.125	0.125				**10**	**10**		**10**		
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10					0.50		0.50		0.50		0.50		0.10	0.10	0.10	0.10	0.10									
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC (see Note 2)	37.15			1.00		1.00		1.00		2.36		1.00		3.02	2.80	0.50	0.50	0.50				**42.00**	**48.80**		**46.60**		
Iron (Total)																12300	13000	10949	12900				71300		30600			
Manganese (Total)																4380	2922	3600	3640				166000		165000			
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)						0.45		0.25		0.25		0.25		0.13	0.13	0.13	0.13	0.13									
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)						0.025		0.025		0.025		0.025		0.025	0.050	0.025	0.025	0.025									
Aluminium (diss.filt)					20		20		20		20		20		20	20	20	20	20				20	20		20		
Vanadium (diss.filt)															2.000	0.125	0.125	0.125	0.125									
Phenols	**ug/l**																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)			22.50		22.50	22.50			22.50		22.50		22.50	22.50	22.50	22.50	22.50					22.50		22.50			22.50
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	15000 (7)			10		10	10			10				10	10	10	10	10					10		10			10
EC>C6-C8	15000 (7)			12.5		12.5	12.5			12.5				12.5	12.5	12.5	12.5	12.5					12.5		12.5			12.5
EC>C8-C10	300 (7)			7.5		7.5	7.5			7.5				7.5	7.5	7.5	7.5	7.5					7.5		7.5			7.5
EC>C10-C12	300 (7)			10		5	5			20		5		5									5		5			120
EC>C12-C16	300 (7)			5		5	5			5		5		5									5		5			110
EC>C16-C21				5		5	5			5		5		5									5		5			10
EC>C21-C35				20		5	5			5		5		5									5		5			30
EC>C35-C44				5		5	5			5		5		5									5		5			5
Aromatics																												
EC C5-C7	10 (7)			1		1	1			1				1	1	1	1	1					1		1			1
EC>C7-C8	700 (7)			2.5		2.5	2.5			2.5				2.5	2.5	2.5	2.5	2.5					2.5		2.5			2.5
EC>C8-C10	300 (7)			25		25	25																25		25			25
EC>C10-C12	90 (7)			10		5	5			20		5		5									5		5			**120**
EC>C12-C16	90 (7)			30		10	5			50		5		5									5		5			**350**
EC>C16-C21	90 (7)			50		40	5			60		5		5									5		5			**470**
EC>C21-C35	90 (7)			20		20	5			5		5		5									5		5			**400**
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)			0.50		0.50	0.50			0.50				0.50	0.50	0.50	0.50	0.50					4.40		3.62			3.86
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)			0.50		0.50	0.50			0.50				0.50	0.50	0.50	0.50	0.50					0.50		0.50			0.50
Ethylbenzene	300 (8)			0.50		0.50	0.50			0.50				0.50	0.50	0.50	0.50	0.50					0.50		0.50			0.50
p/m-Xylene				1.00		1.00	1.00			1.00				1.00	1.00	1.00	1.00	1.00					1.00		1.00			1.00
o-Xylene				0.50		0.50	0.50			0.50				0.50	0.50	0.50	0.50	0.50					0.50		0.50			0.50
Sum of detected Xylenes	500 (8)									1.50				1.50	1.50	1.50	1.50	1.50										
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)			0.004		0.049	**5.052**			0.004		0.979		0.013	0.286	**6.685**	**4.524**	0.142					0.046		0.050			0.004
Acenaphthylene (aq)	-			0.001		0.007	0.443			0.021		0.056		0.003	0.002	1.409	0.173	0.018					0.012		0.009			0.003
Acenaphthene (aq)	-			0.072		0.044	1.204			0.033		0.266		0.004	0.088	0.145	0.125	0.083					0.015		0.001			0.007
Fluorene (aq)	-			0.065		0.062	0.919			0.055		0.308		0.003	0.080	0.058	0.077	0.038					0.003		0.006			0.003
Phenanthrene (aq)	-			0.036		0.098	1.621			0.036		0.242		0.003	0.193	0.087	0.055	0.127					0.003		0.003			0.003
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)			0.017		0.031	0.228			0.010		0.031		0.003	0.013	0.007	0.036	0.068					0.003		0.001			0.003
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)			0.059		0.126	0.384			0.032		0.196		0.001	0.098	0.022	0.016	0.055					0.001		0.003			0.007
Pyrene (aq)	-			0.064		0.123	0.404			0.028		0.164		0.001	0.061	0.019	0.009	0.109					0.001		0.005			0.007
Benzo(a)anthracene (aq)	-			0.022		0.165	0.064			0.009		0.064		0.001	0.020	0.003	0.005	0.131					0.001		0.001			0.001
Chrysene (aq)	-			0.022		0.165	0.088			0.015		0.088		0.001	0.032	0.005	0.007	0.085					0.001		0.001			0.001
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)			0.001			**0.027**			**0.020**		**0.090**		0.001	**0.023**	0.003	0.005	**0.076**					0.001		0.001			0.001
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)			0.001			**0.022**			0.009		**0.101**		0.001	**0.022**	0.002	0.002	**0.074**					0.001		0.001			0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**			0.001		**0.596**	**0.016**			**0.007**		**0.091**		0.001	**0.043**	**0.003**	**0.007**	**0.185**					0.001		0.001			0.001
Indeno(1,2,3-cd)pyrene (aq)	-			0.003		0.110	0.030			0.014		0.065		0.001	0.032	0.003	0.003	0.104					0.001		0.001			0.001
Dibenzo(a,h)anthracene (aq)	-			0.003		0.113	0.042			0.041		0.002		0.002	0.012	0.002	0.002	0.020					0.002		0.002			0.002
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)			0.004		0.108	0.029			0.018		0.034		0.001	0.021	0.001	0.002	0.042					0.001		0.001			0.001
INORGANICS	**mg/l**																											
Dissolved Organic Carbon			5.2			6.7		6.4		6.7		6.1		5.8	6.7	3.1		3.9	4.3	44	31	41	43.4		40.7		42.4	
pH	6 - 9 (2&4)		7.3			7.1		7.6		7.8		7.4		7.1	7	7.1	7.2	7.4	7.3	7.1	7.1	5.8	6.8		5.8		6	
Alkalinity (Total)			299			320		363		400		371		338	298	259	228	269	269	140	180	130	176		160		189	
Chloride	250 (5)		27			16		19		21		30		21	22	16	16	18	17	**1100**	**910**	**1000**	**868**		**886**		**783**	
Ammoniacal Nitrogen			11.8			10.4		10.3		11		13.76		7.56	6.13	6.75	6.52	6.83	6.22	0.005	0.005	0.005	7.69		0.81		1.15	
Nitrite			0.005			0.024		0.01		0.125		0.01		0.01	0.01	0.01	0.01	0.01	0.01	0.058	0.01	0.01	0.022		0.0025		0.005	
Nitrate	50 (5)		0.03			0.03		0.15		0.01		0.41		0.125	0.125	0.125	0.125	0.125	0.125	0.25	0.25	0.25	0.03		0.03		0.03	
Sulphate	250 (5)				3.25		8.15		9.38		13.70		16.80		5.80	3.27	1.71	1.67	2.47				50.50	60.60		79.10		
Sulphide																												
Calcium					89.70		102.00		105.00		108.00		104.00		89.89	76.55	67.10	79.36	79.32				132.00	122.00		109.00		
Potassium					13.00		12.80		14.00		13.70		10.90		10.11	8.70	8.09	10.36	8.11				1.25	1.07		0.88		
Magnesium					10.50		12.10		13.00		13.00		13.40		10.32	8.79	7.09	8.65	8.84				36.50	34.90		33.70		
Sodium	200(5)				23.50		19.40		35.80		23.40		17.50		17.62	14.31	14.54	26.24	15.14				**287.00**	**316.00**		**340.00**		
Biochemical Oxygen Demand			2.5			1.0		2.5		1.5		1.5		2.5	1.0	2.5	2.5	2.5	1.5				7.6		5.7		4.9	
Chemical Oxygen Demand			10			10		10		10		10		10	10	10	10	10	10				480		370		131	
Conductivity			616			687		741		834		808		717	644	548	491	571	557				3106		3010		2950	
Total Oxidisable Nitrogen			0.03			0.03		0.15		0.15		0.41		0.15	0.15	0.15	0.15	0.15	0.15				0.03		0.03		0.03	
Total Phosphorus			0.125			0.125		0.125		0.125		0.125		0.46	0.125	0.125	0.125	0.125	0.5				0.86		0.26		0.125	

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:
Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH06																								
HEAVY METALS	µg/l		09/01/2019	14/01/2019	11/04/2019	29/04/2019	01/05/2019	05/07/2019	22/07/2019	15/10/2019	23/10/2019	19/02/2020	24/02/2020	25/02/2020	01/07/2020	22/07/2020	27/07/2020	30/07/2020	26/08/2020	05/10/2020	23/11/2020	17/02/2021	14/04/2021	28/07/2021	01/11/2021	26/01/2022	20/07/2016
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		10.00		10.00			10.00		10.00		10.00						10.00	4.03	10.00	4.62	4.66	4.34	4.71	5.28	4.98	
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l		1.000		1.000			1.000		1.000		1.000						2.440	0.025	1.000	0.210	0.153	1.435	0.170	0.025	0.061	
Chromium (diss.filt)	50 (5)		14.600		1.930			0.680		0.580		0.510						32.700	0.433	0.344	0.335	0.318	0.644	0.343	0.318	0.327	
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	20.876		14.700			15.700		9.870		7.420						31.900	0.125	6.316	0.297	0.277	1.345	0.250	0.371	0.329	
Iron (diss.)	1000 (AA) (1&2)		29200		24300			32200		31400		31100						36100	49800	40940	36600	34700	34100	31000	37900	40700	
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025		0.0025			0.0025		0.0025		0.0025						0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	152000		163000			152000		142000		93900						116000	105000	105115	85900	84600	90700	82600	78100	73100	
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	55.20		57.40			57.20		54.40		16.00						36.70	30.40	30.38	32.30	30.50	32.47	34.30	30.20	27.20	
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	10		20.2			10		10		10						10	0.125	10	0.125	0.125	0.750	0.082	0.125	0.125	
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10			0.50			0.50		0.50		0.50						16.60	0.61	0.29	0.53	0.60	0.64	0.45	0.50	0.49	
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	26.60		41.70			32.20		27.50		9.93						23.60	8.12	13.95	13.60	15.25	19.85	13.90	8.55	9.00	
Iron (Total)																					39700	35500	36400	34400	39800	41700	
Manganese (Total)																					92800	82600	94700	86900	78600	70500	
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)				0.97			0.34		0.29		0.26						0.36	0.43	0.34	0.33	0.32	0.64	0.34	0.32	0.33	
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)				0.025			0.025		0.025		0.025						0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	
Aluminium (diss.filt)			20		20			20		20		20						20	20	20	20	20	20	20	20	20	
Vanadium (diss.filt)																			0.349	0.125	0.289	0.125	0.880	0.462	0.277	0.125	
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)			22.50			22.50		22.50		130.00			130.00						250.00			22.50	60.00	22.50	22.50	
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)			10			10		10		10			10	10	10	10		10	10	10	10	10	10	10	10	
EC>C6-C8	15000 (7)			12.5			12.5		12.5		12.5			12.5	12.5	12.5	12.5		12.5	12.5	12.5	12.5	12.5	12.5	22.158	12.5	
EC>C8-C10	300 (7)			7.5			7.5		7.5		7.5			7.5	7.5	7.5	7.5		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
EC>C10-C12	300 (7)			160					230		5			5													
EC>C12-C16	300 (7)			5					90		5			5													
EC>C16-C21				5					10		5			5													
EC>C21-C35				10					110		5			5													
EC>C35-C44				5					10		5			5													
Aromatics																											
EC C5-C7	10 (7)			1			1		4.1		2.5			19.4	3.9	4.35	4.2		25.9	66	5.462	4.528	3.73	3.34	1	7.708	
EC>C7-C8	700 (7)			2.5			2.5		2.5		2.5			2.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
EC>C8-C10	300 (7)			25			25																				
EC>C10-C12	90 (7)			160					230		5			5													
EC>C12-C16	90 (7)			610					1200		5			5													
EC>C16-C21	90 (7)			870					1000		5			5													
EC>C21-C35	90 (7)			880					860		5			5													
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)			4.91			0.50		4.10		2.50			19.40	4.00	4.35	4.20		25.90	65.80	5.19	4.46	3.63	3.28	17.00	7.47	
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)			0.50			0.50		0.50		0.50			0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Ethylbenzene	300 (8)			0.50			0.50		0.50		0.50			0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
p/m-Xylene				1.00			1.00		1.00		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
o-Xylene				0.50			0.50		0.50		0.50			0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Sum of detected Xylenes	500 (8)								1.50		1.50			1.50	1.50	1.50	1.50		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)			0.055			0.041		0.040		1.817			0.323						1.820	0.024	0.442	0.039	0.300	0.384	0.412	
Acenaphthylene (aq)	-			0.006			0.031		0.167		0.413			0.046						0.250	0.022	0.123	0.020	0.043	0.048	0.066	
Acenaphthene (aq)	-			0.008			0.025		0.004		1.043			0.024						0.145	0.019	0.084	0.010	0.033	0.070	0.106	
Fluorene (aq)	-			0.002			0.007		0.055		0.196			0.004						0.015	0.004	0.026	0.015	0.011	0.052	0.075	
Phenanthrene (aq)	-			0.021			0.007		0.003		0.214			0.012						0.083	0.022	0.035	0.003	0.321	0.021	0.029	
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)			0.005			0.009		0.009		0.202			0.003						0.003	0.003	0.003	0.003	0.208	0.011	0.010	
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)			0.013			0.005		0.007		0.055			0.002						0.040	0.006	0.007	0.001	0.153	0.014	0.008	
Pyrene (aq)	-			0.010			0.001		0.009		0.040			0.001						0.024	0.005	0.004	0.001	0.045	0.007	0.006	
Benzo(a)anthracene (aq)	-			0.021			0.001		0.011		0.008			0.001						0.006	0.001	0.003	0.002	0.003	0.002	0.001	
Chrysene (aq)	-			0.021			0.002		0.007		0.008			0.001						0.008	0.001	0.006	0.001	0.001	0.002	0.002	
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)						0.001		0.001		0.011			0.001						0.007	0.005	0.004	0.001	0.005	0.002	0.002	
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)						0.001		0.001		0.012			0.001						0.005	0.001	0.003	0.001	0.002	0.002	0.001	
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))			0.128			0.001		0.001		0.007			0.001						0.008	0.001	0.003	0.001	0.003	0.003	0.010	
Indeno(1,2,3-cd)pyrene (aq)	-			0.019			0.001		0.001		0.007			0.001						0.011	0.004	0.006	0.001	0.004	0.002	0.001	
Dibenzo(a,h)anthracene (aq)	-			0.026			0.002		0.002		0.002			0.002						0.002	0.002	0.002	0.002	0.002	0.002	0.007	
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)			0.019			0.001		0.004		0.006			0.001						0.008	0.002	0.005	0.001	0.004	0.001	0.001	
INORGANICS	mg/l																										
Dissolved Organic Carbon				46		47.3			48.1		54.6		47.5				48.9		55.8	15.4	52.4	52.6	60.1		59.7	60.1	72
pH	6 - 9 (2&4)			6		6.1			6.2		6		6.3				5.9		6	6.1	6.1	6.1	5.9	5.9	6.1	6	7
Alkalinity (Total)				171		157			186		174		271				230		277	294	271	262	248	301	366	335	1200
Chloride	250 (5)			776		910			91		887		631				735		764	1254	672	459	711	580	562	541	290
Ammoniacal Nitrogen				1.18		0.2			0.69		0.74		0.77				0.6		1.14	2.84	1.28	1.89	0.56	0.75	0.89	0.81	1.2
Nitrite				0.0025		0.01			0.01		0.01		0.01				0.01		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.023
Nitrate	50 (5)			0.03		0.15			0.125		0.125		0.125				0.15		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.25
Sulphate	250 (5)		66.60		80.30			84.10		92.00		44.00						152.00	129.44	137.43	102.79	136.89	154.14	213.33	217.63	158.56	
Sulphide																											
Calcium			108.00		105.00			103.00		91.90		70.30						79.20	81.76	79.77	71.05	65.09	62.70	57.26	61.85	54.63	
Potassium			1.24		1.19			1.39		1.59		2.08						1.66	2.79	2.25	2.37	2.69	2.10	1.14	2.34	2.16	
Magnesium			32.60		33.50			32.70		29.70		23.70						25.10	25.97	25.78	24.25	22.38	21.30	19.49	20.71	18.83	
Sodium	200(5)		323.00		350.00			394.00		405.00		334.00						465.00	447.90	444.12	414.00	443.00	475.00	460.00	461.00	482.00	
Biochemical Oxygen Demand				8.1		5.7			4.5		4.4		7.6				6.8		6.8	8.9	5.4	4.0	5.3	4.3	11.0	5.3	
Chemical Oxygen Demand				56		57			56		58		141				51		53	45	58	59	174	173	55	59	
Conductivity				3100		3140			3250		3160		2570				3020		3020	2980	2760	2870	2965	2780	2730	2701	
Total Oxidisable Nitrogen				0.03		0.15			0.15		0.15		0.15				0.15		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	
Total Phosphorus				0.125		0.125			0.125		0.125		0.125				0.39		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH07																									
HEAVY METALS	**µg/l**		09/08/2016	27/09/2016	09/01/2017	10/01/2017	11/01/2017	06/03/2017	08/03/2017	18/07/2017	15/08/2017	31/08/2017	25/10/2017	11/01/2018	12/01/2018	12/04/2018	17/04/2018	27/06/2018	03/10/2018	10/10/2018	12/10/2018	09/01/2019	23/01/2019	11/04/2019	24/04/2019	05/07/2019	17/07/2019	15/10/2019
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)					12.50				12.50			12.40		10.00		10.00		10.00			10.00		10.00		10.00		10.00
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l					**5.000**				0.125			0.025		**1.000**		**1.000**		**1.000**			**1.000**		**1.000**		**1.000**		**1.000**
Chromium (diss.filt)	50 (5)					12.500				0.257	0.946	0.946	0.324		2.500		2.500		2.500			2.500		4.020		3.300		2.900
Copper (diss.filt)	1 (AA) bioavailable $^{(see Note 1)}$ (1) $^{(see Note 4)}$ (2)	34.94				10.000				0.310			0.500		2.500		2.500		33.800			10.693		**43.000**		20.800		12.800
Iron (diss.)	1000 (AA) (1&2)					**7250**				50			168		**4580**		273		**49100**			**15400**		**52900**		**37100**		**20700**
Mercury (diss.filt)	0.07 MAC (1&2)					0.0025				0.0025			0.0025				0.0025		0.0025			0.0025		0.0025		0.0025		0.0025
Manganese (diss.filt)	123 (AA) ($^{see note 1}$)	276.92				**12400**				**11400**			**7660**		**7090**		**7990**		**2980**			**2400**		**2600**		**1490**		**1320**
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{(see note 5)}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98				12.50				**20.00**			**19.50**		**18.60**		**22.10**		**20.90**			**21.80**		**31.30**		**23.30**		**23.10**
Lead (diss.filt)	1.2$^{(see note 5)}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64				**12.5**				0.125			0.125		**10**		**10**		**10**			**10**		**10**		**10**		**10**
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10								1.53	0.10	0.10	2.84											0.50		0.50		0.50
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{(see Note 2)}$	37.15				10.00				0.50			0.50		2.23		2.10		4.74			2.62		5.27		4.57		3.56
Iron (Total)							9220		12200	10900			11423	17200		14200												
Manganese (Total)							12600		12300	10300			10100	9160		8160												
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)																							2.01		1.65		1.45
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)										0.025	0.025												0.025		0.025		0.025
Aluminium (diss.filt)						50				50			50		20		20		20			20		20		20		20
Vanadium (diss.filt)										0.125			0.125															
Phenols	**ug/l**																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																				22.50		22.50		22.50		**380.00**	
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	15000 (7)				25			25			10	10		10		10					10		10		10		10	
EC>C6-C8	15000 (7)				30			30			12.5	12.5		12.5		12.5					12.5		12.5		12.5		12.5	
EC>C8-C10	300 (7)				0.05			0.05			7.5	7.5		7.5		7.5					7.5		7.5		7.5		7.5	
EC>C10-C12	300 (7)				3.5											5					50		60		120		120	
EC>C12-C16	300 (7)				5			5						5		5					5		5		80		5	
EC>C16-C21					2.5			2.5						5		5					5		5		80		5	
EC>C21-C35					10			10						5		5					60		5		10		5	
EC>C35-C44					2.5			2.5						5		5					5		5		5		5	
Aromatics																												
EC C5-C7	10 (7)				0.025			0.025			1	1		1		1					1		1		1		4.6	
EC>C7-C8	700 (7)				0.025			0.025			2.5	2.5		2.5		2.5					2.5		2.5		2.5		8.9	
EC>C8-C10	300 (7)				0.025						25	25		25		25					25		25		25			
EC>C10-C12	90 (7)				3.5											5					50		60		**120**		**120**	
EC>C12-C16	90 (7)				3			3								5					**100**		**110**		**210**		**300**	
EC>C16-C21	90 (7)				15			15								5					**140**		**110**		**210**		**300**	
EC>C21-C35	90 (7)				15			15								5					60		50		70		5	
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)										0.50	0.50									3.47		3.85		0.50		4.60	
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)										0.50	0.50									0.50		0.50		0.50		0.50	
Ethylbenzene	300 (8)										0.50	0.50									0.50		0.50		0.50		3.50	
p/m-Xylene											1.00	1.00									1.60		2.70		1.00		3.50	
o-Xylene											0.50	0.50									0.50		0.50		0.50		1.90	
Sum of detected Xylenes	500 (8)																										5.40	
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)										0.004	0.004		0.169		0.135					**23.596**		**19.281**		**21.951**		0.010	
Acenaphthylene (aq)	-										0.005	0.005		0.077		0.054					0.120		0.137		0.264		0.085	
Acenaphthene (aq)	-										0.332	0.332				0.283					10.725		18.687		26.402		0.450	
Fluorene (aq)	-										0.254	0.254		0.294		0.313					3.122		5.373		4.010		0.552	
Phenanthrene (aq)	-										0.026	0.026		0.011		0.022					2.139		2.256		3.270		2.103	
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)										0.026	0.026		0.003		0.011					0.182		0.300		0.553		0.362	
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)										0.028	0.028		0.026		0.020					0.046		0.202		0.560		0.444	
Pyrene (aq)	-										0.034	0.034		0.037		0.030					0.069		0.277		0.879		0.672	
Benzo(a)anthracene (aq)	-										0.001	0.001		0.001		0.001					0.001		0.117		0.074		0.121	
Chrysene (aq)	-										0.001	0.001		0.001		0.001					0.001		0.117		0.101		0.150	
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)										0.001	0.001		0.001		0.001					0.001				**0.204**		**0.249**	
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)										0.001	0.001		0.001		0.001					0.001				**0.099**		**0.183**	
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**										0.001	0.001		0.001		0.001					**0.012**		**0.702**		**0.231**		**0.292**	
Indeno(1,2,3-cd)pyrene (aq)	-										0.001	0.001		0.001		0.001					0.007		0.071		0.401		0.348	
Dibenzo(a,h)anthracene (aq)	-										0.002	0.002		0.002		0.002					0.009		0.086		0.013		0.309	
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)										0.001	0.001		0.001		0.001					0.009		0.079		0.481		0.431	
INORGANICS	**mg/l**																											
Dissolved Organic Carbon			70	14		23.1			27.1	20.7			23.6	31.9		26.8		25.2		32.7			36.2		53.2		54.6	
pH	6 - 9 (2&4)		7.1	7.2					7.8	7.8			8.3	8.2		7.3		7.5		7.7			6.9		7.1		7.1	
Alkalinity (Total)			1800	220		603			634	594			611	683		658		644		1158			1160		1505		1458	
Chloride	250 (5)		240	38		175			191	168			196	**260**		231		242		84			86		111		62	
Ammoniacal Nitrogen			1.9	0.014		20.5			22.2	14.3			17	28		31		29.7		141			142		0.96		190	
Nitrite			0.01	0.01		0.006			0.006	0.0025			0.0025	0.0025		0.013		0.0025		0.036			0.036		0.01		0.01	
Nitrate	50 (5)		0.25	0.25		0.03			0.03	0.07			0.03	0.03		0.6		0.03		0.03			0.03		0.15		0.125	
Sulphate	250 (5)									1.50			6.24		6.25		6.44		3.90			3.82		5.06		5.21		18.40
Sulphide																												
Calcium						148.00				150.00			138.00		137.00		129.00		163.00			143.00		181.00		160.00		130.00
Potassium						30.40				30.80			34.60		41.50		38.10		93.70			92.30		97.40		109.00		105.00
Magnesium						35.40				39.50			40.80		47.60		45.30		34.20			33.70		43.70		42.60		41.10
Sodium	200(5)					110.00				151.00			141.00		150.00		173.00		85.10			89.50		124.00		110.00		105.00
Biochemical Oxygen Demand													2.5	4.7		6.6		3.4		2.5			5.0		8.6		6.9	
Chemical Oxygen Demand													77	87		79		58		44			121		214		146	
Conductivity										1615			1771	2103		1973		1932		2482			2550		3180		3000	
Total Oxidisable Nitrogen						0.03			0.03	0.07			0.03	0.03		0.61		0.03		0.03			0.03		0.15		0.15	
Total Phosphorus													0.125	0.125		0.125		0.125		0.61			0.8		0.125		0.89	

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)									BH1 (Lynches)							BH1 Drumahoe									
HEAVY METALS	µg/l		30/10/2019	19/02/2020	26/02/2020	12/10/2020	12/04/2021	26/07/2021	04/11/2021	01/02/2022	28/05/2019	31/05/2019	05/07/2019	24/07/2019	15/10/2019	05/11/2019	06/11/2019	27/04/2021	04/08/2021	11/08/2021	08/11/2021	03/02/2022	11/04/2019	24/04/2019	05/07/2019	16/07/2019	15/10/2019
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			10.00		10.00	11.13	9.46	7.36	7.52		10.00	10.00		10.00			0.08	0.33		0.13	0.13	10.00		10.00		10.00
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**			**1.000**		**1.000**	0.025	0.025	0.025	0.025		**1.000**	**1.000**		**1.000**			0.025	0.025		0.025	0.025	**1.000**		**1.000**		**1.000**
Chromium (diss.filt)	50 (5)			1.600		1.201	1.035	1.116	0.813	1.230		2.500	0.250		0.250			0.125	0.125		0.125	0.125	0.548		0.250		0.250
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94		11.400		5.883	0.125	0.250	0.125	0.337		2.500	2.500		2.500			0.257	0.500		0.825	0.125	2.500		2.500		2.500
Iron (diss.)	1000 (AA) (1&2)			**33000**		**10787**	**16100**	**4637**	**25100**	231		**6100**	**6500**		20			20	20		20	20	**4330**		643		879
Mercury (diss.filt)	0.07 MAC (1&2)			0.0025		0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025		0.0025			0.0025	0.0025		0.0025	0.0025	0.0025		0.0025		0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92		**1880**		**1710.200276**	**1910**	**1722.674823**	**1839.966861**	**1658.850712**		**13000**	**14900**		**11600**			5	258.2472688		5	5	**2870**		**2650**		**2630**
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		**19.10**		**16.94**	12.16	**15.30**	8.41	**16.60**		2.50	2.50		2.50			0.53	0.98		0.39	0.44	2.50		2.50		2.50
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		**10**		**10**	0.125	0.025	0.125	0.125		**10**	**10**		**10**			0.125	0.125		0.125	0.125	**10**		**10**		**10**
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10		0.50		0.43	0.42	0.33	0.24	0.30			0.50		1.30			0.26	0.37		0.28	0.10	0.50		0.50		0.50
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15		4.30		2.62	0.50	0.25	0.50	0.50		1.00	1.00		1.00			9.06	0.50		0.50	0.50	7.77		5.72		4.86
Iron (Total)							37300	24900	57400	60300								12600	13600		15400	11568.83181					
Manganese (Total)							2080	1892.778422	2133.449701	2414.221241								558.7101462	370.2870248		614.426376	293.3617222					
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)			0.80		1.20	1.04	1.10	0.81	1.20			0.25		0.25			0.13	0.13		0.13	0.13	0.27		0.25		0.25
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)			0.025		0.025	0.025	0.025	0.025	0.025			0.025		0.025			0.058	0.025		0.025	0.025	0.025		0.025		0.025
Aluminium (diss.filt)				20		20	20	20	20	20		20	20		20			20	20		20	20	20		20		20
Vanadium (diss.filt)						1.019	0.820	1.014	0.574	0.782								0.125	0.125		0.125	0.125					
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		**210.00**		22.50	**240.00**	**250.00**	22.50	**180.00**	22.50				22.50			22.50	22.50		22.50	22.50	22.50		22.50		22.50	
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)		10		10	10	10	10	10	10				10			10	10		10	10	10		10		10	
EC>C6-C8	15000 (7)		12.5		12.5	12.5	12.5	12.5	12.5	12.5				12.5			12.5	12.5		12.5	12.5	12.5		12.5		12.5	
EC>C8-C10	300 (7)		7.5		7.5	7.5	7.5	7.5	7.5	7.5				7.5			7.5	7.5		7.5	7.5	7.5		7.5		7.5	
EC>C10-C12	300 (7)		5		5									5			5							5		30	
EC>C12-C16	300 (7)		5		5									5			5							20		20	
EC>C16-C21			5		5									5			5							20		20	
EC>C21-C35			5		5									60			5							20		60	
EC>C35-C44			5		5									10			5							5		5	
Aromatics																											
EC C5-C7	10 (7)		4.5		4.53	4.67	3.992	3.689	3.097	4.318				1			1	1		1	1	1		1		1	
EC>C7-C8	700 (7)		2.5		2.5	5.42	2.5	2.5	2.5	2.5				2.5			2.5	2.5		2.5	2.5	2.5		2.5		2.5	
EC>C8-C10	300 (7)																							25			
EC>C10-C12	90 (7)		5		5									5			5							5		30	
EC>C12-C16	90 (7)		5		5									5			5							5		30	
EC>C16-C21	90 (7)		5		5									5			5							5		20	
EC>C21-C35	90 (7)		5		5									5			5							5		5	
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		4.50		4.53	4.23	3.74	3.48	2.76	3.98				0.50			0.50	0.50		0.50	0.50	0.50		0.50		0.50	
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50		0.50	0.50	0.50	0.50	0.50	0.50				0.50			0.50	0.50		0.50	0.50	0.50		0.50		0.50	
Ethylbenzene	300 (8)		0.50		0.50	2.05	0.50	0.50	0.50	0.50				0.50			0.50	0.50		0.50	0.50	0.50		0.50		0.50	
p/m-Xylene			1.00		1.00	2.24	1.00	1.00	1.00	1.00				1.00			1.00	1.00		1.00	1.00	1.00		1.00		1.00	
o-Xylene			1.00		1.20	0.50	0.50	0.50	0.50	0.50				0.50			0.50	0.50		0.50	0.50	0.50		0.50		0.50	
Sum of detected Xylenes	500 (8)		1.50		3.04	1.50	1.50	1.50	1.50	1.50				1.50			1.50	1.50		1.50	1.50	1.50				1.50	
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		**50.313**		1.434	**49.727**	**26.701**	**3.697**	**2.231**	**7.487**				0.035			0.627	0.041		1.233	0.118	0.095		0.088		0.035	
Acenaphthylene (aq)	-		0.648		0.019	0.599	0.278	0.110	0.047	0.222				0.027			0.043	0.003		0.089	0.008	0.016		0.004		0.005	
Acenaphthene (aq)	-		38.667		1.241	46.561	0.037	6.757	2.574	11.289				0.011			0.053	0.005		0.018	0.027	0.022		0.015		0.008	
Fluorene (aq)	-		10.678		0.329	9.837	7.770	1.965	1.312	4.613				0.014			0.071	0.014		0.006	0.024	0.016		0.019		0.010	
Phenanthrene (aq)	-		6.868		0.322	5.844	1.700	1.106	1.040	5.916				0.036			0.241	0.018		0.025	0.017	0.039		0.058		0.029	
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.587		0.033	1.648	0.988	0.639	0.752	0.373				0.003			0.016	0.003		0.017	0.014	0.007		0.007		0.003	
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		1.101		0.030	2.776	1.240	0.077	0.602	0.686				0.031			0.157	0.007		0.005	0.018	0.018		0.018		0.008	
Pyrene (aq)	-		1.703		0.046	3.420	1.394	0.084	1.037	0.943				0.026			0.158	0.005		0.003	0.005	0.013		0.016		0.005	
Benzo(a)anthracene (aq)	-		0.077		0.002	0.247	0.021	0.001	0.093	0.052				0.004			0.099	0.002		0.001	0.001	0.002		0.006		0.002	
Chrysene (aq)	-		0.149		0.001	0.500	0.041	0.003	0.067	0.069				0.009			0.119	0.003		0.003	0.001	0.003		0.007		0.002	
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		**0.070**		0.001	**0.250**	**0.054**	0.005	**0.040**	**0.073**				**0.020**			**0.099**	0.001		0.003	0.001	0.002		0.012		0.002	
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		**0.056**		0.001	**0.166**	**0.026**	0.003	**0.019**	**0.057**				0.008			**0.124**	0.001		0.002	0.001	0.001		0.007		0.002	
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.093**		**0.003**	**0.489**	**0.110**	**0.008**	**0.091**	**0.135**				**0.007**			**0.154**	**0.002**		**0.003**	0.001	**0.002**		**0.005**		0.001	
Indeno(1,2,3-cd)pyrene (aq)	-		0.108		0.004	0.407	0.252	0.015	0.077	0.209				0.010			0.043	0.001		0.002	0.003	0.001		0.015		0.003	
Dibenzo(a,h)anthracene (aq)	-		0.002		0.002	0.007	0.002	0.002	0.002	0.002				0.041			0.038	0.002		0.002	0.002	0.002		0.007		0.002	
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.100		0.004	0.436	0.244	0.009	0.060	0.228				0.012			0.027	0.001		0.001	0.001	0.001		0.009		0.001	
INORGANICS	mg/l																										
Dissolved Organic Carbon			28		43.3	41.4	30.6		263	50	6.1			4.9		5.7		1.3		2.1	2.06	1.2		2.4		1.8	
pH	6 - 9 (2&4)		7.3		7.5	7	6.9	7.1	6.9	6.8	7.4			7		6.7		6.9		6.8	7.1	7.2		7		6.9	
Alkalinity (Total)			1393		1338	1410	1209	1254	1060	1404	81			81		81		106			129	127		96		94	
Chloride	250 (5)		84		79	79	57	59	41	53	21			22		16		33		47	33	32		30		28	
Ammoniacal Nitrogen			197.2		122.87	175.68	118.61	154.84	119.73	162.07	1.1			1.3		1.21		0.2		0.2	0.2	0.2		0.2		0.2	
Nitrite			0.01		0.01	0.01	0.01	0.01	0.01	0.01	0.01			0.01		0.01		0.01		0.01	0.01	0.01		0.01		0.01	
Nitrate	50 (5)		0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.15			0.125		0.125		2.86		2.4	1.92	1.85		3.57		2	
Sulphate	250 (5)			4.91		9.06	8.27	9.18	3.03	8.00		5.57	7.23		6.50			29.89	28.41		30.34	28.70	18.50		21.80		20.60
Sulphide																											
Calcium				175.00		162.00	177.00	176.00	165.00	178.00		16.30	17.50		18.20			56.54	46.70		62.25	60.29	40.30		39.60		40.20
Potassium				93.60		108.32	77.40	81.42	75.46	91.93		5.57	5.64		8.76			2.43	2.96		2.17	2.24	4.48		4.15		4.33
Magnesium				39.30		50.62	33.90	39.63	34.01	41.20		3.65	3.59		4.17			6.13	5.24		6.42	6.23	8.81		8.48		8.73
Sodium	200(5)			116.00		104.58	68.60	78.66	62.07	91.01		10.70	11.60		8.76			18.08	33.45		19.49	17.41	13.80		14.20		14.40
Biochemical Oxygen Demand			6.5		5.9	5.4	7.1	4.1	9.9		1.5			3.7		3.7		2.5		2.5	2.5	5.1		1.5		1.5	
Chemical Oxygen Demand			158		123	47	98	56	51	129	67			107		32		10		25	10	10		10		10	
Conductivity			3010		2830	2980	2578	2597	2210	2940	242			255		239		407		443	433	433		358		341	
Total Oxidisable Nitrogen			0.15		0.15	0.15	0.15	0.15	0.15	0.15	0.15			0.15		0.15		2.86		2.4	1.92	1.85		3.57		2	
Total Phosphorus			0.46		0.74	0.125	0.125	0.125	0.125	0.26	0.3			0.125		1.11		0.125		0.125	0.125	0.125		0.125		0.125	

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Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH101																								
HEAVY METALS	µg/l		28/10/2019	19/02/2020	27/02/2020	01/07/2020	27/07/2020	28/07/2020	30/07/2020	24/08/2020	07/10/2020	24/11/2020	26/11/2020	16/02/2021	12/04/2021	26/07/2021	04/11/2021	01/02/2022	20/07/2016	27/09/2016	09/01/2017	11/01/2017	06/03/2017	18/07/2017	20/07/2017	15/08/2017	31/08/2017
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			10.00					10.00	0.22	10.00	0.59		0.45	0.57	0.63	0.73	0.88			12.50			0.27			
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l			**1.000**					**1.000**	0.222	**1.000**	0.185		0.145	0.191	0.213	0.193	0.195			**5.000**			**0.344**			
Chromium (diss.filt)	50 (5)			0.025					2.500	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125			12.500			0.125		0.125	0.125
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94		2.500					2.500	0.717	2.500	0.739		0.548	0.616	0.716	1.442	0.612			10.000			1.270			
Iron (diss.)	1000 (AA) (1&2)			**4050**					518	495	399	**1083**		**1640**	**1648**	**1312**	**1771**	**1724**			50			50			
Mercury (diss.filt)	0.07 MAC (1&2)			0.0025					0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025			0.0025			0.0025			
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92		**2670**					**2860**	**2845.390126**	**2570**	**2575.405611**		**2618.533295**	**2794.611872**	**2705.297598**	**2834.032439**	**2813.611571**			**16200**			**18900**			
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		2.50					2.50	3.39	2.50	3.06		3.26	3.14	3.37	3.20	3.09			12.50			9.53			
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		**10**					**10**	0.125	**10**	0.125		0.125	0.125	0.025	0.125	0.125			**12.5**			0.125			
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10		0.50					0.54	0.10	0.10	0.10		0.10	0.10	0.10	0.10	0.10						0.45		0.10	0.10
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15		5.55					6.73	4.45	9.85	3.96		4.72	4.92	4.69	4.27	4.51			10.00			1.61			
Iron (Total)												2035.900472		6360.076533	2307.847253	1863.537337	2765.307614	2743.343439				2560	507	190			
Manganese (Total)												2667.342435		2733.824492	2860.34098	2717.194195	2798.523976	2849.038571				16200	18800	19100			
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)			0.25					0.13	0.13	0.13	0.13		0.13	0.13	0.13	0.13	0.13									
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)			0.025					0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025								0.025	0.025
Aluminium (diss.filt)				20					20	20	20	20		20	20	20	20	20			50			50			
Vanadium (diss.filt)										0.125	0.125	0.125		0.125	0.125	0.025	0.125	0.125						0.125			
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50		22.50						22.50				22.50	22.50	22.50	22.50							1.25		
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)		10		10		10			10	10				10	10	10	10			25		25			10	10
EC>C6-C8	15000 (7)		12.5		12.5		12.5			12.5	12.5				12.5	12.5	12.5	12.5			30		30			12.5	12.5
EC>C8-C10	300 (7)		7.5		7.5		7.5			7.5	7.5				7.5	7.5	7.5	7.5			0.05		0.05			7.5	7.5
EC>C10-C12	300 (7)		5		5																3.5						
EC>C12-C16	300 (7)		5		5																5		5				
EC>C16-C21			5		5																2.5		2.5				
EC>C21-C35			5		5																10		10				
EC>C35-C44			5		5																2.5		2.5				
Aromatics																											
EC C5-C7	10 (7)		1		1		1			1	1				1	1	1	1			0.025		0.025			1	1
EC>C7-C8	700 (7)		2.5		2.5		2.5			2.5	2.5				2.5	2.5	2.5	2.5			0.025		0.025			2.5	2.5
EC>C8-C10	300 (7)																				0.025					25	25
EC>C10-C12	90 (7)		5		5																3.5						
EC>C12-C16	90 (7)		5		5																3		3				
EC>C16-C21	90 (7)		5		5																15		15				
EC>C21-C35	90 (7)		5		5																15		15				
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		0.50		0.50		0.50			0.50	0.50				0.50	0.50	0.50	0.50							0.50	0.50	0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50		0.50		0.50			0.50	0.50				0.50	0.50	0.50	0.50							0.50	0.50	0.50
Ethylbenzene	300 (8)		0.50		0.50		0.50			0.50	0.50				0.50	0.50	0.50	0.50							0.50	0.50	0.50
p/m-Xylene			1.00		1.00		1.00			1.00	1.00				1.00	1.00	1.00	1.00							0.50	1.00	1.00
o-Xylene			0.50		0.50		0.50			0.50	0.50				0.50	0.50	0.50	0.50							0.50	0.50	0.50
Sum of detected Xylenes	500 (8)		1.50		1.50		1.50			1.50	1.50				1.50	1.50	1.50	1.50									
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.076		0.499						0.063				0.078	0.004	0.832	0.137							0.500	0.004	0.004
Acenaphthylene (aq)	-		0.002		0.091						0.008				0.006	0.002	0.157	0.015								0.002	0.002
Acenaphthene (aq)	-		0.036		0.045						0.006				0.022	0.001	0.133	0.021								0.001	0.001
Fluorene (aq)	-		0.016		0.017						0.006				0.012	0.002	0.027	0.007								0.002	0.002
Phenanthrene (aq)	-		0.040		0.003						0.047				0.028	0.003	0.042	0.015								0.003	0.003
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.003		0.003						0.003				0.003	0.003	0.025	0.003								0.003	0.003
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.014		0.001						0.017				0.001	0.001	0.027	0.004								0.001	0.001
Pyrene (aq)	-		0.012		0.016						0.011				0.001	0.001	0.019	0.004								0.001	0.001
Benzo(a)anthracene (aq)	-		0.002		0.018						0.002				0.001	0.001	0.040	0.001								0.001	0.001
Chrysene (aq)	-		0.003		0.001						0.003				0.001	0.001	0.010	0.001								0.001	0.001
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.002		0.002						0.002				0.001	0.001	0.001	0.001								0.001	0.001
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.002		0.001						0.002				0.001	0.001	0.001	0.001								0.001	0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.002**		0.001						**0.004**				0.001	0.001	0.001	0.001								0.001	0.001
Indeno(1,2,3-cd)pyrene (aq)	-		0.007		0.002						0.003				0.001	0.001	0.001	0.001								0.001	0.001
Dibenzo(a,h)anthracene (aq)	-		0.002		0.002						0.002				0.002	0.002	0.002	0.002								0.002	0.002
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.006		0.001						0.002				0.001	0.001	0.001	0.001								0.001	0.001
INORGANICS	mg/l																										
Dissolved Organic Carbon			1.8		2.6			3.5		4.2	3.9	2.5		1.6	1.6		2.4	2.7	26	11	3.5		3.7	4.1			
pH	6 - 9 (2&4)		6.8		7.2			6.2		6.4	6.8	6.4		6.5	6.7	6.7	6.6	6.6	7.6	7.2			6.8	7.9			
Alkalinity (Total)			99		112			105		107	110	115		108	109	112	122	119	180	110	190		204	218			
Chloride	250 (5)		28		27			23		24	22	23		22	21	20	19	20	67	21	37		42	44			
Ammoniacal Nitrogen			0.2		0.49			0.2		0.2	0.2	0.2		0.18	0.2	0.71	0.2	0.2	0.021	0.014	0.92		0.95	0.83			
Nitrite			0.01		0.01			0.01		0.01	0.01	0.01		0.01	0.01	0.01	0.01	0.01	0.27	0.01	0.0025		0.0025	0.0025			
Nitrate	50 (5)		2.16		1.55			0.99		1	0.59	1.25		1.61	1.44	0.86	0.125	0.97	11	0.25	0.03		0.03	0.03			
Sulphate	250 (5)			15.90					21.80	21.12	19.78	18.42		19.43	18.31	19.19	15.78	15.12						16.70			
Sulphide																											
Calcium				42.20					41.30	41.50	39.56	41.80		39.73	40.98	40.18	42.46	41.06			52.10			66.60			
Potassium				4.58					4.26	4.27	4.69	4.50		4.27	4.44	4.38	4.80	4.77						3.74			
Magnesium				8.68					8.69	8.89	8.47	8.77		8.18	8.21	8.32	8.60	8.31			10.70			13.40			
Sodium	200(5)			12.80					14.60	14.14	13.08	12.54		12.82	12.50	13.15	13.87	12.48			22.80			31.10			
Biochemical Oxygen Demand			1.5		2.2			1.0		1.0	1.0	1.0		1.0	1.5	2.5	1.5										
Chemical Oxygen Demand			10		96			10		10	10	10		10	10	10	10	10									
Conductivity			353		359			927		343	341	362		343	335	330	338	334						601			
Total Oxidisable Nitrogen			2.16		1.55			0.99		1	0.59	1.25		1.61	1.44	0.86	0.15	0.97			0.03		0.03	0.03			
Total Phosphorus			0.125		0.125			0.125		0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125									

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH102										
HEAVY METALS	µg/l		19/10/2017	12/01/2018	20/02/2018	12/04/2018	17/04/2018	27/06/2018	28/06/2018	03/10/2018	16/10/2018	17/10/2018	09/01/2019
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.28	10.00			10.00	10.00		10.00			10.00
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.549	1.000			1.000	1.000		1.000			1.000
Chromium (diss.filt)	50 (5)		0.125	2.500			5.720	2.500		2.500			2.500
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	1.470	2.500			6.580	2.500		2.500			2.500
Iron (diss.)	1000 (AA) (1&2)		50	20			20	20		20			20
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025			0.0025	0.0025		0.0025			0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	18600	14000			15500	21600		15500			13100
Molybdenum (diss.filt)	70 (8) ?												
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	9.30	5.00			10.70	12.90		9.32			7.14
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.125	10			10	10		10			10
Antimony (diss.filt)	5 (5)												
Selenium (diss.filt)	10(5)	10	0.73										
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	1.42	1.00			3.90	2.10		2.57			3.00
Iron (Total)			932		154.3429946	2760			1060				
Manganese (Total)			19100		14100	17600			21100				
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)												
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)												
Aluminium (diss.filt)			50	20			20	20		20			20
Vanadium (diss.filt)			0.125										
Phenols	ug/l												
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)				22.50	22.50			22.50			22.50	
Speciated TPH	ug/l												
Aliphatics													
EC C5-C6	15000 (7)				10	10			10			10	
EC>C6-C8	15000 (7)				12.5	12.5			12.5			12.5	
EC>C8-C10	300 (7)				7.5	7.5			7.5			7.5	
EC>C10-C12	300 (7)				5	5			5			5	
EC>C12-C16	300 (7)				5	5			5			5	
EC>C16-C21					5	5			5			5	
EC>C21-C35					5	5			5			5	
EC>C35-C44					5	5			5			5	
Aromatics													
EC C5-C7	10 (7)				1	1			1			1	
EC>C7-C8	700 (7)				2.5	2.5			2.5			2.5	
EC>C8-C10	300 (7)				25	25			25			25	
EC>C10-C12	90 (7)				5	5			5			5	
EC>C12-C16	90 (7)				5	5			5			20	
EC>C16-C21	90 (7)				5	5			5			30	
EC>C21-C35	90 (7)				5	5			5			10	
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)				0.50	0.50			0.50			0.50	
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)				0.50	0.50			0.50			0.50	
Ethylbenzene	300 (8)				0.50	0.50			0.50			0.50	
p/m-Xylene					1.00	1.00			1.00			1.00	
o-Xylene					0.50	0.50			0.50			0.50	
Sum of detected Xylenes	500 (8)												
Polyaromatic Hydrocabons	µg/l												
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)				0.004	0.025			0.004			0.004	
Acenaphthylene (aq)	-				0.002	0.005			0.002			0.002	
Acenaphthene (aq)	-				0.001	0.015			0.025			0.001	
Fluorene (aq)	-				0.002	0.020			0.032			0.005	
Phenanthrene (aq)	-				0.003	0.003			0.003			0.003	
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)				0.003	0.003			0.003			0.002	
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)				0.001	0.001			0.003			0.003	
Pyrene (aq)	-				0.001	0.001			0.003			0.001	
Benzo(a)anthracene (aq)	-				0.001	0.001			0.001			0.001	
Chrysene (aq)	-				0.001	0.001			0.001			0.001	
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)				0.001	0.001			0.001			0.001	
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)				0.001	0.001			0.001			0.001	
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))				0.001	0.001			0.001			0.001	
Indeno(1,2,3-cd)pyrene (aq)	-				0.001	0.001			0.001			0.001	
Dibenzo(a,h)anthracene (aq)	-				0.002	0.002			0.002			0.002	
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)				0.001	0.001			0.001			0.001	
INORGANICS	mg/l												
Dissolved Organic Carbon			4.6		2.6	4.1			5.4		4		
pH	6 - 9 (2&4)		7		6.9	6.9			6.9		7		
Alkalinity (Total)			226		188	256			298		250		
Chloride	250 (5)		52		41	43			68		48		
Ammoniacal Nitrogen			1.25		0.55	0.59			0.68		0.73		
Nitrite			0.0025		0.0025	0.0025			0.0025		0.0025		
Nitrate	50 (5)		0.03		1.78	0.19			0.03		0.03		
Sulphate	250 (5)		17.30	16.10			22.80	22.40		19.90			24.70
Sulphide													
Calcium			65.20	41.10			75.00	95.70		73.10			66.50
Potassium			3.99	2.27			3.72	4.33		3.67			3.35
Magnesium			14.40	9.75			18.00	22.70		16.70			15.30
Sodium	200(5)		32.00	16.80			31.80	40.60		37.50			28.70
Biochemical Oxygen Demand			1.5		1.5	2.5			2.5		1.5		
Chemical Oxygen Demand			20		10	10			10		10		
Conductivity			627		580	668			799		667		
Total Oxidisable Nitrogen			0.03		1.78	0.19			0.03		0.03		
Total Phosphorus			0.125		0.125	0.125			0.125		0.125		

Sample Point / Determinands	BH102													
HEAVY METALS	22/01/2019	11/04/2019	25/04/2019	05/07/2019	09/07/2019	15/10/2019	22/10/2019	19/02/2020	26/02/2020	01/07/2020	27/07/2020	28/07/2020	30/07/2020	24/08/2020
Arsenic (diss.filt)		10.00		10.00		10.00		10.00					10.00	0.23
Cadmium (diss.filt)		1.000		1.000		1.000		1.000					1.000	0.424
Chromium (diss.filt)		0.677		0.250		0.250		0.025					2.500	0.125
Copper (diss.filt)		2.500		2.500		2.500		2.500					2.500	1.810
Iron (diss.)		20		20		20		20					20	20
Mercury (diss.filt)		0.0025		0.0025		0.0025		0.0025					0.0025	0.0025
Manganese (diss.filt)		13100		15300		11300		9320					10700	9018
Molybdenum (diss.filt)														
Nickel (diss.filt)		8.04		10.50		8.51		7.32					8.04	7.54
Lead (diss.filt)		10		10		10		10					10	0.125
Antimony (diss.filt)														
Selenium (diss.filt)		0.50		0.50		0.50		0.50					1.01	0.10
Zinc (diss.filt)		3.29		3.30		2.13		2.22					2.77	1.51
Iron (Total)														
Manganese (Total)														
Chromium III (diss.filt)		0.34		0.25		0.25		0.25					0.13	0.13
Chromium VI (diss.filt)		0.025		0.025		0.025		0.025					0.025	0.025
Aluminium (diss.filt)		20		20		20		20					20	20
Vanadium (diss.filt)														0.125
Phenols														
Phenols, Total	22.50		22.50		80.00		22.50		22.50					
Speciated TPH														
Aliphatics														
EC C5-C6	10		10		10				10		10			10
EC>C6-C8	12.5		12.5		12.5				12.5		12.5			12.5
EC>C8-C10	7.5		7.5		7.5				7.5		7.5			7.5
EC>C10-C12	5		5		20		5		5					
EC>C12-C16	5		5		5		5		5					
EC>C16-C21	5		5		5		5		5					
EC>C21-C35	5		10		5		5		5					
EC>C35-C44	5		5		5		5		5					
Aromatics														
EC C5-C7	1		1		1				1		1			1
EC>C7-C8	2.5		2.5		2.5				2.5		2.5			2.5
EC>C8-C10	25		25											
EC>C10-C12	5		5		20		5		5					
EC>C12-C16	5		20		50		5		5					
EC>C16-C21	5		20		50		5		5					
EC>C21-C35	5		5		5		5		5					
Benzene	0.50		0.50		0.50				0.50		0.50			0.50
Toluene	0.50		0.50		0.50				0.50		0.50			0.50
Ethylbenzene	0.50		0.50		0.50				0.50		0.50			0.50
p/m-Xylene	1.00		1.00		1.00				1.00		1.00			1.00
o-Xylene	0.50		0.50		0.50				0.50		0.50			0.50
Sum of detected Xylenes					1.50				1.50		1.50			1.50
Polyaromatic Hydrocabons														
Naphthalene (aq)	0.004		0.004		0.004		0.046		0.020					
Acenaphthylene (aq)	0.002		0.005		0.002		0.005		0.005					
Acenaphthene (aq)	0.001		0.003		0.001		0.091		0.005					
Fluorene (aq)	0.002		0.002		0.002		0.008		0.002					
Phenanthrene (aq)	0.003		0.003		0.003		0.023		0.003					
Anthracene (aq)	0.003		0.003		0.003		0.003		0.003					
Fluoranthene (aq)	0.004		0.003		0.001		0.016		0.003					
Pyrene (aq)	0.008		0.003		0.003		0.024		0.006					
Benzo(a)anthracene (aq)	0.001		0.001		0.001		0.001		0.001					
Chrysene (aq)	0.001		0.001		0.001		0.001		0.001					
Benzo(b)fluoranthene (aq)			0.001		0.001		0.001		0.001					
Benzo(k)fluoranthene (aq)			0.001		0.001		0.001		0.001					
Benzo(a)pyrene (aq)	0.028		0.001		0.001		0.001		0.001					
Indeno(1,2,3-cd)pyrene (aq)	0.003		0.001		0.001		0.001		0.001					
Dibenzo(a,h)anthracene (aq)	0.004		0.002		0.002		0.002		0.002					
Benzo(g,h,i)perylene (aq)	0.003		0.001		0.001		0.001		0.001					
INORGANICS														
Dissolved Organic Carbon	3.3		4.2		5.4		3		2.6			5.1		4.7
pH	6.8		7.5		6.9		7		7.6			6.7		7
Alkalinity (Total)	210		216		267		218		204			249		231
Chloride	40		46		54		37		44			46		43
Ammoniacal Nitrogen	0.62		0.43		0.54		0.57		0.2			0.2		0.2
Nitrite	0.0025		0.01		0.01		0.01		0.01			0.01		0.01
Nitrate	2.3		1.29		0.125		1.86		2.5			0.15		0.89
Sulphate		25.30		23.30		22.80		25.50					22.40	22.03
Sulphide														
Calcium		67.70		77.10		65.90		68.70					77.80	72.89
Potassium		3.41		3.62		3.23		3.24					3.51	3.38
Magnesium		15.70		17.80		15.40		16.10					18.10	17.15
Sodium		30.40		40.60		32.60		28.80					38.30	35.75
Biochemical Oxygen Demand	1.5		1.5		1.5		1.5		1.5			1.5		1.0
Chemical Oxygen Demand	10		10		10		10		10			10		10
Conductivity	590		629		726		602		613			667		630
Total Oxidisable Nitrogen	2.3		1.29		0.15		1.86		2.5			0.15		0.89
Total Phosphorus	0.125		0.125		0.125		0.125		0.125			0.125		0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)							BH103																			
HEAVY METALS	µg/l		07/10/2020	16/02/2021	13/04/2021	27/07/2021	08/11/2021	26/01/2022	20/07/2016	09/08/2016	03/10/2018	09/01/2017	11/01/2017	06/03/2017	18/07/2017	20/07/2017	15/08/2017	31/08/2017	19/10/2017	12/01/2018	20/02/2018	09/04/2018	17/04/2018	27/06/2018	28/06/2018	03/10/2018	16/10/2018	17/10/2018
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		10.00	0.23	0.31	0.31	0.26	0.13			10.00	12.50			2.92				12.50	10.00			10.00	10.00		10.00		
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**		**1.000**	**0.341**	**0.409**	**0.449**	**0.393**	**0.284**			**1.000**	**5.000**			0.125				**5.000**	**1.000**			**1.000**	**1.000**		**1.000**		
Chromium (diss.filt)	**50 (5)**		0.125	0.125	0.125	0.125	0.125	0.125			2.500	12.500			0.125		0.125	0.125		2.500			2.500	2.500		2.500		
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	2.500	1.663	2.723	2.232	2.117	1.338			12.800	10.000			0.377				10.000	9.760			2.500	5.600		2.500		
Iron (diss.)	**1000 (AA) (1&2)**		20	20	20	20	20	20			**27000**	**7670**			**15000**				**18500**	**16300**			**10100**	**13600**		**10200**		
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025				0.0025			0.0025					0.0025			0.0025	0.0025		0.0025		
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	**8410**	**7630**	**7940**	**8800**	**7110**	**5700**			**13800**	**6880**			**8200**				**8930**	**6630**			**6690**	**7320**		**6700**		
Molybdenum (diss.filt)	**70 (8) ?**																											
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	6.93	7.10	8.95	9.69	6.60	5.66			2.50	12.50			4.73				12.50	5.51			6.29			6.58		
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	**10**	0.125	0.125	0.025	0.125	0.125			**10**	**12.5**			0.125				**12.5**	**10**			**10**	**10**		**10**		
Antimony (diss.filt)	**5 (5)**																											
Selenium (diss.filt)	**10(5)**	**10**	0.10	0.10	0.10	0.10	0.10	0.10							0.81		0.10	0.10										
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	2.72	2.24	3.24	2.43	1.64	1.89			3.38	10.00			3.81				10.00	6.39			6.35	5.59		5.69		
Iron (Total)				341.9125147	145.0741346	99.19816684	381.7746281	238.9125281					15900	25800	18800				22700		17600	11100			15000			
Manganese (Total)				7700	7780	8850	7140	5730					6820	9520	8140				8880		6440	6640			7440			
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.13	0.13	0.13	0.13	0.13	0.13																				
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.025	0.025	0.025	0.025	0.255	0.025									0.025	0.025										
Aluminium (diss.filt)			20	20	20	20	20	20			20	50			50				50	20			20	20		20		
Vanadium (diss.filt)			0.125	0.125	0.125	0.075	0.125	0.125							0.125													
Phenols	**ug/l**																											
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		22.50		**90.00**	22.50	22.50	22.50								1.25					22.50	22.50			22.50			22.50
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	**15000 (7)**		10		10	10	10	10				25		25			10	10			10	10			10			10
EC>C6-C8	**15000 (7)**		12.5		12.5	12.5	12.5	12.5				30		30			12.5	12.5			12.5	12.5			12.5			12.5
EC>C8-C10	**300 (7)**		7.5		7.5	7.5	7.5	7.5				0.05		0.05			7.5	7.5			7.5	7.5			7.5			7.5
EC>C10-C12	**300 (7)**											3.5									5	5			5			5
EC>C12-C16	**300 (7)**											5		5							5	5			5			5
EC>C16-C21												2.5		2.5							5	5			5			5
EC>C21-C35												10		10							5	5			5			5
EC>C35-C44												2.5		2.5							5	5			5			5
Aromatics																												
EC C5-C7	**10 (7)**		1		1	1	**21.468**	1				0.025		0.025			1	1			1	1			1			1
EC>C7-C8	**700 (7)**		2.5		2.5	2.5	16.281	2.5				0.025		0.025			2.5	2.5			2.5	2.5			2.5			2.5
EC>C8-C10	**300 (7)**											0.025					25	25			25	25			25			25
EC>C10-C12	**90 (7)**											3.5									5	5			5			5
EC>C12-C16	**90 (7)**											3		3							5	5			5			10
EC>C16-C21	**90 (7)**											15		15							5	5			5			20
EC>C21-C35	**90 (7)**											15		15							5	5			5			5
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		0.50		0.50	0.50	9.41	0.50									0.50	0.50										0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		0.50		0.50	0.50	12.06	0.50									0.50	0.50										0.50
Ethylbenzene	**300 (8)**		0.50		0.50	0.50	0.50	0.50									0.50	0.50										0.50
p/m-Xylene			1.00		1.00	1.00	3.47	1.00									1.00	1.00										1.00
o-Xylene			0.50		0.50	0.50	0.50	0.50									0.50	0.50										0.50
Sum of detected Xylenes	**500 (8)**		1.50		1.50	1.50	3.85	1.50																				
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.004		0.227	0.105	0.232	0.032									0.004	0.004			0.004	0.004			0.004			0.004
Acenaphthylene (aq)	**-**		0.002		0.050	0.004	0.039	0.006									0.002	0.002			0.002	0.002			0.002			0.002
Acenaphthene (aq)	**-**		0.001		0.077	0.012	0.035	0.025									0.001	0.001			0.001	0.001			0.001			0.001
Fluorene (aq)	**-**		0.002		0.089	0.004	0.018	0.012									0.002	0.002			0.002	0.002			0.002			0.002
Phenanthrene (aq)	**-**		0.024		0.061	0.020	0.019	0.023									0.003	0.003			0.003	0.003			0.003			0.003
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		0.003		0.014	0.013	0.008	0.009									0.003	0.003			0.003	0.003			0.003			0.003
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		0.020		0.009	0.016	0.015	0.007									0.001	0.001			0.001	0.001			0.001			0.001
Pyrene (aq)	**-**		0.015		0.014	0.010	0.017	0.010									0.001	0.001			0.001	0.001			0.001			0.001
Benzo(a)anthracene (aq)	**-**		0.001		0.001	0.009	0.001	0.001									0.001	0.001			0.001	0.001			0.001			0.001
Chrysene (aq)	**-**		0.003		0.001	0.011	0.001	0.002									0.001	0.001			0.001	0.001			0.001			0.001
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001		0.003	0.012	0.001	0.001									0.001	0.001			0.001	0.001			0.001			0.001
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001		0.003	0.012	0.001	0.001									0.001	0.001			0.001	0.001			0.001			0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		0.001		**0.008**	**0.019**	**0.004**	**0.011**									0.001	0.001			0.001	0.001			0.001			0.001
Indeno(1,2,3-cd)pyrene (aq)	**-**		0.001		0.005	0.006	0.001	0.001									0.001	0.001			0.001	0.001			0.001			0.001
Dibenzo(a,h)anthracene (aq)	**-**		0.002		0.009	0.002	0.002	0.007									0.002	0.002			0.002	0.002			0.002			0.002
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		0.001		0.008	0.006	0.001	0.001									0.001	0.001			0.001	0.001			0.001			0.001
INORGANICS	**mg/l**																											
Dissolved Organic Carbon			4.5	3.1	4.7		6	2.7	20	13		3.9		3.8	4.1				4.1		4.8	4.8			4.7		4.8	
pH	**6 - 9 (2&4)**		7	6.8	7.4	7.2	7	6.8	7.5	8.2				6.6	6.7				6.6		6.6	6.8			6.8		6.8	
Alkalinity (Total)			218	225	280	292	224	187	170	200		163		176	174				184		188	186			182		182	
Chloride	**250 (5)**		39	34	51	51	40	41	67	23		108		145	88				103		108	78			76		108	
Ammoniacal Nitrogen			0.2	0.36	0.2	0.2	0.53	0.54	0.014	0.098		1.08		1.95	1.44				2.13		1.98	2.14			2.13		2.08	
Nitrite			0.01	0.01	0.01	0.01	0.01	0.01	0.11	0.01		0.03		0.0025	0.031				0.008		0.006	0.013			0.02		0.008	
Nitrate	**50 (5)**		1.4	1.17	0.125	0.125	1.9	2.96	13	0.25		0.33		0.03	0.91				1.14		0.63	1.55			2.19		0.43	
Sulphate	**250 (5)**		22.67	26.52	25.61	22.05	23.84	29.27			24.70				48.10				55.38	45.10			63.40			71.40		
Sulphide																												
Calcium			67.84	72.74	82.53	88.20	71.94	68.45			36.20	49.70			60.40				62.10	59.40			61.10			65.10		
Potassium			3.29	3.42	3.54	3.85	3.52	3.64			3.44				5.81				6.12	5.77			5.48			5.43		
Magnesium			16.00	17.58	19.34	20.78	16.49	15.58			6.39	14.90			15.70				16.20	15.20			16.20			17.40		
Sodium	**200(5)**		30.25	31.91	37.75	41.72	32.86	27.30			14.20	57.90			58.60				73.30	74.70			63.30			67.50		
Biochemical Oxygen Demand			2.3	1.0	1.5	2.5	1.5	1.5											2.4		1.5	2.5			1.5		1.5	
Chemical Oxygen Demand			10	10	10	10	10	10											41		10	10			10		10	
Conductivity			610	639	722	758	615	564							723				854		825	740			728		833	
Total Oxidisable Nitrogen			1.4	1.17	0.15	0.15	1.9	2.96				0.36		0.06	0.94				1.15		0.64	1.56			2.21		0.44	
Total Phosphorus			0.125	0.125	0.125	0.125	0.125	0.125											0.125		0.125	0.125			0.125		0.125	

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH104																								
HEAVY METALS	µg/l		09/01/2019	22/01/2019	11/04/2019	25/04/2019	05/07/2019	09/07/2019	15/10/2019	22/10/2019	19/02/2020	26/02/2020	01/07/2020	27/07/2020	28/07/2020	30/07/2020	24/08/2020	07/10/2020	24/11/2020	26/11/2020	16/02/2021	13/04/2021	27/07/2021	08/11/2021	26/01/2022	18/07/2017	19/10/2017
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		10.00		10.00		10.00		10.00		10.00					10.00	0.72	10.00	0.71		0.39	0.49	0.52	0.44	0.48	12.50	12.50
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l		**1.000**		**1.000**		**1.000**		**1.000**		**1.000**					**1.000**	0.127	**1.000**	0.146		0.154	0.144	0.150	0.133	0.136	**5.000**	**5.000**
Chromium (diss.filt)	50 (5)		2.500		0.782		0.250		0.250		0.025					2.500	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	12.500	
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	7.630		2.500		2.500		2.500		2.500					2.500	0.894	2.500	1.080		2.280	2.023	0.907	1.565	1.003	10.000	10.000
Iron (diss.)	1000 (AA) (1&2)		**10300**		20		**5540**		**1770**		**3430**					**4800**	**1747**	799	**2147**		623	**1651**	**3230**	745	650	**9700**	**23100**
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025		0.0025		0.0025		0.0025		0.0025					0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	**6540**		**5020**		**3900**		**2280**		**5720**					**2730**	**2654.782387**	**2354.698692**	**3105.376553**		**2694.675133**	**2815.424824**	**3287.288188**	**1782.526577**	**1876.468076**	**5390**	**4500**
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	5.94		6.36		7.61		7.99		6.98					7.34	6.52	6.40	6.59		5.14	4.36	7.16	6.79	6.00	12.50	12.50
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	**10**		**10**		**10**		**10**		**10**					**10**	0.125	**10**	0.125		0.125	0.125	0.025	0.125	0.125	0.125	**12.5**
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10			0.50		0.50		0.50		0.50					1.25	0.10	0.10	0.10		0.10	0.10	0.10	0.10	0.10		
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	6.57		2.68		4.87		3.53		4.45					4.10	2.55	5.08	2.32		4.23	4.12	6.21	2.41	3.27	10.00	10.00
Iron (Total)																			2507.614129		992.1857459	1890.810079	3942.271551	926.0337913	1021.352189	38000	109000
Manganese (Total)																			3240		2734.69833	2841.285603	3370	1798.84038	1919.882883	5070	4430
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)				0.39		0.25		0.25		0.25					0.13	0.13	0.13	0.13		0.13	0.13	0.13	0.13	0.13		
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)				0.025		0.025		0.025		0.025					0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025		
Aluminium (diss.filt)			20		20		20		20		20					20	20	20	20		20	20	20	20	20	50	50
Vanadium (diss.filt)																	0.125	0.125	0.125		0.125	0.125	0.025	0.125	0.125		
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)			22.50		22.50												22.50				22.50	22.50	22.50	22.50		
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)			10		10		10				10		10			10	10				10	10	10	10		
EC>C6-C8	15000 (7)			12.5		12.5		12.5				12.5		12.5			12.5	12.5				12.5	12.5	12.5	12.5		
EC>C8-C10	300 (7)			7.5		7.5		7.5				7.5		7.5			7.5	7.5				7.5	7.5	7.5	7.5		
EC>C10-C12	300 (7)			5		5		5				5															
EC>C12-C16	300 (7)			5		5		5				5															
EC>C16-C21				5		5		5				5															
EC>C21-C35				5		5		40				5															
EC>C35-C44				5		5		5				5															
Aromatics																											
EC C5-C7	10 (7)			1		1		1				1		1			1	1				1	1	1	1		
EC>C7-C8	700 (7)			2.5		2.5		2.5				2.5		2.5			2.5	2.5				2.5	2.5	2.5	2.5		
EC>C8-C10	300 (7)			25		25																					
EC>C10-C12	90 (7)			5		5		5				5															
EC>C12-C16	90 (7)			5		5		30				5															
EC>C16-C21	90 (7)			10		20		50				5															
EC>C21-C35	90 (7)			5		5		5				5															
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)					0.50		0.50				0.50		0.50			0.50	0.50				0.50	0.50	0.50	0.50		
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)					0.50		0.50				0.50		0.50			0.50	0.50				0.50	0.50	0.50	0.50		
Ethylbenzene	300 (8)					0.50		0.50				0.50		0.50			0.50	0.50				0.50	0.50	0.50	0.50		
p/m-Xylene						1.00		1.00				1.00		1.00			1.00	1.00				1.00	1.00	1.00	1.00		
o-Xylene						0.50		0.50				0.50		0.50			0.50	0.50				0.50	0.50	0.50	0.50		
Sum of detected Xylenes	500 (8)							1.50				1.50		1.50			1.50	1.50				1.50	1.50	1.50	1.50		
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)			0.004		0.004		0.028		0.059		0.021						0.004				0.004	0.190	0.032	0.039		
Acenaphthylene (aq)	-			0.002		0.005		0.003		0.019		0.013						0.002				0.002	0.019	0.010	0.005		
Acenaphthene (aq)	-			0.001		0.004		0.004		0.006		0.005						0.001				0.001	0.058	0.015	0.029		
Fluorene (aq)	-			0.002		0.002		0.010		0.007		0.002						0.002				0.002	0.019	0.013	0.015		
Phenanthrene (aq)	-			0.003		0.003		0.041		0.021		0.003						0.018				0.003	0.040	0.009	0.045		
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)			0.003		0.003		0.003		0.003		0.003						0.003				0.003	0.026	0.006	0.020		
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)			0.001		0.001		0.007		0.004		0.001						0.014				0.001	0.015	0.008	0.015		
Pyrene (aq)	-			0.001		0.001		0.005		0.005		0.001						0.010				0.001	0.005	0.005	0.009		
Benzo(a)anthracene (aq)	-			0.001		0.001		0.001		0.001		0.001						0.002				0.001	0.002	0.001	0.001		
Chrysene (aq)	-			0.001		0.001		0.001		0.001		0.001						0.004				0.001	0.005	0.001	0.003		
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)					0.001		0.001		0.001		0.001						0.003				0.001	0.010	0.001	0.002		
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)					0.001		0.001		0.001		0.001						0.003				0.001	0.008	0.001	0.001		
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**			**0.029**		0.001		0.001		0.001		0.001						**0.005**				**0.001**	**0.005**	**0.004**	**0.010**		
Indeno(1,2,3-cd)pyrene (aq)	-			0.002		0.001		0.001		0.001		0.001						0.004				0.001	0.008	0.001	0.001		
Dibenzo(a,h)anthracene (aq)	-			0.002		0.002		0.002		0.002		0.002						0.002				0.002	0.002	0.002	0.008		
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)			0.003		0.001		0.001		0.001		0.001						0.003				0.001	0.007	0.001	0.001		
INORGANICS	mg/l																										
Dissolved Organic Carbon				6.2		4.6		4.3		3.3		5.5			4.1		4.4	5.2	3.8		2.3	2.5		4.78	2.6		14.1
pH	6 - 9 (2&4)			6.7		7.2		6.9		6.8		7			6.6		6.8	7	6.6		6.7	7.5	6.8	6.8	6.6	7.4	7.3
Alkalinity (Total)				203		183		170		168		225			169		158	182	195		158	157	144	207	155		776
Chloride	250 (5)			92		95		82		54		38			55		51	45	41		34	48	50	47	44	117	42
Ammoniacal Nitrogen				2.33		1.43		0.88		0.2		3.01			0.83		0.2	0.2	1.72		0.41	0.2	0.5	0.49	0.2	12.8	11
Nitrite				0.0025		0.01		0.02		0.01		0.01			0.01		0.01	0.01	0.01		0.01	0.01	0.034	0.01	0.01	0.0025	0.011
Nitrate	50 (5)			0.88		1.29		0.94		1.65		0.125			0.15		1.38	0.125	0.49		1.76	2.21	2.35	0.47	2.4	0.03	0.09
Sulphate	250 (5)		47.00		55.50		54.80		48.20		71.70					64.50	52.43	50.94	58.41		46.47	49.12	68.09	67.92	49.62	161.00	1.50
Sulphide																											
Calcium			63.50		60.90		61.30		60.10		83.20					62.30	59.80	60.93	68.22		59.05	60.56	60.63	68.88	57.10	361.00	276.00
Potassium			5.66		4.99		4.77		4.55		8.00					4.69	4.16	4.59	6.50		4.32	3.52	3.65	4.87	3.76	38.90	16.50
Magnesium			16.90		17.70		19.00		18.30		17.00					18.70	19.33	19.14	19.10		17.18	19.49	20.98	22.24	18.67	39.00	21.30
Sodium	200(5)		66.00		57.30		53.70		39.30		29.10					43.80	36.40	35.90	29.67		24.22	26.15	34.28	42.83	31.04	132.00	40.00
Biochemical Oxygen Demand				1.5		1.5		2.2		1.5		1.5			1.0		1.5	1.0	1.0		1.0	1.5	2.5	1.5	1.5		8.2
Chemical Oxygen Demand				10		10		10		10		10			10		10	10	10		10	10	10	21	10		78
Conductivity				789		757		702		614		694			647		590	612	618		553	566	602	674	561	2127	1540
Total Oxidisable Nitrogen				0.88		1.29		0.96		1.65		0.15			0.15		1.38	0.15	0.49		1.76	2.21	2.38	0.47	2.4	0.03	0.1
Total Phosphorus				0.125		0.125		0.125		0.125		0.125			0.125		0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125		0.3

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:
Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH105																									
HEAVY METALS	**µg/l**		12/01/2018	20/02/2018	09/04/2018	17/04/2018	27/06/2018	03/10/2018	16/10/2018	08/01/2019	09/01/2019	11/04/2019	05/07/2019	08/07/2019	15/10/2019	23/10/2019	19/02/2020	20/02/2020	14/10/2020	17/02/2021	15/04/2021	27/07/2021	27/10/2021	25/01/2022	27/09/2016	03/10/2018	10/10/2018	12/10/2018
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		10.00			10.00	10.00	10.00			10.00	10.00	10.00		10.00		10.00		10.00		0.60	10.00	0.00			10.00		
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**		1.000			1.000	1.000	1.000			1.000	1.000	1.000		1.000		1.000		1.000		0.025	1.000				2.060		
Chromium (diss.filt)	**50 (5)**		2.500			2.500	2.500	2.500			2.500								2.500		0.372	2.500				2.500		
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	23.000			9.430	15.400	2.500			2.500	34.000	6.020		13.600		18.600		8.219		0.125	36.517				83.400		
Iron (diss.)	**1000 (AA) (1&2)**		36000			13400	38200	2650			6730	63500	17000		37600		53000		11399		23000	36200	44000	33800		120000		
Mercury (diss.filt)	**0.07 MAC (1&2)**																									0.0025		
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	3180			3240	5710	815			1200	3740	4030		3020		2620		2713.089997		2397.788074	3820	4840	2485.863002		12000		
Molybdenum (diss.filt)	**70 (8) ?**																											
Nickel (diss.filt)	**$4^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	2.50			2.50	2.50	7.06			8.09	2.50	9.09		2.50		2.50		2.50		0.74	2.50				47.40		
Lead (diss.filt)	**$1.2^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	10			10	10	10			10	10	10		10		10		10		0.125	10				10		
Antimony (diss.filt)	**5 (5)**																											
Selenium (diss.filt)	**10(5)**	**10**																			0.10							
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	4.12			3.58	5.31	2.46			4.64	7.30	4.05		6.91		6.81		3.11		0.50	17.55				13.30		
Iron (Total)				44600	30200		51100														36700	52800	58000	45800				
Manganese (Total)				3140	3360		5650														2471.829091	4000	4860	2544.205272				
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**																				0.35							
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**																				0.050							
Aluminium (diss.filt)			20			20	20	20			20	20	20		20		20		20		20	20	20	20		20		
Vanadium (diss.filt)																					0.125							
Phenols	**ug/l**																											
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																		22.50									22.50
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	**15000 (7)**																		10	10	10	10	10	10				10
EC>C6-C8	**15000 (7)**																		12.5	12.5	12.5	12.5	12.5	12.5				12.5
EC>C8-C10	**300 (7)**																		833	7.5	7.5	7.5	7.5	7.5				7.5
EC>C10-C12	**300 (7)**															5		5										5
EC>C12-C16	**300 (7)**															5		5										5
EC>C16-C21																5		5										5
EC>C21-C35																5		5										5
EC>C35-C44																5		5										5
Aromatics																												
EC C5-C7	**10 (7)**																		832	1	1	1	1	10.129				1
EC>C7-C8	**700 (7)**																		2.5	2.5	2.5	2.5	2.5	9.635				2.5
EC>C8-C10	**300 (7)**																											25
EC>C10-C12	**90 (7)**															5		5										5
EC>C12-C16	**90 (7)**															5		5										20
EC>C16-C21	**90 (7)**															5		5										20
EC>C21-C35	**90 (7)**															5		5										10
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																		0.50	0.50	0.50	0.50	0.50	0.50				0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																		832.00	0.50	0.50	0.50	0.50	9.41				0.50
Ethylbenzene	**300 (8)**																		0.50	0.50	0.50	0.50	0.50	0.50				0.50
p/m-Xylene																			1.00	1.00	1.00	1.00	1.00	1.00				1.00
o-Xylene																			0.50	0.50	0.50	0.50	0.50	0.50				0.50
Sum of detected Xylenes	**500 (8)**																		1.50	1.50	1.50	1.50	1.50	1.50				
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**									0.004				0.085		2.499		0.314	0.004		3.790	0.052	0.088	0.161				0.045
Acenaphthylene (aq)	**-**									0.002				0.010		0.096		0.023	0.002		2.109	0.003	0.006	0.018				0.011
Acenaphthene (aq)	**-**									0.013				0.086		0.601		0.105	0.004		0.002	0.076	0.157	0.192				0.126
Fluorene (aq)	**-**									0.011				0.072		0.423		0.059	0.017		0.225	0.058	0.159	0.117				0.143
Phenanthrene (aq)	**-**									0.003				0.050		0.468		0.028	0.027		0.380	0.026	0.031	0.070				0.046
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**									0.003				0.003		0.003		0.003	0.003		0.010	0.015	0.014	0.024				0.089
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**									0.005				0.018		0.106		0.009	0.011		0.027	0.018	0.042	0.033				0.233
Pyrene (aq)	**-**									0.005				0.018		0.058		0.006	0.008		0.021	0.012	0.042	0.037				0.244
Benzo(a)anthracene (aq)	**-**									0.001				0.005		0.003		0.002	0.001		0.002	0.002	0.020	0.003				0.175
Chrysene (aq)	**-**									0.001				0.007		0.009		0.003	0.002		0.004	0.003	0.020	0.006				0.175
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**													0.010		0.007		0.001	0.001		0.002	0.006	0.018	0.004				0.107
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**													0.011		0.002		0.002	0.001		0.003	0.004	0.017	0.004				0.107
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**									0.020				0.004		0.004		0.003	0.001		0.002	0.008	0.042	0.024				0.101
Indeno(1,2,3-cd)pyrene (aq)	**-**									0.005				0.001		0.014		0.001	0.001		0.004	0.006	0.030	0.001				0.049
Dibenzo(a,h)anthracene (aq)	**-**									0.010				0.005		0.002		0.002	0.002		0.002	0.002	0.007	0.019				0.030
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**									0.005				0.001		0.013		0.001	0.001		0.003	0.005	0.014	0.001				0.057
INORGANICS	**mg/l**																											
Dissolved Organic Carbon					15.6		13.7		31.4		17.9	13.9		16.1		13.5		13	10.8		8.8		12.5	12	11		9.2	
pH	**6 - 9 (2&4)**				7.8		6.8		7.7		7.1	6.8		6.9		6.8		6.7	6.7		6.8	6.9	6.8	6.8	6.7		6.7	
Alkalinity (Total)					725		745		347		467	602		697		572		607	565		565	743	726	522	190		344	
Chloride	**250 (5)**				33		23		23		17	26		36		22		28	213		12	28	20	24	51		98	
Ammoniacal Nitrogen				11.1	11.6		9.9		1.06		1.66	7.9		9.7		8.53		11.55	84.93		5.35	12.96	11.45	8.68	0.01		4.19	
Nitrite					0.0025		0.029		0.009		0.005	0.01		0.01		0.01		0.01	0.01		0.01	0.01	0.01	0.01	0.021		0.025	
Nitrate	**50 (5)**				0.03		0.03		0.11		0.03	0.15		0.125		0.125		0.125	0.125		0.125	0.125	0.125	0.125	0.25		0.03	
Sulphate	**250 (5)**		3.24			120.00	8.13	109.00			140.00	220.00	25.70		5.64		80.10		3.58		7.23	3.20	1.75	3.46		99.30		
Sulphide																												
Calcium			207.00			281.00	246.00	152.00			203.00	278.00	224.00		189.00		226.00		185.00		195.00	238.00	254.00	184.00		117.00		
Potassium			14.80			17.20	18.70	9.69			8.31	11.50	15.90		10.30		12.40		10.04		10.76	14.40	14.32	10.15		1.42		
Magnesium			19.40			24.80	26.00	16.70			19.30	15.80	20.10		13.40		16.50		13.15		15.20	21.29	21.70	14.83		36.80		
Sodium	**200(5)**		34.70			36.20	28.70	20.70			19.60	26.40	37.40		21.10		26.90		21.25		20.89	29.50	30.75	21.42		42.70		
Biochemical Oxygen Demand					5.9		10.0		14.0		17.0	2.5		33.0		6.3		2.5	9.7		14.0	2.5	15.0	9.0			11.0	
Chemical Oxygen Demand					34		84		96		96	10		80		30		10	10		10	25	26	10			10	
Conductivity				1324	1565		1503		872		1130	1440		1380		1120		1390	1120		1173	1394	1450	1133			929	
Total Oxidisable Nitrogen					0.03		0.03		0.12		0.03	0.15		0.15		0.15		0.15	0.15		0.15	0.15	0.15	0.15			0.03	
Total Phosphorus					0.7		0.81		0.125		0.125	0.125		0.35		0.125		0.125	0.125		0.125	0.125	0.125	0.125			1.55	

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Notes:

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH106																								
HEAVY METALS	µg/l		09/01/2019	14/01/2019	11/04/2019	29/04/2019	05/07/2019	17/07/2019	15/10/2019	23/10/2019	01/07/2020	22/07/2020	27/07/2020	30/07/2020	26/08/2020	23/11/2020	17/02/2021	13/04/2021	01/11/2021	26/01/2022	20/07/2016	09/08/2016	27/09/2016	08/03/2017	03/10/2018	11/10/2018	12/10/2018
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		10.00		10.00		10.00		10.00					10.00	3.98	9.43	2.96	3.35	2.09	0.74					10.00		
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l		1.000		1.000		2.090		1.000					1.000	0.025	0.025	0.025	0.025	0.025	0.025					2.430		
Chromium (diss.filt)	50 (5)		2.500				1.200		0.250					2.500	0.125	0.125	0.125	0.125	0.125	0.125					2.500		
Copper (diss.filt)	1 (AA) bioavailable $^{(see\ Note\ 1)}$ (1) $^{(see\ Note\ 4)}$ (2)	34.94	74.100		75.300		58.100		36.000					80.200	0.125	0.449	0.125	0.404	0.273	0.125					95.700		
Iron (diss.)	1000 (AA) (1&2)		95400		47200		98500		94800					86100	98700	79100	81700	79900	104000	62900					139000		
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025		0.0025		0.0025		0.0025					0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025					0.0025		
Manganese (diss.filt)	123 (AA) $^{(see\ note\ 1)}$	276.92	10000		8850		10600		11500					11800	12710	8840	10200	10600	15900	13000					19300		
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{(see\ note\ 5)}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	18.10		26.40		19.40		26.10					10.70	15.90	19.30	21.89	18.30	16.10	14.03					40.80		
Lead (diss.filt)	1.2$^{(see\ note\ 5)}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	10		10		10		10					10	0.125	0.125	0.125	0.125	0.125	0.125					10		
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10					0.50		0.50					4.82	0.10	0.10	0.10	0.10	0.10	0.10							
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{(see\ Note\ 2)}$	37.15	19.30		16.10		15.80		16.00					33.80	14.60	28.50	15.30	15.79	8.78	5.25					13.00		
Iron (Total)																96000	99700	87200	124000	142000				8220			
Manganese (Total)																9320	10200	10700	26400	13300				1440			
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)						0.60		0.25					0.13	0.13	0.13	0.13	0.13	0.13	0.13							
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)						0.025		0.025					0.025	0.025	0.025	0.025	0.025	0.025	0.025							
Aluminium (diss.filt)			20		20		20		20					20	20	20	20	20	20	20					20		
Vanadium (diss.filt)															0.125	0.125	0.125	0.125	0.125	0.125							
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)			22.50		22.50		22.50		22.50								22.50		22.50							22.50
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)			10		10		10		10	10	10	10		10	10	10	10		10							
EC>C6-C8	15000 (7)			12.5		12.5		12.5		12.5	12.5	12.5	12.5		12.5	12.5	12.5	12.5		12.5							
EC>C8-C10	300 (7)			7.5		7.5		7.5		7.5	7.5	7.5	7.5		7.5	7.5	7.5	7.5		7.5							
EC>C10-C12	300 (7)			5		110				5																	
EC>C12-C16	300 (7)			5		110				5																	
EC>C16-C21				5		5				5																	
EC>C21-C35				110		5				5																	
EC>C35-C44				5		5				5																	
Aromatics																											
EC C5-C7	10 (7)			1		1		1		1	1	1	1		1	1	1	1		1							
EC>C7-C8	700 (7)			2.5		2.5		2.5		2.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5		2.5							
EC>C8-C10	300 (7)			25		25																					
EC>C10-C12	90 (7)			5		110				5																	
EC>C12-C16	90 (7)			30		350				5																	
EC>C16-C21	90 (7)			40		550				5																	
EC>C21-C35	90 (7)			50		460				5																	
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)			0.50		0.50		0.50		0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50							2.90
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)			0.50		0.50		0.50		0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50							7.78
Ethylbenzene	300 (8)			0.50		0.50		0.50		0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50							0.50
p/m-Xylene				1.00		1.00		1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00							4.12
o-Xylene				0.50		0.50		0.50		0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50		0.50							0.50
Sum of detected Xylenes	500 (8)							1.50		1.50	1.50	1.50	1.50		1.50	1.50	1.50	1.50		1.50							
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)			0.052		0.187		0.399		0.210						0.045	0.792	0.136		0.056							0.004
Acenaphthylene (aq)	-			0.015		0.031		0.111		0.002						0.008	0.078	0.002		0.013							0.001
Acenaphthene (aq)	-			0.086		0.147		0.228		0.196						0.012	0.265	0.032		0.132							0.003
Fluorene (aq)	-			0.189		0.218		0.296		0.312						0.048	0.212	0.026		0.188							0.002
Phenanthrene (aq)	-			0.239		0.171		0.415		0.240						0.064	0.065	0.049		0.061							0.003
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)			0.236		0.087		0.250		0.139						0.022	0.049	0.019		0.021							0.003
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)			0.926		0.247		1.301		0.978						0.160	0.082	0.119		0.130							0.001
Pyrene (aq)	-			0.867		0.021		1.136		0.901						0.119	0.059	0.094		0.093							0.003
Benzo(a)anthracene (aq)	-			0.696		0.083		0.513		0.284						0.030	0.041	0.035		0.049							0.014
Chrysene (aq)	-			0.696		0.100		0.619		0.297						0.046	0.059	0.055		0.054							0.014
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)					0.156		0.574		0.164						0.043	0.038	0.038		0.087							0.010
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)					0.064		0.317		0.116						0.001	0.026	0.021		0.041							0.010
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))			0.876		0.082		0.361		0.152						0.019	0.039	0.037		0.090							0.011
Indeno(1,2,3-cd)pyrene (aq)	-			0.298		0.117		0.425		0.094						0.058	0.038	0.032		0.012							0.006
Dibenzo(a,h)anthracene (aq)	-			0.175		0.009		0.056		0.009						0.015	0.004	0.002		0.025							0.006
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)			0.239		0.079		0.442		0.072						0.038	0.033	0.022		0.040							0.007
INORGANICS	mg/l																										
Dissolved Organic Carbon				11.5		7.7		7		9.9			10.8		10.7	8.3	9.1	6.5	8.6	10.9	19	110	77			71.3	
pH	6 - 9 (2&4)			6.6		6.6		6.6		6.5			6.6		6.6	6.4	7	6.5	6.5	6.4	4	7.2	7.1			6.6	
Alkalinity (Total)				296		170		251		248			268		279	259	228	133	391	185	5	1500	1600			1584	
Chloride	250 (5)			71		63		60		64			79		108	74	69	82	91	84	310	300	370			220	
Ammoniacal Nitrogen				3.89		2.56		1.58		2.99			1.6		0.86	1.54	2.39	1.45	0.49	0.76	0.005	1.2	1.1			61	
Nitrite				0.021		0.01		0.01		0.01			0.01		0.01	0.01	0.01	0.01	0.01	0.01	0.046	0.01	0.023			0.046	
Nitrate	50 (5)			0.03		0.15		0.125		0.125			0.15		0.125	0.125	0.125	0.125	0.125	0.125	0.25	0.25	0.25			0.03	
Sulphate	250 (5)		10.10		13.20		7.84		7.71					22.30	76.50	28.91	6.76	4.88	71.82	13.94					15.70		
Sulphide																											
Calcium			38.00		42.10		45.00		46.50					58.00	87.35	62.34	52.48	44.48	83.75	49.11					89.20		
Potassium			2.22		1.91		2.56		1.56					1.81	2.08	3.15	2.27	1.62	1.72	1.36					15.00		
Magnesium			9.96		9.93		9.70		11.00					15.70	25.81	14.15	13.35	10.93	25.74	14.60					35.90		
Sodium	200(5)		57.70		49.60		42.80		53.80					44.80	51.85	36.41	36.62	34.89	47.39	35.59					378.00		
Biochemical Oxygen Demand				10.0		4.7		7.3		7.3			12.0		12.0	9.1	5.7	8.6	13.0	11.0						4.9	
Chemical Oxygen Demand				134		10		10		10			10		10	10	10	10	10	10						42	
Conductivity				835		621		676		715			941		1130	770	733	714	1040	813						3600	
Total Oxidisable Nitrogen				0.03		0.15		0.15		0.15			0.15		0.15	0.15	0.15	0.15	0.15	0.15						0.03	
Total Phosphorus				1.17		0.125		0.125		0.125			0.67		0.125	0.125	0.125	0.125	0.25	0.125						0.125	

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH107																								
HEAVY METALS	µg/l		09/01/2019	14/01/2019	11/04/2019	30/04/2019	01/05/2019	05/07/2019	22/07/2019	23/10/2019	19/02/2020	25/02/2020	05/10/2020	14/04/2021	02/08/2021	02/11/2021	27/01/2022	09/01/2017	10/01/2017	11/01/2017	06/03/2017	07/03/2017	20/07/2017	15/08/2017	31/08/2017	12/01/2018	22/02/2018
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		10.00		10.00			10.00			10.00		10.00	5.13	5.09	4.86	3.46		12.50				1.62			10.00	
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**		**1.000**		**1.000**			**3.190**			**2.390**		**2.808**	0.084	0.025	0.025	0.025		**5.000**				0.125			**1.000**	
Chromium (diss.filt)	**50 (5)**		2.500		8.700								1.270	2.136	1.275	1.279	1.167		12.500				0.125	0.125	0.125	2.500	
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	**109.000**		2.500			**80.800**			**36.200**		19.188	6.044	0.500	0.125	0.125		10.000				0.538			2.500	
Iron (diss.)	**1000 (AA) (1&2)**		**139000**		**122000**			**142000**			**117000**			**95500**	**98400**	**122000**	**65200**		262				50			635	
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025		0.0025			0.0025			0.0025		0.0025		0.0025		0.0025		0.0025				0.0025			0.0025	
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	**19900**		**20500**			**18800**			**17100**			**17700**	**17700**	**19700**	**17200**		**792**				**1370**			**1090**	
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	**26.50**		**29.40**			**40.40**			**36.70**		**42.42**	**34.81**	**37.00**	**34.40**	**33.30**		12.50				2.42			2.50	
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	**10**		**10**			**10**			**10**		**10**	3.768161343	0.125	0.125	0.125		**12.5**				0.125			**10**	
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**			0.50								0.90	0.95	0.96	1.00	0.88						0.32	0.10	0.10		
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	20.90		22.90			18.80			15.70		12.89	16.51	7.62	5.75	10.12		10.00				4.44			1.00	
Iron (Total)														120000	152000	124000	103000			7570			5070				1996.375597
Manganese (Total)														18300	20700	17800	18700			885			1400				1102.275295
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**				4.35								1.27	2.14	1.30	1.28	1.20										
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**				0.025								0.025	0.025	0.025	0.025	0.025							0.025	0.025		
Aluminium (diss.filt)			20		20			20			20		20	20	20	20	20		50				50			20	
Vanadium (diss.filt)													1.010	2.852	1.383	1.241	1.105						0.125				
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**			22.50			22.50		**790.00**	22.50		**150.00**	**930.00**					1.25			1.25		1.25				22.50
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**			10			10		10			10	10					25			25			10	10		10
EC>C6-C8	**15000 (7)**			12.5			12.5		12.5			12.5	12.5					30			30			12.5	12.5		12.5
EC>C8-C10	**300 (7)**			7.5			7.5		7.5			7.5	7.5					0.05			0.05			7.5	7.5		7.5
EC>C10-C12	**300 (7)**			160			110		210			5						3.5									5
EC>C12-C16	**300 (7)**			5			5		5			5						5			5						5
EC>C16-C21				5			5		10			5						2.5			2.5						5
EC>C21-C35				80			5		360			5						10			10						5
EC>C35-C44				20			5		20			5						2.5			2.5						5
Aromatics																											
EC C5-C7	**10 (7)**			1			1		4.3			3.94	3.97					0.025			0.025			1	1		1
EC>C7-C8	**700 (7)**			2.5			2.5		2.5			2.5	2.5					0.025			0.025			2.5	2.5		2.5
EC>C8-C10	**300 (7)**			25			25											0.025						25	25		25
EC>C10-C12	**90 (7)**			**160**			**110**		**210**			5						3.5									5
EC>C12-C16	**90 (7)**			**280**			**220**		**260**			5						3			3						5
EC>C16-C21	**90 (7)**			**230**			**150**		**210**			5						15			15						5
EC>C21-C35	**90 (7)**			**100**			5		40			5						15			15						5
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**			3.29			0.50		3.00			3.94	3.05			0.50		0.50			0.50		0.50	0.50	0.50		0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**			4.92			0.50		1.30			0.50	0.50			0.50		0.50			0.50		0.50	0.50	0.50		0.50
Ethylbenzene	**300 (8)**			0.50			0.50		0.50			0.50	0.50			0.50		0.50			0.50		0.50	0.50	0.50		0.50
p/m-Xylene				3.96			1.00		1.00			1.00	1.00			1.00		0.50			0.50		0.50	1.00	1.00		1.00
o-Xylene				0.50			0.50		0.50			0.50	0.50					0.50			0.50		0.50	0.50	0.50		0.50
Sum of detected Xylenes	**500 (8)**								1.50			1.50	1.50														
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**			0.061			0.004		0.982			0.183	0.162										0.500	0.004	0.004		0.004
Acenaphthylene (aq)	**-**			0.005			0.007		0.217			0.015	0.002											0.002	0.002		0.002
Acenaphthene (aq)	**-**			0.006			0.007		0.450			0.024	0.001											0.001	0.001		0.001
Fluorene (aq)	**-**			0.014			0.019		0.499			0.013	0.021											0.002	0.002		0.002
Phenanthrene (aq)	**-**			0.055			0.076		0.575			0.044	0.133											0.003	0.003		0.003
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**			0.006			0.003		0.013			0.003	0.012											0.003	0.003		0.003
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**			0.034			0.049		0.298			0.016	0.063											0.001	0.001		0.001
Pyrene (aq)	**-**			0.574			0.032		0.289			0.019	0.046											0.001	0.001		0.001
Benzo(a)anthracene (aq)	**-**			0.058			0.023		0.062			0.002	0.029											0.001	0.001		0.001
Chrysene (aq)	**-**			0.058			0.028		0.136			0.007	0.037											0.001	0.001		0.001
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**						**0.127**		**0.074**			0.002	**0.045**											0.001	0.001		0.001
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**						**0.057**		**0.045**			0.001	**0.050**											0.001	0.001		0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**			**0.634**			**0.037**		**0.070**			0.001	**0.099**											0.001	0.001		0.001
Indeno(1,2,3-cd)pyrene (aq)	**-**			0.071			0.113		0.125			0.002	0.061											0.001	0.001		0.001
Dibenzo(a,h)anthracene (aq)	**-**			0.099			0.035		0.504			0.002	0.034											0.002	0.002		0.002
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**			0.069			0.105		0.136			0.003	0.039											0.001	0.001		0.001
INORGANICS	**mg/l**																										
Dissolved Organic Carbon				69.8		79.2			87.4			87.5	75.4	111.2		140.4	149.1		4.2			3.1	5.3				3.7
pH	**6 - 9 (2&4)**			6.2		6.4			7			6.5	6.3	6.4	6.4	6.4	6.4					7.4	7.8				7.3
Alkalinity (Total)				400		398			695			792	694	623	976	987	801		127			118	130				88
Chloride	**250 (5)**			**704**		**738**			60			**651**	**831**	**844**	**910**	**846**	**862**		28			27	30				22
Ammoniacal Nitrogen				48.9		1.47			89			75.67	95.92	1.6	145.88	1.6	140.96		0.52			0.17	1.81				0.13
Nitrite				0.008		0.01			0.01			0.01	0.01	0.01	0.01	0.01	0.01		0.012			0.03	0.0025				0.053
Nitrate	**50 (5)**			0.03		0.15			0.125			0.125	0.125	0.125	0.125	0.125	0.125		0.09			0.15	0.03				1.07
Sulphate	**250 (5)**		12.10		13.80			15.10			15.50		18.18	18.45	18.57	19.59	18.78						1.50			14.80	
Sulphide																											
Calcium			85.60		85.80			83.60			97.50		78.75	79.28	78.91	79.67	74.38		34.80				39.60			33.50	
Potassium			8.26		14.30			18.70			31.80		39.08	34.65	40.54	43.60	43.11		6.99				8.07			6.45	
Magnesium			30.90		33.50			35.00			40.40		39.77	36.34	40.75	41.15	38.99		5.88				5.97			5.29	
Sodium	**200(5)**		**316.00**		**378.00**			**399.00**			**381.00**			**518.00**	**547.00**	0.00	**587.00**		17.10				18.80			14.10	
Biochemical Oxygen Demand				21.0		23.0			17.0			35.0	21.0	21.0	27.0	27.0	32.0										2.5
Chemical Oxygen Demand				10		10			604			656	455	42	10	482	502										10
Conductivity				3110		3200			3420			3460	4200	4236	4569	4570	4586						367				295
Total Oxidisable Nitrogen				0.03		0.15			0.15			0.15	0.15	0.15	0.15	0.15	0.15		0.1			0.18	0.03				1.12
Total Phosphorus				0.89		0.125			0.125			2.47	0.125	0.125	0.33	0.71	0.75										0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
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Notes:
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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH108																								
HEAVY METALS	**µg/l**		09/04/2018	17/04/2018	27/06/2018	03/07/2018	03/10/2018	17/10/2018	19/10/2018	09/01/2019	22/01/2019	11/04/2019	30/04/2019	05/07/2019	09/07/2019	15/10/2019	24/10/2019	19/02/2020	25/02/2020	27/07/2020	30/07/2020	26/08/2020	06/10/2020	23/11/2020	17/02/2021	15/04/2021	02/08/2021
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			10.00	10.00		10.00			10.00		10.00		10.00		10.00		10.00			10.00	3.62	10.00	3.98	2.63	2.93	6.18
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO_3 >200 mg/l			1.000	1.000		1.000			1.000		1.000		1.000		1.000		1.000			1.000	0.025	1.000	0.025	0.025	0.025	0.025
Chromium (diss.filt)	50 (5)			2.500	2.500		2.500			2.500		0.250		0.250		0.250		0.250			2.500	0.125	0.125	0.125	0.125	0.125	0.125
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94		2.500	2.500		2.500			2.500		2.500		2.500		2.500		2.500			2.500	0.545	2.500	0.453	0.395	0.331	0.500
Iron (diss.)	1000 (AA) (1&2)			187	330		293			891		711		620		1190		454			20	799	20	1636	1437	443	1325
Mercury (diss.filt)	0.07 MAC (1&2)			0.0025	0.0025		0.0025			0.0025		0.0025		0.0025		0.0025		0.0025			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92		843	920		942			1680		1780		1270		1250		1500			2040	2254.862085	2238.83278	1960.854037	2527.764278	2620.636428	1836.526674
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	$4^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		2.50	2.50		2.50			2.50		2.50		2.50		2.50		2.50			2.50	2.52	2.50	2.51	2.32	2.02	1.89
Lead (diss.filt)	$1.2^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		10	10		10			10		10		10		10		10			10	0.125	10	0.125	0.125	0.125	0.125
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10										0.50		0.50		0.50		0.50			0.56	0.10	0.10	0.10	0.10	0.10	0.10
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15		1.00	1.00		1.00			1.00		1.00		1.00		1.00		1.00			1.00	0.50	1.00	0.50	0.50	0.50	0.50
Iron (Total)			1280			789																		3331.791609	3951.439231	2791.265272	2570.663888
Manganese (Total)			861			888																		2100.627681	2551.976827	2694.025596	1901.922693
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)											0.25		0.25		0.25		0.25			0.13	0.13	0.13	0.13	0.13	0.13	0.13
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)											0.025		0.025		0.025		0.025			0.025	0.025	0.025	0.025	0.025	0.025	0.025
Aluminium (diss.filt)				20	20		20			20		20		20		20		20			20	20	20	20	20	20	20
Vanadium (diss.filt)																						0.125	2.000	0.125	0.125	0.125	0.125
Phenols	**ug/l**																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50			22.50			22.50		22.50		22.50		22.50		22.50		22.50				220.00			22.50	22.50
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	15000 (7)		10			10			10				10		10		10		10	10		10	10			10	10
EC>C6-C8	15000 (7)		12.5			12.5			12.5				12.5		12.5		12.5		12.5	12.5		12.5	12.5			12.5	12.5
EC>C8-C10	300 (7)		7.5			7.5			7.5				7.5		7.5		7.5		7.5	7.5		7.5	7.5			7.5	7.5
EC>C10-C12	300 (7)		5			5			5		5		5		5		5		5								
EC>C12-C16	300 (7)		5			5			5		5		5		5		5		5								
EC>C16-C21			5			5			5		5		5		5		5		420								
EC>C21-C35			5			5			5		5		5		5		5		440								
EC>C35-C44			5			5			5		5		5		5		5		5								
Aromatics																											
EC C5-C7	10 (7)		1			1			1				1		1		1		1	1		1	1			1	1
EC>C7-C8	700 (7)		2.5			2.5			2.5				2.5		2.5		2.5		2.5	2.5		2.5	2.5			2.5	2.5
EC>C8-C10	300 (7)		25			25			25				25														
EC>C10-C12	90 (7)		5			5			5		5		5		5		5		5								
EC>C12-C16	90 (7)		5			5			5		5		5		10		5		5								
EC>C16-C21	90 (7)		5			5			5		5		5		20		5		5								
EC>C21-C35	90 (7)		5			5			10		5		5		20		5		5								
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		0.50			0.50			0.50		0.50		0.50		0.50		0.50		0.50	0.50		0.50	0.50			0.50	0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50			0.50			0.50		0.50		0.50		0.50		0.50		0.50	0.50		0.50	0.50			0.50	0.50
Ethylbenzene	300 (8)		0.50			0.50			0.50		0.50		0.50		0.50		0.50		0.50	0.50		0.50	0.50			0.50	0.50
p/m-Xylene			1.00			1.00			1.00		1.00		1.00		1.00		1.00		1.00	1.00		1.00	1.00			1.00	1.00
o-Xylene			0.50			0.50			0.50		0.50		0.50		0.50		0.50		0.50	0.50		0.50	0.50			0.50	0.50
Sum of detected Xylenes	500 (8)														1.50		1.50		1.50	1.50		1.50	1.50			1.50	1.50
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.004			0.004			0.004		0.004		0.004		0.004		0.019		0.009				0.100			0.337	0.971
Acenaphthylene (aq)	-		0.002			0.002			0.002		0.002		0.002		0.002		0.003		0.002				0.008				0.088
Acenaphthene (aq)	-		0.001			0.001			0.001		0.001		0.002		0.001		0.005		0.001				0.007			0.039	0.050
Fluorene (aq)	-		0.002			0.002			0.002		0.002		0.002		0.002		0.004		0.002				0.006			0.049	0.010
Phenanthrene (aq)	-		0.003			0.003			0.003		0.003		0.003		0.003		0.008		0.003				0.044			0.148	0.052
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.003			0.003			0.003		0.003		0.003		0.003		0.003		0.003				0.003			0.014	0.034
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.001			0.001			0.001		0.001		0.002		0.001		0.003		0.001				0.018			0.028	0.010
Pyrene (aq)	-		0.001			0.001			0.001		0.001		0.002		0.001		0.004		0.001				0.012			0.017	0.003
Benzo(a)anthracene (aq)	-		0.001			0.001			0.001		0.001		0.003		0.001		0.001		0.001				0.003			0.004	0.004
Chrysene (aq)	-		0.001			0.001			0.001		0.001		0.003		0.001		0.001		0.001				0.004			0.008	0.002
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001			0.001			0.001				0.006		0.001		0.001		0.001				0.003			0.004	0.003
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001			0.001			0.001				0.006		0.001		0.001		0.001				0.003			0.004	0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		0.001			0.001			0.001		0.019		0.006		0.001		0.001		0.001				0.006			0.005	0.003
Indeno(1,2,3-cd)pyrene (aq)	-		0.001			0.002			0.001		0.004		0.005		0.001		0.004		0.001				0.006			0.004	0.002
Dibenzo(a,h)anthracene (aq)	-		0.002			0.005			0.002		0.004		0.006		0.002		0.004		0.002				0.002			0.002	0.002
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.001			0.003			0.001		0.004		0.003		0.001		0.003		0.001				0.004			0.003	0.001
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			3.7			5.3		4.2			5.1		4.1		4.5		4.4		4.1	4.9		6	5.3	4.1	3.9	3.9	
pH	6 - 9 (2&4)		7.5			7.4		7.5			7.4		7.6		7.7		7.4		7.5	7.3		7.4	7.2	7.4	7.8	7.3	7.4
Alkalinity (Total)			89			121		118			104		114		116		118		132	144		138	127	140	137	137	135
Chloride	250 (5)		22			24		29			23		29		30		31		28	26		29	27	30	24	13	28
Ammoniacal Nitrogen			0.09			0.84		0.34			0.13		0.2		0.2		0.73		0.41	0.63		0.89	0.55	0.64	0.95	0.42	1.05
Nitrite			0.04			0.0025		0.005			0.011		0.01		0.01		0.01		0.01	0.01		0.01	0.01	0.01	0.01	0.01	0.01
Nitrate	50 (5)		0.88			0.03		0.03			0.14		0.15		0.125		1.01		0.125	0.15		0.125	0.125	0.125	0.125	0.125	0.125
Sulphate	250 (5)			15.20	5.11		10.60			13.70		14.80		5.27		6.78		6.40			4.27	2.48	4.54	5.66	13.08	8.34	1.61
Sulphide																											
Calcium				33.90	39.20		40.40			37.00		41.00		38.60		40.00		44.30			48.50	43.18	41.50	46.10	45.18	44.19	42.25
Potassium				7.00	7.75		6.48			5.75		7.37		7.51		5.70		6.26			7.90	7.21	6.40	5.92	5.83	7.13	8.12
Magnesium				5.30	6.30		6.45			6.10		6.43		6.12		6.83		7.85			7.90	6.71	6.68	6.99	7.58	7.23	6.54
Sodium	200(5)			14.40	16.50		16.50			15.70		17.30		17.60		16.40		16.60			18.40	17.46	17.06	16.37	16.33	16.36	16.57
Biochemical Oxygen Demand			1.5			2.5		1.5			1.5		1.5		2.5		1.5		2.5	1.5		1.5	1.0	1.5	1.0	2.5	2.5
Chemical Oxygen Demand			10			10		10			10		10		10		10		10	10		10	10	10	10	10	10
Conductivity			301			336		334			317		350		338		327		360	379		363	340	360	368	377	356
Total Oxidisable Nitrogen			0.92			0.03		0.03			0.15		0.15		0.15		1.01		0.15	0.15		0.15	0.15	0.15	0.15	0.15	0.15
Total Phosphorus			0.125			0.125		0.125			0.125		0.125		0.125		0.125		0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)			BH111																						
HEAVY METALS	µg/l		02/11/2021	31/01/2022	11/04/2019	16/04/2019	28/05/2019	31/05/2019	05/07/2019	23/07/2019	15/10/2019	29/10/2019	19/02/2020	04/03/2020	30/09/2020	19/04/2021	03/08/2021	03/11/2021	31/01/2022	19/07/2017	24/10/2017	12/01/2018	21/02/2018	17/04/2018	18/04/2018	27/06/2018	04/07/2018
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		3.14	3.70	10.00			10.00	10.00		10.00		10.00		10.00	0.33	10.00	0.00		12.50	10.00	10.00		10.00		10.00	
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**		0.025	0.025	1.000			1.000	1.000		1.000		1.000		1.000	0.025	1.000			5.000	1.000	1.000		1.000		1.000	
Chromium (diss.filt)	**50 (5)**		0.125	0.125				2.500							2.500	0.125	2.500			12.500		2.500		2.500		2.500	
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	0.600	0.125	2.500			2.500	2.500		2.500		2.500		2.500	1.477	2.500			10.000	2.500	2.500		5.510		2.500	
Iron (diss.)	**1000 (AA) (1&2)**		982	1675	20			20	20		20		20		20	20	20	20	20	50	20	20		20		20	
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025	0.0025				0.0025																			
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	1935.391109	2116.328869	11			15	5		5		5		5	5	15.24709841	5	5	50	11	5		5		19	
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.95	1.93	2.50			2.50	2.50		2.50		2.50		2.50	1.40	2.50			12.50	2.50	2.50		2.50		2.50	
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.125	0.125	10			10	10		10		10		10	0.125	10			12.5	10	10		10		10	
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**	0.10	0.10											0.00	0.69											
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	0.50	0.50	3.37			2.03	1.00		1.00		1.00		2.09	1.95	2.45			10.00	2.09	1.00		2.10		1.00	
Iron (Total)			2608.249471	4092.545918												3765.346945	1320.828869	1401.567965	902.0829687	16800	18900		3923.054252		3620		1730
Manganese (Total)			1928.479789	2158.771322												151.8433634	53.83751106	46.51467895	39.14695473	775	971.0917874		197.456829		203		74
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.13	0.13																							
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.025	0.025																							
Aluminium (diss.filt)			20	20	20			20	20		20		20		20	20	20	20	20	50	50	20		20		20	
Vanadium (diss.filt)			0.125	0.125												0.125											
Phenols	ug/l																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		22.50	22.50																							
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	**15000 (7)**		10	10																							
EC>C6-C8	**15000 (7)**		12.5	12.5																							
EC>C8-C10	**300 (7)**		7.5	7.5																							
EC>C10-C12	**300 (7)**																										
EC>C12-C16	**300 (7)**																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	**10 (7)**		1	1																							
EC>C7-C8	**700 (7)**		2.5	2.5																							
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**90 (7)**																										
EC>C12-C16	**90 (7)**																										
EC>C16-C21	**90 (7)**																										
EC>C21-C35	**90 (7)**																										
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		0.50	1.17																							
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		0.50	0.50																							
Ethylbenzene	**300 (8)**		0.50	0.50																							
p/m-Xylene			1.00	1.00																							
o-Xylene			0.50	0.50																							
Sum of detected Xylenes	**500 (8)**		1.50	1.50																							
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.971	0.022																							
Acenaphthylene (aq)	-		0.088	0.005																							
Acenaphthene (aq)	-		0.050	0.005																							
Fluorene (aq)	-		0.010	0.003																							
Phenanthrene (aq)	-		0.052	0.008																							
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		0.034	0.003																							
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		0.010	0.003																							
Pyrene (aq)	-		0.003	0.002																							
Benzo(a)anthracene (aq)	-		0.004	0.001																							
Chrysene (aq)	-		0.002	0.001																							
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.003	0.001																							
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001	0.001																							
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		0.003	0.001																							
Indeno(1,2,3-cd)pyrene (aq)	-		0.002	0.001																							
Dibenzo(a,h)anthracene (aq)	-		0.002	0.002																							
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		0.001	0.001																							
INORGANICS	mg/l																										
Dissolved Organic Carbon			4.4	4.9		1.6	1.3			2.3		1.7		1.9	1.5	1.4		5.1	2.2		1.3				0.5		1
pH	**6 - 9 (2&4)**		7.4	7.3		6.5	6.7			6.8		6.7		6.7	6.3	6.3	6.3	7.2	6.4	6.6	6.4				6.7		6.8
Alkalinity (Total)			135	127		43	36			49		44		52	49	37	51	113	48		63				60		73
Chloride	**250 (5)**		26	26		32	39			32		33		26	41	27	29	15	20	31	30				30		30
Ammoniacal Nitrogen			1.26	0.68		0.2	0.2			0.2		0.2		0.2	0.2	0.2	0.2	0.2	0.2	0.27	0.18		0.02		0.95		0.02
Nitrite			0.01	0.01		0.01	0.01			0.01		0.01		0.01	0.01	0.01	0.01	0.01	0.01	0.0025	0.0025				0.0025		0.0025
Nitrate	**50 (5)**		0.125	0.125		10	10.1			8.2		10.17		9.55	12.25	13.58	9.89	2.3	9.36	7.8	7.84				7.82		6.55
Sulphate	**250 (5)**		3.61	8.91	14.10			15.80	16.50		17.20		18.30		22.29	22.60	25.13	21.67	21.98	14.60	18.00	19.90		17.60		18.50	
Sulphide																											
Calcium			45.64	42.04	36.30			37.30	34.50		37.70		39.00		36.78	38.83	40.67	47.99	37.17	35.90	36.50	32.70		32.90		37.10	
Potassium			6.89	5.52	7.90			6.76	6.67		8.51		9.21		8.34	6.57	6.44	8.51	6.94	2.55	3.09	1.84		1.79		2.24	
Magnesium			6.75	7.12	5.19			6.16	5.07		5.18		4.54		4.63	5.29	5.70	4.33	4.77	6.59	7.65	7.11		6.87		7.27	
Sodium	**200(5)**		16.74	16.29	15.50			16.60	14.80		16.00		14.90		14.63	14.25	14.94	13.90	12.45	20.30	23.90	23.30		21.10		21.60	
Biochemical Oxygen Demand			1.5	1.5		1.5	1.5			1.5		1.5		1.5	1.5	1.5	2.5	1.5	1.5		2.5		1.5		1.5		2.5
Chemical Oxygen Demand			10	10		10	10			10		10		10	10	10	10	10	10		20		20		10		10
Conductivity			352	344		346	361			334		348		353	331	342	343	326	308	356	341		336		338		356
Total Oxidisable Nitrogen			0.15	0.15		10	10.1			8.2		10.17		9.55	12.25	13.58	9.89	2.3	9.36	7.8	7.84				7.82		6.55
Total Phosphorus			0.125	0.125		0.125	0.125			0.125		0.125		0.125	0.125	0.125	0.125	0.125	0.125		0.125				0.125		0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH112																	BH113								
HEAVY METALS	µg/l		03/10/2018	18/10/2018	09/01/2019	10/01/2019	11/04/2019	17/04/2019	05/07/2019	23/07/2019	15/10/2019	29/10/2019	19/02/2020	04/03/2020	06/10/2020	19/04/2021	03/08/2021	03/11/2021	31/01/2022	10/04/2019	11/04/2019	04/07/2019	05/07/2019	15/10/2019	31/10/2019	17/02/2020	19/02/2020	14/10/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		10.00		10.00		10.00		10.00		10.00		10.00		10.00	0.28	10.00	0.00			10.00		**56.50**	32.70			**51.10**	10.00
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l		**1.000**		**1.000**		**1.000**		**1.000**		**1.000**		**1.000**		**1.000**	0.025	**1.000**				**1.000**		**1.000**	**1.000**			**1.000**	**1.000**
Chromium (diss.filt)	50 (5)		2.500		2.500										2.500	0.125	2.500				1.390		2.900	2.000			0.870	0.810
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	2.500		2.500		6.980		2.500		2.500		2.500		2.500	1.416	2.500				2.500		19.800	22.800			13.800	8.481
Iron (diss.)	1000 (AA) (1&2)		20		20		20		20		20		126		20	20	20	20	20		**14500**		**48600**	**34500**			**51100**	**12758**
Mercury (diss.filt)	0.07 MAC (1&2)																				0.0025		0.0025	0.0025			0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	5		55		5		17		19		13		5	5	5	5	5		**758**		**1230**	**1310**			**976**	**673.0834755**
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	2.50		2.50		2.50		2.50		2.50		2.50		2.50	1.46	2.50				**42.30**		**48.00**	**42.20**			**40.80**	**43.33**
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	**10**		**10**		**10**		**10**		**10**		**10**		**10**	0.125	**10**				**10**		**10**	**10**			**10**	**10**
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10														0.28					0.50		0.50	0.50			0.50	0.22
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	1.00		9.28		1.00		1.00		1.00		1.00		1.00	1.20	1.00				4.43		8.70	6.81			10.30	4.35
Iron (Total)																3060.817342	1396.429894	1410.205578	1318.976146									
Manganese (Total)																156.7444423	74.86056385	75.4792348	79.0950609									
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)																				0.70		1.45	1.00			0.44	0.81
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)																				0.025		0.100	0.025			0.025	0.025
Aluminium (diss.filt)			20		20		20		20		20		20		20	20	20	20	20		20		45	20			20	20
Vanadium (diss.filt)																0.125												0.323
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)														22.50					22.50		**470.00**			**170.00**	22.50		**270.00**
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)														10					10		10			10	10		10
EC>C6-C8	15000 (7)														12.5					12.5		12.5			12.5	12.5		12.5
EC>C8-C10	300 (7)														7.5					7.5		7.5			7.5	7.5		7.5
EC>C10-C12	300 (7)																			30		70			5	5		
EC>C12-C16	300 (7)																			5		5			5	5		
EC>C16-C21																				5		5			5	5		
EC>C21-C35																				30		10			5	5		
EC>C35-C44																				5		5			5	5		
Aromatics																												
EC C5-C7	10 (7)														1					1		3.9			1	2.6		1
EC>C7-C8	700 (7)														2.5					2.5		2.5			2.5	2.5		2.5
EC>C8-C10	300 (7)																			25								
EC>C10-C12	90 (7)																			30		70			5	5		
EC>C12-C16	90 (7)																			**130**		**150**			5	5		
EC>C16-C21	90 (7)																			**170**		**250**			5	5		
EC>C21-C35	90 (7)																			30		30			5	5		
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)														0.50					0.50		3.90			0.50	2.56		1.34
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)														0.50					0.50		0.50			0.50	0.50		0.50
Ethylbenzene	300 (8)														0.50					0.50		0.50			0.50	0.50		0.50
p/m-Xylene															1.00					1.00		1.00			1.00	1.00		1.00
o-Xylene															0.50					0.50		0.50			0.50	0.50		0.50
Sum of detected Xylenes	500 (8)														1.50							1.50			1.50	1.50		1.50
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)														0.076					0.468		0.107			**5.786**	0.014		0.042
Acenaphthylene (aq)	-														0.002					0.064		0.048			0.037	0.053		0.002
Acenaphthene (aq)	-														0.008					0.119		0.078			0.664	0.001		0.001
Fluorene (aq)	-														0.010					0.117		0.059			0.198	0.005		0.006
Phenanthrene (aq)	-														0.100					0.255		0.081			0.292	0.032		0.035
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)														0.003					0.061		0.003			0.007	0.003		0.003
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)														0.062					0.099		0.040			0.081	0.013		0.018
Pyrene (aq)	-														0.021					0.111		0.038			0.060	0.012		0.013
Benzo(a)anthracene (aq)	-														0.002					0.182		0.007			0.009	0.002		0.003
Chrysene (aq)	-														0.007					0.167		0.017			0.012	0.004		0.004
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)														0.003					**0.209**		**0.025**			0.007	0.001		0.003
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)														0.002					**0.213**		**0.021**			0.007	0.002		0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**														**0.003**					**0.502**		**0.012**			**0.006**	**0.002**		**0.003**
Indeno(1,2,3-cd)pyrene (aq)	-														0.004					0.399		0.001			0.005	0.001		0.002
Dibenzo(a,h)anthracene (aq)	-														0.002					0.532		0.006			0.002	0.002		0.002
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)														0.003					0.301		0.001			0.005	0.001		0.002
INORGANICS	mg/l																											
Dissolved Organic Carbon				0.5		1.1		0.5		1		1		1.4	3.5	1.3		0.5	1.5	34.2		35.1			42.2	16		70
pH	6 - 9 (2&4)			7.1		6.7		6.9		7		6.8		6.6	6.5	6.5	6.6	6.7	6.6	6.9		6.7			6.8	7.1		6.8
Alkalinity (Total)				80		66		62		73		64		59	64	57	70	73	61	1018		969			922	967		946
Chloride	250 (5)			28		26		31		35		34		32	32	34	35	33	31	**427**		119			164	134		165
Ammoniacal Nitrogen				0.02		0.02		0.2		0.2		0.2		0.2	0.2	0.2	2.07	0.2	0.2	73		97			91.19	80.39		82.62
Nitrite				0.0025		0.0025		0.01		0.01		0.01		0.01	0.01	0.01	0.01	0.01	0.01	0.01		0.01			0.01	0.01		0.01
Nitrate	50 (5)			7.19		6.06		5.9		7.3		7.73		7.45	8.53	9.76	9.74	8.68	8.84	0.15		0.125			0.125	0.125		0.125
Sulphate	250 (5)		18.60		19.90		20.00		17.60		18.40		20.40		18.09	17.24	17.87	17.85	17.29		4.86		21.50	4.47			4.25	4.66
Sulphide																												
Calcium			39.40		31.00		31.60		38.40		36.00		34.30		37.54	36.54	43.89	43.14	38.68		164.00		134.00	116.00			133.00	132.29
Potassium			2.29		2.42		1.97		2.45		2.65		2.14		2.76	2.73	3.45	3.68	2.89		59.70		69.60	65.00			63.70	64.65
Magnesium			7.35		6.29		6.61		7.27		7.06		7.12		7.35	7.49	8.48	8.00	7.66		47.80		43.30	42.70			43.20	44.89
Sodium	200(5)		21.60		21.60		22.30		21.30		22.80		23.20		21.31	21.06	21.28	21.22	19.50		143.00		123.00	141.00			131.00	137.10
Biochemical Oxygen Demand				2.7		1.5		1.5		1.5		1.5		1.5	1.5	1.5	2.5	1.5	1.5	5.3		7.8			4.5	4.3		6.1
Chemical Oxygen Demand				10		10		10		10		10		10	10	10	10	10	10	27		153			44	95		47
Conductivity				362		331		328		377		356		346	386	329	388	382	344	2390		2370			2240	2230		2340
Total Oxidisable Nitrogen				7.19		6.06		5.9		7.3		7.73		7.45	8.53	9.76	9.74	8.68	8.84	0.15		0.15			0.15	0.15		0.15
Total Phosphorus				0.125		0.125		0.125		0.125		0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125			0.125	0.125		0.125

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Notes:

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH114																									
HEAVY METALS	µg/l		26/04/2021	20/07/2021	26/10/2021	01/08/2017	17/10/2017	09/01/2018	12/01/2018	11/04/2018	17/04/2018	26/06/2018	27/06/2018	01/10/2018	03/10/2018	07/01/2019	09/01/2019	08/04/2019	11/04/2019	02/07/2019	05/07/2019	15/10/2019	21/10/2019	23/10/2019	18/02/2020	19/02/2020	13/10/2020	20/04/2021
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		23.20	24.30	19.98	12.50	12.50		10.00		10.00		10.00		10.00		10.00		10.00		10.00	10.00				10.00	10.00	0.24
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025	0.025	0.025	**5.000**	**5.000**		**1.000**		**1.000**		**1.000**		**1.000**		**1.000**		**1.000**		**1.000**	**1.000**				**1.000**	**1.000**	0.025
Chromium (diss.filt)	50 (5)		0.882	0.812	0.755	12.500			2.500		2.500		2.500		2.500		2.500		0.250		0.250	0.250				0.250	0.125	0.125
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	0.125	0.250	0.125	10.000	10.000		2.500		2.500		2.500		2.500		2.500		2.500		2.500	2.500				2.500	2.500	1.304
Iron (diss.)	1000 (AA) (1&2)		**34800**	**35300**	**32200**	50	50		20		20		20		20		20		20		20	20				20	20	20
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025	0.0025												0.0025		0.0025		0.0025	0.0025				0.0025	0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	**788.9900358**	**678.0266013**	**508.5968509**	5	5		5		5		5		5		5		5		5	5				5	5	5
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	**39.10**	**37.50**	**39.50**	12.50	12.50		2.50		2.50		2.50		2.50		2.50		2.50		2.50	2.50				2.50	2.50	0.91
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.125	0.025	0.125	**12.5**	**12.5**		**10**		**10**		**10**		**10**		**10**		**10**		**10**	**10**				**10**	**10**	0.125
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10	0.25	0.10	0.10														0.50		0.50	0.50				0.50	0.10	0.28
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	1.84	2.65	1.44	10.00	10.00		2.49		1.00		2.43		24.00		15.10		4.99		3.83	4.10				4.46	3.29	4.38
Iron (Total)			68600	66400	45300	58900	1040	1403.7518		5370		12800																3149.363411
Manganese (Total)			834.5436661	725.2533077	501.9238441	473	13000	15.70603622		52		119																25.73336911
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.88	0.81	0.75														0.25		0.25	0.25				0.25	0.13	0.13
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025	0.025	0.025														0.101		0.025	0.025				0.088	0.074	0.178
Aluminium (diss.filt)			20	20	20	50	50		20		20		20		20		20		20		20	20				20	20	20
Vanadium (diss.filt)			0.367	0.337	0.316																						0.125	0.125
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50	22.50	**330.00**											22.50		22.50		22.50				22.50	22.50		22.50	22.50
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)		10	10	10											10		10		10				10	10		10	10
EC>C6-C8	15000 (7)		12.5	12.5	12.5											12.5		12.5		12.5				12.5	12.5		12.5	12.5
EC>C8-C10	300 (7)		7.5	7.5	7.5											7.5		7.5		7.5				7.5	7.5		7.5	7.5
EC>C10-C12	300 (7)															5		5		5				5	5			
EC>C12-C16	300 (7)															5		5		5				5	5			
EC>C16-C21																5		5		5				5	5			
EC>C21-C35																5		5		5				5	5			
EC>C35-C44																5		5		5				5	5			
Aromatics																												
EC C5-C7	10 (7)		2.47	1	1											1		1		1				1	1		1	1
EC>C7-C8	700 (7)		2.5	2.5	2.5											2.5		2.5		2.5				2.5	2.5		2.5	2.5
EC>C8-C10	300 (7)															25		25										
EC>C10-C12	90 (7)															5		5		5				5	5			
EC>C12-C16	90 (7)															5		5		5				5	5			
EC>C16-C21	90 (7)															5		5		5				5	5			
EC>C21-C35	90 (7)															5		5		5				5	5			
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		2.47	1.88	0.50													0.50		0.50				0.50	0.50		0.50	0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50	0.50	0.50													0.50		0.50				0.50	0.50		0.50	0.50
Ethylbenzene	300 (8)		0.50	0.50	0.50													0.50		0.50				0.50	0.50		0.50	0.50
p/m-Xylene			1.00	1.00	1.00													1.00		1.00				1.00	1.00		1.00	1.00
o-Xylene			0.50	0.50	0.50													0.50		0.50				0.50	0.50		0.50	0.50
Sum of detected Xylenes	500 (8)		1.50	1.50	1.50															1.50				1.50	1.50		1.50	1.50
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		1.136	0.024	0.162											0.004		0.004		0.004				0.002	0.004		0.008	0.566
Acenaphthylene (aq)	-		0.066	0.003	0.002											0.002		0.016		0.002				0.019	0.048		0.005	0.033
Acenaphthene (aq)	-		0.039	0.047	0.105											0.001		0.001		0.001				0.003	0.002		0.003	0.020
Fluorene (aq)	-		0.020	0.026	0.092											0.002		0.002		0.002				0.002	0.002		0.004	0.036
Phenanthrene (aq)	-		0.030	0.020	0.027											0.009		0.003		0.003				0.025	0.003		0.023	0.079
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.003	0.013	0.015											0.003		0.003		0.003				0.003	0.003		0.003	0.018
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.019	0.005	0.018											0.007		0.001		0.001				0.006	0.001		0.009	0.046
Pyrene (aq)	-		0.009	0.004	0.010											0.004		0.001		0.001				0.003	0.001		0.005	0.031
Benzo(a)anthracene (aq)	-		0.001	0.001	0.001											0.001		0.001		0.001				0.001	0.001		0.001	0.063
Chrysene (aq)	-		0.002	0.002	0.002											0.001		0.001		0.001				0.001	0.001		0.001	0.083
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001	0.002	0.002													0.001		0.001				0.001	0.001		0.001	**0.064**
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001	0.002	0.002													0.001		0.001				0.001	0.001		0.001	**0.081**
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		0.001	0.001	0.001											0.001		0.001		0.001				0.001	0.001		0.001	**0.156**
Indeno(1,2,3-cd)pyrene (aq)	-		0.001	0.003	0.002											0.004		0.001		0.001				0.001	0.001		0.001	0.059
Dibenzo(a,h)anthracene (aq)	-		0.002	0.002	0.002											0.006		0.002		0.002				0.002	0.002		0.002	0.047
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.001	0.001	0.001											0.004		0.001		0.001				0.001	0.001		0.001	0.053
INORGANICS	mg/l																											
Dissolved Organic Carbon			27.1		33.1		2	2.2		2		1.6		2.3		1.8		2		2.2			1.9		2.3		4.8	4.2
pH	6 - 9 (2&4)		6.7	6.8	6.7	6.2	6.4	6.7		6.9		6.7		6.6		7		6.8		6.6			6.7		6.9		6.4	6.4
Alkalinity (Total)			885	816	825		27	29		44		50		61		41		36		50			41		35		46	45
Chloride	250 (5)		85	90	125	16	18	22		21		23		19		19		23		20			20		24		22	19
Ammoniacal Nitrogen			1.69	83.62	73.5	0.02	0.05	0.02		0.02		0.02		0.02		0.02		0.2		0.2			0.2		0.2		0.2	0.2
Nitrite			0.01	0.01	0.01	0.0025	0.0025	0.0025		0.0025		0.0025		0.016		0.0025		0.01		0.01			0.01		0.01		0.01	0.01
Nitrate	50 (5)		0.125	0.125	0.125	0.94	0.99	1.12		1.04		1.16		0.8		1.57		2.15		1.82			1.46		2.16		1.19	1.51
Sulphate	250 (5)		7.64	3.09	3.77	52.40	52.00		42.70		39.90		68.20		55.90		45.10		44.00		62.50	58.90				53.80	60.00	43.69
Sulphide																												
Calcium			123.67	123.00	127.41	27.20	28.70		28.10		31.90		43.00		41.00		33.20		32.00		40.80	36.80				36.80	39.67	34.49
Potassium			63.01	56.56	53.76	3.43	2.81		2.15		2.35		3.00		2.64		2.29		2.07		2.58	2.50				2.56	2.75	2.49
Magnesium			40.42	36.20	37.93	4.91	3.37		3.23		3.71		5.26		5.21		4.25		4.00		5.08	4.52				4.27	4.73	3.78
Sodium	200(5)		97.51	89.19	111.49	11.30	12.00		14.90		14.50		15.70		14.00		12.50		14.20		14.10	14.00				14.90	14.43	13.36
Biochemical Oxygen Demand			9.4	8.1	9.0		2.5			2.5		1.5		1.5		1.5		1.5		1.5			1.5		1.5		1.5	2.5
Chemical Oxygen Demand			80	45	48		20			10		10		10		10		10		10			10		10		10	10
Conductivity			2076	1949	2040	259	256	249		275		339		327		279		280		332			291		284		315	277
Total Oxidisable Nitrogen			0.15	0.15	0.15	0.94	0.99	1.12		1.04		1.16		0.82		1.57		2.15		1.82			1.46		2.16		1.19	1.51
Total Phosphorus			0.125	0.125	0.125		0.125	0.125		0.125		0.125		0.125		0.125		0.125		0.125			0.125		0.125		0.32	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:
Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)					BH119																				
HEAVY METALS	µg/l		04/08/2021	25/10/2021	24/01/2022	25/01/2022	03/08/2017	25/10/2017	11/01/2018	12/01/2018	12/04/2018	17/04/2018	27/06/2018	02/10/2018	03/10/2018	09/01/2019	17/01/2019	11/04/2019	15/04/2019	05/07/2019	16/07/2019	15/10/2019	28/10/2019	19/02/2020	27/02/2020	01/07/2020	27/07/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.13	0.13	0.13		12.50	10.00		10.00		10.00	10.00		21.50	33.30		10.00		10.00		30.40		10.00			
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025	0.025	0.025		**5.000**	**1.000**		**1.000**		**1.000**	**1.000**		**1.000**	**1.000**		**1.000**		**1.000**		**1.000**		**1.000**			
Chromium (diss.filt)	50 (5)		0.125	0.125	0.125		12.500			2.500		5.810	2.500		2.500	2.500											
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	1.041	1.160	0.922		10.000	2.500		28.400		2.500	6.470		28.200	**49.700**		2.500		5.690		**35.300**		12.900			
Iron (diss.)	1000 (AA) (1&2)		63	20	20		**31000**	**5780**		**43200**		**14700**	**19200**		**54300**	**44000**		**3540**		**12800**		**51100**		**34400**			
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025	0.0025																						
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	14.39526228	10.50123293	5		**23500**	**21200**		**20700**		**17000**	**15500**		**15100**	**8710**		**5970**		**19800**		**13800**		**10300**			
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	0.82	1.14	0.69		12.50	**18.10**		**27.30**		**27.10**	**33.80**		**26.90**	**26.40**		**25.40**		**22.20**		**24.00**		**20.20**			
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.125	0.125	0.125		**12.5**	**10**		**10**		**10**	**10**		**10**	**10**		**10**		**10**		**10**		**10**			
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10	0.22	0.10	0.10																						
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	5.02	**72.81**	2.70		10.00	2.86		5.99		3.52	2.73		6.70	14.80		4.78		4.99		7.10		8.68			
Iron (Total)			14100	2417.177612	6034.355043		104000		71400		62000		47100														
Manganese (Total)			129.111937	31.80259319	51.70157088		25700		22100		17200		15500														
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.13	0.13	0.13																						
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025	0.025	0.025																						
Aluminium (diss.filt)			20	20	20		50	50		20		20	20		20	20		20		20		20		20			
Vanadium (diss.filt)			0.125	0.125	0.125																						
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50	22.50		22.50																					
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)		10	10		10																					10
EC>C6-C8	15000 (7)		12.5	12.5		12.5																					12.5
EC>C8-C10	300 (7)		7.5	7.5		7.5																					7.5
EC>C10-C12	300 (7)																										
EC>C12-C16	300 (7)																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	10 (7)		1	1		1																					2.32
EC>C7-C8	700 (7)		2.5	2.5		2.5																					8.05
EC>C8-C10	300 (7)																										
EC>C10-C12	90 (7)																										
EC>C12-C16	90 (7)																										
EC>C16-C21	90 (7)																										
EC>C21-C35	90 (7)																										
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		0.50	0.50		0.50																					2.32
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50	0.50		0.50																					0.50
Ethylbenzene	300 (8)		0.50	0.50		0.50																					4.14
p/m-Xylene			1.00	1.00		1.00																					3.91
o-Xylene			0.50	0.50		0.50																					0.50
Sum of detected Xylenes	500 (8)		1.50	1.50		1.50																					3.91
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.085	0.046		0.049																					
Acenaphthylene (aq)	-		0.012	0.003		0.012																					
Acenaphthene (aq)	-		0.014	0.009		0.028																					
Fluorene (aq)	-		0.004	0.018		0.023																					
Phenanthrene (aq)	-		0.030	0.011		0.100																					
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.020	0.007		0.039																					
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.006	0.006		0.034																					
Pyrene (aq)	-		0.002	0.005		0.017																					
Benzo(a)anthracene (aq)	-		0.005	0.001		0.002																					
Chrysene (aq)	-		0.003	0.001		0.003																					
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.002	0.001		0.002																					
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.002	0.001		0.002																					
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.003**	0.001		**0.011**																					
Indeno(1,2,3-cd)pyrene (aq)	-		0.003	0.001		0.001																					
Dibenzo(a,h)anthracene (aq)	-		0.002	0.002		0.006																					
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.002	0.001		0.001																					
INORGANICS	mg/l																										
Dissolved Organic Carbon				2.1	2.6			23.1	25.9		27.4		32.5	19.3			21.6		20.9		22.2		22.2		14.1		
pH	6 - 9 (2&4)		6.6	6.7	6.5		7	6.8	7.3		6.9		6.9	6.9			6.8		7		7.4		7		6.9		
Alkalinity (Total)			57	55	34			784	796		786		953	766			660		673		728		771		404		
Chloride	250 (5)		23	21	23		62	72	75		95		89	52			61		56		67		55		47		
Ammoniacal Nitrogen			0.2	0.2	0.2		57	65	83		76		97	68			68		75		73		84.45		41.27		
Nitrite			0.01	0.01	0.01		0.028	0.008	0.013		0.039		0.031	0.005			0.008		0.01		0.01		0.01		0.01		
Nitrate	50 (5)		1.16	0.77	1.81		0.03	0.03	0.03		0.03		0.03	0.03			0.14		0.15		0.125		0.125		0.125		
Sulphate	250 (5)		58.22	69.04	47.50		10.50	10.70		11.20		15.40	10.30		7.12	12.40		15.00		21.90		12.00		13.10			
Sulphide																											
Calcium			42.08	44.84	32.47		116.00	83.60		98.50		106.00	125.00		114.00	99.70		97.00		92.50		99.70		63.20			
Potassium			2.84	2.63	2.03		40.80	39.60		61.80		53.50	69.30		52.30	44.80		53.10		49.10		56.20		30.10			
Magnesium			4.91	5.07	3.69		26.00	25.20		31.90		33.40	38.40		23.90	21.50		26.60		28.50		27.80		15.00			
Sodium	200(5)		14.67	15.42	13.16		57.80	61.70		79.20		87.40	97.40		50.50	54.30		65.20		64.60		61.40		39.30			
Biochemical Oxygen Demand			2.5	1.5	1.5			6.2	4.5		4.5		6.9	6.7			2.5		5.3		5.2		5.1		3.2		
Chemical Oxygen Demand			10	10	10			89	40		43		40	54			56		38		37		38		21		
Conductivity			327	332	272		1578	1679	1883		1807		2169	1636			1570		1540		1600		1690		1050		
Total Oxidisable Nitrogen			1.16	0.77	1.81		0.03	0.03	0.03		0.03		0.03	0.03			0.15		0.15		0.15		0.15		0.15		
Total Phosphorus			0.125	0.125	0.125			0.125	0.125		0.125		0.125	0.125			0.125		0.125		0.125		0.125		0.125		

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)									BH120																	
HEAVY METALS	µg/l		24/08/2020	07/10/2020	26/11/2020	16/02/2021	12/04/2021	26/07/2021	04/11/2021	01/02/2022	03/08/2017	25/10/2017	11/01/2018	12/01/2018	12/04/2018	17/04/2018	27/06/2018	02/10/2018	03/10/2018	09/01/2019	17/01/2019	11/04/2019	15/04/2019	05/07/2019	16/07/2019	15/10/2019	28/10/2019	19/02/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			10.00		4.49	16.38	10.00	0.00		12.50	10.00		10.00		10.00	10.00		10.00	10.00		10.00		10.00		10.00		10.00
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l			1.000		0.025	0.025	1.000			5.000	1.000		1.000		1.000	1.000		1.000	1.000		1.000		1.000		1.000		1.000
Chromium (diss.filt)	50 (5)			2.500		0.125	0.125	2.500			12.500			2.500		2.500	2.500		2.500	2.500								
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94		2.500		0.125	0.125	38.212			10.000	2.500		2.500		2.500	2.500		2.500	2.500		2.500		2.500		2.500		2.500
Iron (diss.)	1000 (AA) (1&2)			4205		28400	23300	36400	44600	34500	50	20		20		20	20		20	20		20		20		20		20
Mercury (diss.filt)	0.07 MAC (1&2)					0.0025																						
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92		13500		15600	14100	15600	9820	9730	419	380		18		137	335		358	188		81		182		219		48
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		24.43		10.41	9.43	20.00			12.50	2.50		2.50		2.50	2.50		2.50	2.50		2.50		2.50		2.50		2.50
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		10		0.125	0.125	10			12.5	10		10		10	10		10	10		10		10		10		10
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10				0.10	0.10																					
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15		3.72		1.15	1.84	5.01			10.00	20.20		10.30		4.61	10.60		14.80	16.90		7.44		14.10		12.20		10.90
Iron (Total)						34100	40000	65200	53800	60100	8610	17100	28600		102000		14800											
Manganese (Total)						16200	15200	16500	10000	10100	541	651.7442427	572.593899		1220		497											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)					0.13	0.13																					
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)					0.025	0.025																					
Aluminium (diss.filt)				20		20	20	20	20	20	50	50		20		20	20		20	20		20		20		20		20
Vanadium (diss.filt)						0.125	0.125																					
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)			220.00																								
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)		10	10																								
EC>C6-C8	15000 (7)		12.5	12.5																								
EC>C8-C10	300 (7)		7.5	7.5																								
EC>C10-C12	300 (7)																											
EC>C12-C16	300 (7)																											
EC>C16-C21																												
EC>C21-C35																												
EC>C35-C44																												
Aromatics																												
EC C5-C7	10 (7)		1	1																								
EC>C7-C8	700 (7)		2.5	2.5																								
EC>C8-C10	300 (7)																											
EC>C10-C12	90 (7)																											
EC>C12-C16	90 (7)																											
EC>C16-C21	90 (7)																											
EC>C21-C35	90 (7)																											
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		1.72	1.61																								
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50	0.50																								
Ethylbenzene	300 (8)		0.50	0.50																								
p/m-Xylene			1.00	1.00																								
o-Xylene			0.50	0.50																								
Sum of detected Xylenes	500 (8)		1.50	1.50																								
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)			0.664																								
Acenaphthylene (aq)	-			0.052																								
Acenaphthene (aq)	-			4.383																								
Fluorene (aq)	-			1.024																								
Phenanthrene (aq)	-			0.460																								
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)			0.020																								
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)			0.112																								
Pyrene (aq)	-			0.077																								
Benzo(a)anthracene (aq)	-			0.009																								
Chrysene (aq)	-			0.013																								
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)			0.009																								
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)			0.010																								
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**			0.019																								
Indeno(1,2,3-cd)pyrene (aq)	-			0.016																								
Dibenzo(a,h)anthracene (aq)	-			0.007																								
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)			0.010																								
INORGANICS	mg/l																											
Dissolved Organic Carbon				22.8		9.9	9.5		11	18.9		2.5	5.2		5.2		5.2	1.6			3.8		3.3		1.9		1.4	
pH	6 - 9 (2&4)			6.9		6.9	6.9	6.9	6.7	6.7	6.5	6.8	7.1		6.8		6.8	6.7			6.8		7		7.2		6.9	
Alkalinity (Total)				675		336	333	673	375	532		63	73		67		76	68			69		66		75		70	
Chloride	250 (5)			37		25	35	43	30	39	25	28	29		23		25	26			30		27		30		31	
Ammoniacal Nitrogen				77.38		21.03	28.33	71.31	34.95	55.54	0.05	0.67	8.18		0.04		0.08	0.46			1.9		0.2		0.95		0.2	
Nitrite				0.01		0.01	0.01	0.01	0.01	0.01	0.009	0.026	0.0025		0.008		0.014	0.012			0.006		0.01		0.02		0.01	
Nitrate	50 (5)			0.125		0.125	0.125	0.125	0.125	0.125	14.5	14.7	13.8		15		14.7	14.9			14.6		12.4		2.19		12.38	
Sulphate	250 (5)			9.04		24.40	24.72	10.79	18.49	15.81	14.20	13.10		14.80		17.00	17.40		14.70	15.00		13.80		14.60		14.80		15.30
Sulphide																												
Calcium				89.54		48.89	54.45	97.97	77.20	87.18	42.40	36.30		43.90		42.30	48.60		41.50	42.90		40.50		46.10		46.20		45.00
Potassium				48.23		25.95	27.65	51.03	25.30	41.10	4.09	4.42		4.13		3.07	3.87		3.80	3.63		3.00		3.96		3.78		3.63
Magnesium				21.31		12.72	13.85	25.07	11.70	18.43	12.40	9.40		11.10		12.70	14.10		15.10	12.20		11.50		12.50		12.70		11.90
Sodium	200(5)			47.37		27.88	28.02	47.08	26.00	37.98	10.80	9.16		12.70		11.50	12.70		10.80	11.60		11.10		12.50		13.10		12.50
Biochemical Oxygen Demand				3.5		4.0	2.5	2.5	4.4			2.6	2.5		4.5		2.5	4.4			2.5				1.0		1.5	
Chemical Oxygen Demand				26		10	10	29	10	23		48	10		10		10	10			10		10		10		10	
Conductivity				1530		858	901	1522	943	1304	390	399	397		380		393	390			397		395		406		420	
Total Oxidisable Nitrogen				0.15		0.15	0.15	0.15	0.15	0.15	14.5	14.7	13.8		15		14.7	14.9			14.6		12.4		2.21		12.38	
Total Phosphorus				0.125		0.125	0.125	0.125	0.125	0.125		0.125	0.6		1.97		0.65	0.125			0.7		0.61		0.125		0.31	

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Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)							BH121																		
HEAVY METALS	**µg/l**		27/02/2020	29/09/2020	12/04/2021	26/07/2021	04/11/2021	01/02/2022	17/10/2017	09/01/2018	12/01/2018	11/04/2018	17/04/2018	08/04/2019	11/04/2019	02/07/2019	05/07/2019	15/10/2019	21/10/2019	23/10/2019	18/02/2020	19/02/2020	08/10/2020	20/04/2021	04/08/2021	25/10/2021	24/01/2022
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			10.00	0.22	10.00	0.00		1.87		10.00		10.00		10.00		10.00	10.00				10.00	10.00	0.66	0.62	0.74	0.95
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l			1.000	0.025	1.000			0.025		1.000		1.000		1.000		1.000	1.000				1.000	1.000	0.328	0.297	0.274	0.199
Chromium (diss.filt)	50 (5)			2.500	0.125	2.500			3.190		2.500		2.500		0.250		0.250	0.250				0.250	0.125	0.125	0.125	0.125	0.125
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94		2.500	3.115	2.500			0.125		2.500		16.900		2.500		2.500	2.500				2.500	2.500	0.992	0.500	0.516	0.661
Iron (diss.)	1000 (AA) (1&2)			20	20	20	20	20	15400		102		21600		964		1170	1710				1470	1275	839	766	906	1365
Mercury (diss.filt)	0.07 MAC (1&2)								0.0025		0.0025		0.0025		0.0025		0.0025	0.0025				0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92		97.44	92.87	121.37	157.92	16.44	2930		2540		6410		638		774	669				1150	982.331259	1360.272294	1026.791828	1004.954513	1099.476626
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		2.50	1.47	2.50			44.20		11.30		26.60		19.20		21.40	19.50				20.60	18.42	19.88	17.40	16.63	12.64
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		10	0.125	10			0.125		10		10		10		10	10				10	10	0.125	0.125	0.125	0.125
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10			0.10				2.06						0.50		0.50	0.50				0.50	0.10	0.10	0.10	0.10	0.10
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15		11.12	19.82	37.40			0.50		10.50		21.90		6.42		8.47	6.19				7.09	6.75	6.04	5.77	5.14	3.58
Iron (Total)					12600	9988.21	6368.20	10327.23	113000	34800		42600												1143.406136	976.9657121	1057.390789	1432.558641
Manganese (Total)					317.20	304.70	282.24	183.20	3380	2733.347153		6350												1400.477337	1107.993396	988.4093032	1060.072599
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)				0.13										0.03		0.25	0.25				0.25	0.13	0.13	0.13	0.13	0.13
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)				0.025										0.025		0.025	0.025				0.025	0.025	0.025	0.025	0.025	0.025
Aluminium (diss.filt)				20	20	20	20	20	50		20		20		20		20	20				20	20	20	20	20	20
Vanadium (diss.filt)					0.125				0.303														0.125	0.125	0.125	0.125	0.125
Phenols	**ug/l**																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)									22.50		22.50		22.50		22.50				22.50	22.50		22.50	22.50	22.50	22.50	22.50
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	15000 (7)									10		10		10		10					10		10	10	10	10	10
EC>C6-C8	15000 (7)									12.5		12.5		12.5		12.5					12.5		12.5	12.5	12.5	12.5	12.5
EC>C8-C10	300 (7)									7.5		7.5		7.5		7.5					7.5		7.5	7.5	7.5	7.5	7.5
EC>C10-C12	300 (7)									5		5		5		5				5	5						
EC>C12-C16	300 (7)									5		5		5		5				5	5						
EC>C16-C21										5		5		5		5				5	5						
EC>C21-C35										5		5		5		5				5	5						
EC>C35-C44										5		5		5		5				5	5						
Aromatics																											
EC C5-C7	10 (7)									1		1		1		1					1		1	1	1	1	1
EC>C7-C8	700 (7)									2.5		2.5		2.5		2.5					2.5		2.5	2.5	2.5	2.5	2.5
EC>C8-C10	300 (7)									25		25		25													
EC>C10-C12	90 (7)									5		5		5		5				5	5						
EC>C12-C16	90 (7)									5		5		5		5				5	5						
EC>C16-C21	90 (7)									5		5		5		5				5	5						
EC>C21-C35	90 (7)									5		5		5		5				5	5						
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)													0.50		0.50					0.50		0.50	0.50	0.50	0.50	0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)													0.50		0.50					0.50		0.50	0.50	0.50	0.50	0.50
Ethylbenzene	300 (8)													0.50		0.50					0.50		0.50	0.50	0.50	0.50	0.50
p/m-Xylene														1.00		1.00					1.00		1.00	1.00	1.00	1.00	1.00
o-Xylene														0.50		0.50					0.50		0.50	0.50	0.50	0.50	0.50
Sum of detected Xylenes	500 (8)															1.50					1.50		1.50	1.50	1.50	1.50	1.50
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)									0.004		0.081		0.004		0.004				0.147	0.004		0.048	0.182	4.037	0.004	0.026
Acenaphthylene (aq)	-									0.002		0.002		0.002		0.002				0.005	0.002		0.004	0.004	0.598	0.002	0.005
Acenaphthene (aq)	-									0.001		0.011		0.001		0.001				0.005	0.002		0.002	0.003	0.372	0.004	0.022
Fluorene (aq)	-									0.002		0.020		0.002		0.003				0.009	0.002		0.003	0.002	0.103	0.008	0.010
Phenanthrene (aq)	-									0.003		0.029		0.003		0.009				0.016	0.003		0.024	0.003	0.161	0.003	0.019
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)									0.003		0.005		0.003		0.003				0.003	0.003		0.003	0.003	0.105	0.003	0.008
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)									0.001		0.016		0.001		0.001				0.003	0.001		0.010	0.007	0.007	0.003	0.006
Pyrene (aq)	-									0.001		0.025		0.001		0.001				0.002	0.001		0.006	0.001	0.003	0.001	0.005
Benzo(a)anthracene (aq)	-									0.001		0.018		0.001		0.001				0.001	0.001		0.004	0.001	0.007	0.001	0.001
Chrysene (aq)	-									0.001		0.018		0.001		0.001				0.001	0.001		0.006	0.001	0.006	0.001	0.001
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)									0.001		0.016		0.001		0.002				0.001	0.001		0.003	0.001	0.002	0.001	0.001
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)									0.001		0.016		0.001		0.002				0.001	0.001		0.004	0.001	0.001	0.001	0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**									0.001		0.001		0.001		0.001				0.001	0.001		0.008	0.001	0.003	0.001	0.010
Indeno(1,2,3-cd)pyrene (aq)	-									0.001		0.004		0.001		0.001				0.001	0.001		0.004	0.001	0.002	0.001	0.001
Dibenzo(a,h)anthracene (aq)	-									0.002		0.002		0.002		0.002				0.002	0.002		0.002	0.002	0.002	0.002	0.008
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)									0.001		0.009		0.001		0.001				0.001	0.001		0.003	0.001	0.001	0.001	0.001
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			1.5	2.2	1.8		1.5	3.1	62.6	16.6		28.5		1.4		1.5			1.4		1.5		2.5	3		1.1	2.2
pH	6 - 9 (2&4)		6.7	6.5	6.8	6.8	6.6	6.7	6.8	7.4		6.6		6.6		6.5			6.4		6.8		6.4	6.4	6.5	6.5	6.4
Alkalinity (Total)			71	74	75	71	74.4	73	1569	428		663		103		75			90		99		99	82	67	70	120
Chloride	250 (5)		30	45	29	30	31	29	19	30		24		29		28			29		29		30	27	27	28	29
Ammoniacal Nitrogen			0.2	0.2	0.2	0.2	0.2	0.2	132	27		30.8		3.27		0.2			0.44		1.42		0.95	0.66	0.2	0.2	2.84
Nitrite			0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.025		0.017		0.01		0.01			0.01		0.01		0.01	0.01	0.01	0.01	0.01
Nitrate	50 (5)		11.49	16.55	12.38	14.05	9.93	10.42	0.11	0.21		0.27		4.61		5.51			4.95		3.38		4.98	6.11	5.13	4.92	3.81
Sulphate	250 (5)			14.60	13.32	13.93	13.62	12.77	5.31		23.50		13.60		24.70		25.80	25.10				27.00	25.95	26.55	23.81	25.32	23.55
Sulphide																											
Calcium				46.70	42.49	44.25	44.96	40.77	357.00		122.00		128.00		40.90		39.00	42.60				41.60	44.71	41.05	35.81	39.15	49.98
Potassium				4.10	3.82	4.30	3.51	4.42	25.80		12.20		12.20		5.87		3.77	4.52				4.89	4.94	4.83	4.09	4.17	7.03
Magnesium				11.80	11.08	11.45	12.64	10.96	10.90		9.57		14.60		7.77		7.26	7.93				7.81	8.18	7.19	6.34	6.88	9.03
Sodium	200(5)			13.35	12.47	13.89	14.21	13.54	18.80		23.80		21.60		18.20		16.80	18.50				17.40	17.53	17.01	14.68	16.33	18.19
Biochemical Oxygen Demand			1.5	2.8	2.5	2.5	2.5		18.0	5.2		8.5		2.5		1.5			1.5		1.5		1.5	1.5	2.5	1.5	1.5
Chemical Oxygen Demand			25	10	10	10	10	10	389	106		162		10		10			10		10		10	10	10	10	10
Conductivity			403	420	382	402	405	379	2708	1016		1351		399		357			370		386		404	376	333	334	418
Total Oxidisable Nitrogen			11.49	16.55	12.38	14.05	9.93	10.42	0.12	0.23		0.29		4.61		5.51			4.95		3.38		4.98	6.11	5.13	4.92	3.81
Total Phosphorus			0.125	0.125	0.125	0.125	0.125	0.125	2.6	0.8		1.42		0.125		0.125			0.125		0.125		0.125	0.125	0.125	0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH122																									
HEAVY METALS	µg/l		20/07/2016	09/08/2016	10/07/2017	01/08/2017	15/08/2017	31/08/2017	17/10/2017	09/01/2018	12/01/2018	11/04/2018	17/04/2018	26/06/2018	27/06/2018	01/10/2018	03/10/2018	07/01/2019	09/01/2019	08/04/2019	11/04/2019	02/07/2019	05/07/2019	15/10/2019	21/10/2019	23/10/2019	18/02/2020	19/02/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)					11.00			12.50		10.00		10.00		10.00		10.00		10.00		10.00		10.00	10.00				10.00
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**					0.125			0.061		1.000		1.000		1.000		1.000		1.000		1.000		1.000	1.000				1.000
Chromium (diss.filt)	50 (5)					0.357	0.541	0.541	0.301		2.500		2.500		2.500		2.500		2.500		0.250		0.250	0.560				0.250
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94				0.522			0.955		2.500		2.500		2.500		2.500		2.500		5.440		2.500	2.500				2.500
Iron (diss.)	1000 (AA) (1&2)					7500			7790		6390		4720		5320		6940		8510		4000		4610	5960				4240
Mercury (diss.filt)	0.07 MAC (1&2)					0.0025			0.0025		0.0025		0.0025		0.0025		0.0025		0.0025		0.0025		0.0025	0.0025				0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92				2040			3310		2550		2540		2230		2010		2790		2630		2380	2440				2370
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98				3.03			3.80		2.50		2.50		2.50		2.50		2.50		2.50		2.50	2.50				2.50
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64				0.125			0.125		10		10		10		10		10		10		10	10				10
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10				0.40	0.10	0.10	0.54												0.50		0.50	0.50				0.50
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15				1.97			4.28		4.14		3.41		3.41		3.60		6.92		4.68		5.54	3.37				3.58
Iron (Total)						12200			9000	6914.310663		6110		6660														
Manganese (Total)						2030			3250	2463.662386		2530		2190														
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)																				0.25		0.25	0.28				0.25
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)						0.025	0.025													0.025		0.025	0.025				0.025
Aluminium (diss.filt)						50			50		20		20		20		20		20		20		20	20				20
Vanadium (diss.filt)						0.125			0.125																			
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)				1.25					22.50		22.50		22.50				22.50		22.50		22.50				22.50	22.50	
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)						10	10		10		10		10		10		10		10		10					10	
EC>C6-C8	15000 (7)						12.5	12.5		12.5		12.5		12.5		12.5		12.5		12.5		12.5					12.5	
EC>C8-C10	300 (7)						7.5	7.5		7.5		7.5		7.5		7.5		7.5		7.5		7.5					7.5	
EC>C10-C12	300 (7)						5	5		5		5		5		5		5		5		5				5	5	
EC>C12-C16	300 (7)						5	5		5		5		5		5		5		5		5				5	5	
EC>C16-C21							5	5		5		5		5		5		5		5		5				5	5	
EC>C21-C35							5	5		5		5		5		50		5		5		5				5	5	
EC>C35-C44							5	5		5		5		5		5		5		5		5				5	5	
Aromatics																												
EC C5-C7	10 (7)						1	1		1		1		1		1		1		1		1					1	
EC>C7-C8	700 (7)						2.5	2.5		2.5		2.5		2.5		2.5		2.5		2.5		2.5					2.5	
EC>C8-C10	300 (7)						25	25		25		25		25		25		25		25								
EC>C10-C12	90 (7)						5	5		5		5		5		5		5		5		5				5	5	
EC>C12-C16	90 (7)						5	5		5		5		5		5		5		5		5				5	5	
EC>C16-C21	90 (7)						5	5		5		5		5		10		20		20		900				5	5	
EC>C21-C35	90 (7)						5	5		5		5		5		5		10		5		5				5	5	
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)						0.50	0.50												0.50		0.50					0.50	
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)						0.50	0.50												0.50		0.50					0.50	
Ethylbenzene	300 (8)						0.50	0.50												0.50		0.50					0.50	
p/m-Xylene							1.00	1.00												1.00		1.00					1.00	
o-Xylene							0.50	0.50												0.50		0.50					0.50	
Sum of detected Xylenes	500 (8)																					1.50					1.50	
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)						0.004	0.004		0.004		0.004		0.004		0.004		0.004		0.004		0.004				0.022	0.004	
Acenaphthylene (aq)	-						0.002	0.002		0.002		0.002		0.002		0.002		0.002		0.002		0.002				0.012	0.005	
Acenaphthene (aq)	-						0.001	0.001		0.001		0.001		0.001		0.001		0.001		0.002		0.001				0.009	0.002	
Fluorene (aq)	-						0.002	0.002		0.002		0.003		0.004		0.003		0.004		0.002		0.003				0.030	0.002	
Phenanthrene (aq)	-						0.003	0.003		0.003		0.003		0.003		0.003		0.003		0.003		0.003				0.014	0.003	
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)						0.003	0.003		0.003		0.003		0.003		0.003		0.003		0.003		0.003				0.003	0.003	
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)						0.001	0.001		0.001		0.001		0.001		0.001		0.001		0.001		0.001				0.003	0.001	
Pyrene (aq)	-						0.001	0.001		0.001		0.001		0.001		0.001		0.004		0.001		0.001				0.006	0.001	
Benzo(a)anthracene (aq)	-						0.001	0.001		0.001		0.001		0.001		0.001		0.038		0.001		0.001				0.001	0.001	
Chrysene (aq)	-						0.001	0.001		0.001		0.001		0.001		0.001		0.038		0.001		0.001				0.001	0.001	
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)						0.001	0.001		0.001		0.001		0.001		0.001				0.001		0.002				0.001	0.001	
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)						0.001	0.001		0.001		0.001		0.001		0.001				0.001		0.002				0.001	0.001	
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**						0.001	0.001		0.001		0.001		0.001		0.001		0.026		0.001		0.001				0.001	0.001	
Indeno(1,2,3-cd)pyrene (aq)	-						0.001	0.001		0.001		0.001		0.001		0.004		0.007		0.001		0.001				0.001	0.001	
Dibenzo(a,h)anthracene (aq)	-						0.002	0.002		0.002		0.002		0.002		0.005		0.016		0.002		0.002				0.002	0.002	
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)						0.001	0.001		0.001		0.001		0.001		0.005		0.010		0.001		0.001				0.001	0.001	
INORGANICS	mg/l																											
Dissolved Organic Carbon			20	23		5.3			5.6	4.1		2.6		3.3		3.3		3.7		3		3.3			4.1		3.2	
pH	6 - 9 (2&4)		7.9	8.3		7.1			6.8	8.1		6.9		7		6.8		7		7.6		7			6.7		7.5	
Alkalinity (Total)			310	330		254			251	221		164		158		150		168		166		175			211		172	
Chloride	250 (5)		27	28		24			22	20		19		23		23		20		22		22			17		20	
Ammoniacal Nitrogen			0.37	1.2		5.04			3.78	4.02		3.3		2.73		1.97		1.89		1.78		1.69			2.45		1.94	
Nitrite			0.46	0.13		0.005			0.008	0.0025		0.005		0.007		0.007		0.0025		0.01		0.01			0.01		0.01	
Nitrate	50 (5)		16	0.51		0.84			0.76	0.38		0.34		1		1.24		0.97		1.3		1.48			0.45		0.83	
Sulphate	250 (5)					85.40			140.00		70.50		54.50		49.60		43.50		122.00		84.50		74.80	85.20				28.60
Sulphide																												
Calcium						103.00			124.00		93.60		67.70		66.80		63.40		96.80		82.80		82.30	97.30				75.60
Potassium						14.80			14.20		12.80		9.11		8.97		8.46		10.40		8.80		8.86	11.10				8.66
Magnesium						10.90			11.50		8.62		6.52		6.57		6.53		9.50		8.33		7.99	8.55				7.04
Sodium	200(5)					20.80			20.70		18.20		14.00		14.50		14.60		18.20		16.90		17.30	17.80				15.00
Biochemical Oxygen Demand									2.5	2.5		2.5		1.5		1.5		1.5		2.5		1.5			1.5		1.5	
Chemical Oxygen Demand									20	20		10		10		10		10		10		10			10		10	
Conductivity						738			809	641		497		483		481		652		583		574			630		545	
Total Oxidisable Nitrogen						0.84			0.77	0.38		0.34		1.01		1.25		0.97		1.3		1.48			0.45		0.83	
Total Phosphorus									0.125	0.125		0.125		0.125		0.125		0.125		0.125		0.125			0.125		0.125	

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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)						BH201																			
HEAVY METALS	µg/l		28/09/2020	20/04/2021	04/08/2021	25/10/2021	24/01/2022	27/06/2018	02/10/2018	03/10/2018	09/01/2019	17/01/2019	11/04/2019	24/04/2019	05/07/2019	16/07/2019	15/10/2019	28/10/2019	19/02/2020	27/02/2020	01/07/2020	27/07/2020	24/08/2020	12/10/2020	26/11/2020	16/02/2021	12/04/2021
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		10.00	2.05	3.32	4.43	3.06	10.00		10.00	24.70		25.30		10.00		24.30		10.00					10.00			13.12
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		**1.000**	0.025	0.025	0.025	0.025	**1.000**		**1.000**	**1.000**		**1.000**		**1.000**		**1.000**		**1.000**					**1.000**			0.025
Chromium (diss.filt)	50 (5)		0.125	0.125	0.125	0.125	0.125	2.500		2.500	2.500		1.490		0.700		0.920		0.250					2.500			0.473
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	2.500	1.191	0.500	0.644	0.955	2.500		2.500	5.190		7.980		2.500		2.500		2.500					2.500			0.125
Iron (diss.)	1000 (AA) (1&2)		**1325**	**2654**	**3393**	**4511**	**2667**	964		**3520**	**6980**		**7750**		20		**7980**		**4530**					20			**1649**
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025	0.0025	0.0025	0.0025				0.0025		0.0025		0.0025		0.0025		0.0025								0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	**1476.015638**	**1894.363691**	**1809.552096**	**1855.185862**	**1536.485579**	**8280**		**6980**	**4510**		**5560**		**5650**		**5670**		**4910**					**5660**			**3312.768092**
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	2.50	1.80	1.90	2.07	2.06	**23.40**		**19.60**	**21.20**		**20.80**		**20.20**		**20.70**		**18.90**					**21.93**			**18.99**
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	**10**	0.125	0.125	0.125	0.125	**10**		**10**	**10**		**10**		**10**		**10**		**10**					**10**			0.125
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10	0.10	0.10	0.10	0.10	0.10						0.50		0.50		0.50		0.50					0.00			0.34
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	4.38	1.61	1.67	1.77	3.51	1.00		1.00	2.10		1.00		1.00		1.00		1.00					1.00			0.50
Iron (Total)				3111.536471	4964.703693	5591.762327	3848.381131	12900																			21900
Manganese (Total)				1891.220068	1816.535416	1880.918613	1562.102735	8440																			3480
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.13	0.13	0.13	0.13	0.13						0.75		0.35		0.46		0.25					0.00			0.47
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025	0.025	0.025	0.025	0.067						0.025		0.025		0.025		0.025					0.000			0.025
Aluminium (diss.filt)			20	20	20	20	20	20		20	20		20		20		20		20					20			20
Vanadium (diss.filt)			0.125	0.125	0.125	0.125	0.125																	0.000			0.312
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)			22.50	22.50	22.50	22.50					22.50		22.50		22.50		22.50		22.50				**320.00**			**390.00**
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)			10	10	10	10					10		10		10		10		10		10	10	10			10
EC>C6-C8	15000 (7)			12.5	12.5	12.5	12.5					12.5		12.5		12.5		12.5		12.5		12.5	12.5	12.5			12.5
EC>C8-C10	300 (7)			7.5	7.5	7.5	7.5					7.5		7.5		7.5		7.5		7.5		7.5	7.5	7.5			7.5
EC>C10-C12	300 (7)											50		60		80		5		5							
EC>C12-C16	300 (7)											5		5		20		5		5							
EC>C16-C21												5		5		10		5		5							
EC>C21-C35												5		5		20		5		5							
EC>C35-C44												5		5		5		5		5							
Aromatics																											
EC C5-C7	10 (7)			1	1	1	1					1		1		1		1		1		1	1	1			2.237
EC>C7-C8	700 (7)			2.5	2.5	2.5	2.5					2.5		2.5		2.5		2.5		2.5		2.5	2.5	2.5			2.5
EC>C8-C10	300 (7)											25		25													
EC>C10-C12	90 (7)											50		60		80		5		5							
EC>C12-C16	90 (7)											**120**		**140**		**170**		5		5							
EC>C16-C21	90 (7)											**120**		**130**		**130**		5		5							
EC>C21-C35	90 (7)											10		20		20		5		5							
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)			0.50	0.50	0.50	0.50					0.50		0.50		0.50		0.50		0.50		1.13	0.50	1.56			2.11
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)			0.50	0.50	0.50	0.50					0.50		0.50		0.50		0.50		0.50		0.50	0.50	0.50			0.50
Ethylbenzene	300 (8)			0.50	0.50	0.50	0.50					0.50		0.50		0.50		0.50		0.50		0.50	0.50	0.50			0.50
p/m-Xylene				1.00	1.00	1.00	1.00					1.00		1.00		1.00		1.00		1.00		1.00	1.00	1.00			1.00
o-Xylene				0.50	0.50	0.50	0.50					0.50		0.50		0.50		0.50		0.50		0.50	0.50	0.50			0.50
Sum of detected Xylenes	500 (8)			1.50	1.50	1.50	1.50									1.50		1.50		1.50		1.50	1.50	1.50			1.50
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)			0.356	0.081	0.004	0.024					0.098		**2.292**		0.319		0.993		0.665				**6.623**			**17.876**
Acenaphthylene (aq)	-			0.056	0.014	0.003	0.004					0.032		0.047		0.041		0.148		0.111				0.481			1.865
Acenaphthene (aq)	-			0.015	0.019	0.009	0.029					0.274		0.317		0.387		1.267		0.719				3.623			0.008
Fluorene (aq)	-			0.006	0.003	0.011	0.010					0.324		0.378		0.237		1.051		0.185				0.510			2.094
Phenanthrene (aq)	-			0.003	0.026	0.003	0.020					0.069		0.132		0.043		0.106		0.083				0.262			1.113
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)			0.003	0.021	0.003	0.008					0.018		0.012		0.008		0.010		0.003				0.018			0.070
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)			0.001	0.008	0.002	0.006					0.045		0.033		0.024		0.054		0.001				0.123			0.121
Pyrene (aq)	-			0.001	0.003	0.004	0.007					0.047		0.034		0.025		0.067		0.014				0.087			0.053
Benzo(a)anthracene (aq)	-			0.001	0.007	0.001	0.006					0.288		0.006		0.002		0.003		0.004				0.009			0.002
Chrysene (aq)	-			0.001	0.005	0.001	0.008					0.288		0.007		0.003		0.004		0.008				0.017			0.003
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)			0.001	0.004	0.001	0.006							0.009		0.003		0.002		0.001				0.010			0.004
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)			0.001	0.003	0.001	0.007							0.006		0.003		0.003		0.002				0.009			0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**			0.001	**0.003**	0.001	**0.019**					**0.340**		**0.003**		0.001		**0.002**		0.001				**0.022**			**0.005**
Indeno(1,2,3-cd)pyrene (aq)	-			0.001	0.003	0.001	0.001					0.048		0.009		0.002		0.003		0.001				0.027			0.021
Dibenzo(a,h)anthracene (aq)	-			0.002	0.002	0.002	0.008					0.073		0.007		0.002		0.002		0.002				0.002			0.002
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)			0.001	0.001	0.001	0.002					0.049		0.007		0.001		0.003		0.001				0.031			0.015
INORGANICS	mg/l																										
Dissolved Organic Carbon			3.3	3.7		2.7	2.9		30.7			24.5		25.1		22.5		24.3		20.2				28.3			27.3
pH	6 - 9 (2&4)		7	6.8	6.9	6.9	6.6		7.5			7.4		7.9		8		7.6		7.7				7.1			7.3
Alkalinity (Total)			159	167	166	175	147		728			640		635		608		632		584				720			733
Chloride	250 (5)		22	18	21	21	20		**257**			195		210		99		197		166				225			212
Ammoniacal Nitrogen			1.03	1.11	1.36	1.15	0.83		43.3			53		41		43		53.9		46.41				65.66			51.16
Nitrite			0.01	0.01	0.01	0.01	0.01		0.005			0.0025		0.01		0.01		0.01		0.01				0.01			0.01
Nitrate	50 (5)		2.18	0.66	1.54	1.47	1.25		0.15			0.13		0.15		0.125		0.125		0.125				0.125			0.125
Sulphate	250 (5)		67.12	50.07	42.87	41.12	83.77	6.28		5.56	14.30		21.40		22.00		21.20		19.20					18.80			12.49
Sulphide																											
Calcium			76.93	74.70	74.12	77.53	81.73	128.00		123.00	97.10		103.00		100.00		94.40		84.80					95.69			73.29
Potassium			8.27	7.06	7.93	8.04	8.01	36.80		40.70	36.70		36.30		38.30		40.00		37.60					45.08			49.73
Magnesium			6.86	6.37	6.65	6.85	6.97	45.60		50.50	38.50		42.80		40.10		39.50		38.10					50.09			47.89
Sodium	200(5)		14.94	15.56	15.52	16.12	14.19	173.00		198.00	130.00		158.00		145.00		157.00		142.00					181.00			175.00
Biochemical Oxygen Demand			1.5	1.5	2.5	1.5	1.5		10.0			3.9		2.5		2.9		2.8		3.8				3.8			2.5
Chemical Oxygen Demand			10	10	10	10	10		85			70		58		52		52		44				77			77
Conductivity			523	502	497	507	526		2160			1860		1850		1780		1840		1690				2100			2080
Total Oxidisable Nitrogen			2.18	0.66	1.54	1.47	1.25		0.15			0.13		0.15		0.15		0.15		0.15				0.15			0.15
Total Phosphorus			0.125	0.125	0.125	0.125	0.125		0.125			0.125		0.125		0.125		0.125		0.125				0.125			0.125

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)				BH202							BH203																
HEAVY METALS	**µg/l**		**26/07/2021**	**04/11/2021**	**01/02/2022**	**09/01/2019**	**23/01/2019**	**11/04/2019**	**24/04/2019**	**05/07/2019**	**16/07/2019**	**23/10/2019**	**12/01/2018**	**03/10/2018**	**20/10/2018**	**12/04/2021**	**04/11/2021**	**01/02/2022**	**18/07/2017**	**25/10/2017**	**11/01/2018**	**12/01/2018**	**09/04/2018**	**17/04/2018**	**27/06/2018**	**03/10/2018**	**16/10/2018**	**09/01/2019**
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		11.80	13.36	16.30	10.00		10.00		10.00				10.00		1.84	5.98	1.45	12.50	10.00		10.00		10.00	10.00	10.00		10.00
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**		0.025	0.025	0.025	**1.000**		**1.000**		**1.000**				**1.000**		0.025	0.025	0.025	**5.000**	**1.000**		**1.000**		**1.000**	**1.000**	**1.000**		**1.000**
Chromium (diss.filt)	**50 (5)**		0.498	0.677	0.831	2.500		1.740		0.570				10.500		1.689	3.136	1.400	12.500			2.500		2.500	2.500	2.500		2.500
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	0.250	0.501	0.271	10.400		10.600		2.500				**42.600**		0.125	0.125	0.125	10.000	6.810		13.000			2.500	2.500		11.300
Iron (diss.)	**1000 (AA) (1&2)**		**1707**	**5876**	62	**14100**		**10900**		101				**63600**		**11200**	**31800**	165	**13000**	**10600**		**20600**		**18900**	**11900**	**9270**		**25500**
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025	0.0025	0.0025	0.0025		0.0025		0.0025				0.0025		0.0025	0.0025	0.0025										
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	**3760**	**3555.165979**	**2313.334311**	**4290**		**1730**		**2620**				**2860**		**2600**	**2653.763681**	**2376.504088**	**2560**	**5920**		**4930**		**5370**	**2510**	**2030**		**5360**
Molybdenum (diss.filt)	**70 (8) ?**																											
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	**20.10**	**21.22**	**23.40**	6.51		2.50		2.50				**145.00**		10.38	**39.00**	7.09	12.50	2.50		2.50		2.50	2.50	2.50		2.50
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.083	0.125	0.125	**10**		**10**		**10**				**10**		0.125	0.125	0.125	**12.5**	**10**		**10**		**10**	**10**	**10**		**10**
Antimony (diss.filt)	**5 (5)**																											
Selenium (diss.filt)	**10(5)**	**10**	0.22	0.38	0.35			0.50		0.50						0.46	0.71	0.23										
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	1.00	0.50	0.50	3.16		2.69		1.00				13.10		3.04	1.63	0.50	10.00	1.00		2.19		2.59	5.14	2.05		3.48
Iron (Total)			14100	22100	19900											81000	71400	72500	24000	37500	23400		29400		15800			
Manganese (Total)			3920	3580	2651.969844											2970	2778.708758	2816.577796	2570	6210	4910		5400		2480			
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.50	0.68	0.70			0.87		0.29						1.69	3.14	1.40										
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.025	0.025	0.128			0.025		0.025						0.025	0.025	0.025										
Aluminium (diss.filt)			20	20	20	20		20		20				107		20	20	20	50	50		20		20	20	20		20
Vanadium (diss.filt)			0.347	0.472	0.610											0.439	1.455	0.276										
Phenols	**ug/l**																											
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		**200.00**	22.50	**440.00**				22.50		22.50	22.50	22.50			**270.00**	**560.00**	**280.00**										
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	**15000 (7)**		10	10	10				10		10	10			10	10	10	10										
EC>C6-C8	**15000 (7)**		12.5	12.5	12.5				12.5		12.5	12.5			12.5	12.5	12.5	12.5										
EC>C8-C10	**300 (7)**		7.5	7.5	7.5				7.5		7.5	7.5			7.5	7.5	7.5	7.5										
EC>C10-C12	**300 (7)**								10		80	5			160													
EC>C12-C16	**300 (7)**								5		20	5			5													
EC>C16-C21									5		20	5			5													
EC>C21-C35									5		40	5			5													
EC>C35-C44									5		10	5			5													
Aromatics																												
EC C5-C7	**10 (7)**		2.755	5.517	1				1		1	1			1	3.307	5.044	1										
EC>C7-C8	**700 (7)**		2.5	2.5	2.5				2.5		2.5	2.5			2.5	10.582	13.245	2.5										
EC>C8-C10	**300 (7)**								25			25			25													
EC>C10-C12	**90 (7)**								10		80	5			**160**													
EC>C12-C16	**90 (7)**								30		**120**	5			**260**													
EC>C16-C21	**90 (7)**								70		**170**	5			**200**													
EC>C21-C35	**90 (7)**								30		**110**	5			70													
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		2.66	4.96	0.50				0.50		0.50	0.50	2.90			2.90	3.71	1.53										
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		0.50	0.50	0.50				0.50		0.50	0.50	0.50			0.50	1.34	0.50										
Ethylbenzene	**300 (8)**		0.50	2.62	1.72				0.50		0.50	0.50	4.10			0.50	2.77	0.50										
p/m-Xylene			1.00	1.00	1.00				1.00		1.00	1.00	6.80			8.30	6.26	1.00										
o-Xylene			0.50	0.50	0.50				0.50		0.50	0.50	4.30			1.71	2.87	0.50										
Sum of detected Xylenes	**500 (8)**		1.50	1.50	1.50						1.50					10.01	9.14	1.50										
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.359	**8.623**					0.228		0.039	0.162				1.719	1.900	1.122										
Acenaphthylene (aq)	-		0.240	1.346					0.018		0.013	0.007				0.544	0.062	0.140										
Acenaphthene (aq)	-		3.165	4.941					0.127		0.100	0.086				0.004	0.472	0.375										
Fluorene (aq)	-		0.304	0.693					0.109		0.054	0.069				0.059	0.247	0.186										
Phenanthrene (aq)	-		0.056	0.102					0.214		0.062	0.119				1.066	0.174	0.203										
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		0.037	0.080					0.011		0.003	0.011				0.653	0.080	0.016										
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		0.024	0.036					0.082		0.022	0.036				0.792	0.141	0.053										
Pyrene (aq)	-		0.017	0.052					0.092		0.019	0.034				0.471	0.188	0.061										
Benzo(a)anthracene (aq)	-		0.001	0.015					0.028		0.003	0.083				0.015	0.011	0.008										
Chrysene (aq)	-		0.001	0.006					0.038		0.005	0.083				0.022	0.053	0.010										
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.002	0.001					**0.065**		0.005					**0.020**	0.013	0.007										
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001	0.001					**0.031**		0.003					0.012	0.005	0.004										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.002**	0.001					**0.036**		**0.003**	**0.571**				**0.042**	**0.022**	**0.012**										
Indeno(1,2,3-cd)pyrene (aq)	-		0.002	0.001					0.079		0.004	0.064				0.108	0.025	0.010										
Dibenzo(a,h)anthracene (aq)	-		0.002	0.002					0.017		0.002	0.084				0.002	0.002	0.002										
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		0.001	0.001					0.068		0.003	0.073				0.125	0.023	0.015										
INORGANICS	**mg/l**																											
Dissolved Organic Carbon				42.3	50		24.8		12.5		17					37.3	84.9	40.2		12.2	7		10.4		6.6		5.9	
pH	**6 - 9 (2&4)**		7.4	7.2	7.2		6.9		7.8		7.5					6.7	6.8	6.7	6.9	7	7.4		7.4		7		7.5	
Alkalinity (Total)			723	960	1095		1064		553		792					914	1321	934		333	268		311		236		266	
Chloride	**250 (5)**		191	233	**252**		66		43		56					54	97	31	24	18	20		20		26		28	
Ammoniacal Nitrogen			72.45	114.3	138.73		54		15.7		33					56.27	166.37	84.5	2.73	3.4	2.91		2.67		1.9		1.63	
Nitrite			0.01	0.01	0.01		0.01		0.01		0.01					0.01	0.01	0.01	0.008	0.016	0.0025		0.0025		0.011		0.0025	
Nitrate	**50 (5)**		0.125	0.125	0.125		0.03		0.15		0.125					0.125	0.125	0.125	0.03	0.18	0.03		0.03		0.03		0.03	
Sulphate	**250 (5)**		12.50	13.59	15.64	4.24		49.40		11.10				30.40		3.56	40.24	3.73	84.20	180.00		156.00		174.00	69.70	53.10		130.00
Sulphide																												
Calcium			74.47	79.51	70.28	265.00		176.00		227.00				323.00		187.00	177.00	178.00	100.00	158.00		132.00		137.00	93.90	100.00		136.00
Potassium			50.79	74.89	87.56	70.80		29.50		50.10				275.00		49.39	96.94	49.02	5.38	5.02		5.34		5.28	5.57	5.48		5.31
Magnesium			47.79	55.15	56.19	28.70		15.60		22.80				127.00		30.41	40.16	30.74	17.50	21.50		20.90		24.10	16.10	17.50		22.60
Sodium	**200(5)**		172.00	**218.00**	**221.00**	64.40		35.00		50.30				**619.00**		62.09	167.00	52.19	16.80	18.80		17.80		19.10	16.60	18.10		19.00
Biochemical Oxygen Demand			2.5	4.4			3.5		2.5		2.9					9.8	21.0			2.5	2.5		2.5		2.5		1.5	
Chemical Oxygen Demand			60	111	127		89		39		43					132	40	116		45	10		10		10		23	
Conductivity			2038	2590	2925		2150		1210		1600					1971	3060	1988	693	999	880		908		646		684	
Total Oxidisable Nitrogen			0.15	0.15	0.15		0.03		0.15		0.15					0.15	0.15	0.15	0.03	0.2	0.03		0.03		0.03		0.03	
Total Phosphorus			0.125	0.125	0.125		0.49		0.125		0.28					0.91	1.15	0.4		0.125	0.125		0.125		0.125		0.3	

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH204														BH205										
HEAVY METALS	**µg/l**		10/01/2019	11/04/2019	17/04/2019	05/07/2019	08/07/2019	15/10/2019	30/10/2019	19/02/2020	26/02/2020	29/09/2020	12/04/2021	26/07/2021	04/11/2021	25/01/2022	11/04/2019	25/04/2019	05/07/2019	08/07/2019	15/10/2019	22/10/2019	23/10/2019	19/02/2020	20/02/2020	07/10/2020	13/04/2021
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**			10.00		10.00		10.00		10.00		10.00	8.82	10.00	0.00		10.00		10.00		10.00			10.00		10.00	8.98
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**			**1.000**		**1.000**		**1.000**		**1.000**		**1.000**	0.025	**1.000**			**1.000**		**1.000**		**1.000**			**1.000**		**1.000**	0.025
Chromium (diss.filt)	**50 (5)**											2.500	0.125	2.500			3.800		0.780		3.400			0.930		2.500	0.361
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**		2.500		2.500		13.500		2.500		2.500	0.125	8.949			13.500		2.500		6.860			5.640		2.500	0.125
Iron (diss.)	**1000 (AA) (1&2)**			**15800**		**7340**		**21100**		**14500**		**2017**	**10234**	**9071**	**14123**	**12383**	20		**9600**		**22400**			**19900**		20	**4485**
Mercury (diss.filt)	**0.07 MAC (1&2)**																0.0025				0.0025						
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**		**3350**		**3510**		**4400**		**3750**		**4190**	**3199.277086**	**2609.008956**	**3449.328238**	**3350.588136**	**3930**		**5110**		**4010**			**4620**		**2653.077442**	**3122.826717**
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**		2.50		2.50		2.50		2.50		2.50	2.03	2.50			6.97		8.98		7.19			6.79		11.09	6.58
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**		**10**		**10**		**10**		**10**		**10**	0.125	**10**			**10**		**10**		**10**			**10**		**10**	0.125
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**											0.10				0.50		0.50		0.50			0.50			0.39
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**		2.97		2.07		3.09		2.33		1.00	0.50	1.00			3.77		2.72		4.18			4.23		2.97	1.74
Iron (Total)													14400	11433.87446	16100	13900											18200
Manganese (Total)													3390	2647.410212	3480	3520											3124
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**												0.13				1.90		0.39		1.70			0.47			0.36
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**												0.025				0.025		0.025		0.025			0.025			0.025
Aluminium (diss.filt)				20		20		20		20		20	20	20	20	20	20		20		20			20		20	20
Vanadium (diss.filt)													0.125														0.345
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**													22.50				22.50								**60.00**	
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**													10				10								10	
EC>C6-C8	**15000 (7)**													12.5				12.5								12.5	
EC>C8-C10	**300 (7)**													7.5				7.5								7.5	
EC>C10-C12	**300 (7)**																	5		10					5		
EC>C12-C16	**300 (7)**																	5		5					5		
EC>C16-C21																		5		5					5		
EC>C21-C35																		5		180					5		
EC>C35-C44																		5		190					5		
Aromatics																											
EC C5-C7	**10 (7)**													1				1								1	
EC>C7-C8	**700 (7)**													2.5				2.5								2.5	
EC>C8-C10	**300 (7)**																	25									
EC>C10-C12	**90 (7)**																	5		10					5		
EC>C12-C16	**90 (7)**																	40		40					5		
EC>C16-C21	**90 (7)**																	70		70					5		
EC>C21-C35	**90 (7)**																	5		5					5		
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**													0.50				0.50								0.50	
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**													0.50				0.50								1.72	
Ethylbenzene	**300 (8)**													0.50				0.50								0.50	
p/m-Xylene														1.00				1.00								1.00	
o-Xylene														0.50				0.50								0.50	
Sum of detected Xylenes	**500 (8)**													1.50												1.50	
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**													0.022				0.382		0.075			0.394		0.139	0.316	1.142
Acenaphthylene (aq)	**-**													0.005				0.025		0.018			0.133		0.007	0.027	0.102
Acenaphthene (aq)	**-**													0.020				0.099		0.030			0.255		0.077	0.140	0.647
Fluorene (aq)	**-**													0.013				0.142		0.083			0.544		0.107	0.122	1.204
Phenanthrene (aq)	**-**													0.023				0.177		0.083			0.135		0.051	0.245	0.731
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**													0.014				0.027		0.003			0.038		0.006	0.022	0.126
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**													0.018				0.068		0.041			0.057		0.015	0.104	0.055
Pyrene (aq)	**-**													0.013				0.058		0.032			0.073		0.018	0.074	0.031
Benzo(a)anthracene (aq)	**-**													0.032				0.067		0.002			0.002		0.002	0.013	0.003
Chrysene (aq)	**-**													0.038				0.063		0.012			0.004		0.004	0.022	0.004
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**													**0.039**				**0.184**		0.012			0.003		0.002	**0.018**	0.009
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**													**0.045**				**0.157**		0.010			0.001		0.001	0.014	0.006
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**													**0.083**				**0.182**		**0.007**			0.001		**0.002**	**0.026**	**0.012**
Indeno(1,2,3-cd)pyrene (aq)	**-**													0.029				0.232		0.001			0.002		0.002	0.023	0.047
Dibenzo(a,h)anthracene (aq)	**-**													0.024				0.254		0.005			0.002		0.002	0.006	0.014
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**													0.028				0.160		0.001			0.002		0.002	0.015	0.034
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			11.4		9.6		8.9		10.9		7.2	4.6	5.9			7.5		30.7		28.5		28.6			44.8	28.6	27.5
pH	**6 - 9 (2&4)**		6.9		7		6.9		7.1		7.4	6.9	6.8	7		6.9		7.7		6.9		6.9			7	7	7.1
Alkalinity (Total)			364		323		308		321		309	348	301	330		376		1101		874		935			1120	876	1066
Chloride	**250 (5)**		21		21		26		24		22	46	31	35		35		78		76		103			117	52	52
Ammoniacal Nitrogen			3.07		2.2		2.4		3.3		1.49	2.24	1.45	2.65		1.58		26.7		9.96		18.98			27.17	78.68	22.85
Nitrite			0.012		0.01		0.01		0.01		0.01	0.01	0.01	0.01		0.01		0.01		0.01		0.01			0.01	0.01	0.027
Nitrate	**50 (5)**		0.03		0.15		0.125		0.125		0.125	0.125	0.125	0.125		0.125		0.15		0.125		0.125			0.125	0.125	0.125
Sulphate	**250 (5)**			114.00		89.70		108.00		113.00		76.73	62.20	43.37	62.50	40.92	63.40		234.00		148.00			72.10		41.34	63.01
Sulphide																											
Calcium				127.00		119.00		136.00		134.00		127.74	114.22	116.85	136.62	130.22	326.00		310.00		327.00			352.00		253.00	308.00
Potassium				5.38		5.66		6.19		5.44		5.94	5.17	6.14	6.36	5.60	43.30		34.90		38.40			45.90		40.91	45.45
Magnesium				21.90		21.10		22.60		21.10		21.88	19.42	21.11	20.94	22.60	42.30		39.00		43.40			46.50		33.62	41.26
Sodium	**200(5)**			18.70		19.70		20.00		16.70		19.52	19.05	23.05	21.62	22.88	87.10		91.70		81.20			106.00		70.88	71.08
Biochemical Oxygen Demand			3.3		1.5		2.5		1.0		1.5	1.5	2.5	2.5		1.5		5.5		2.5		2.8			8.5	4.3	2.5
Chemical Oxygen Demand			10		10		21		10		10	10	10	10		10		52		83		53			42	50	55
Conductivity			940		844		810		875		823	865	790	798		871		2190		2050		2190			2470	1820	2099
Total Oxidisable Nitrogen			0.03		0.15		0.15		0.15		0.15	0.15	0.15	0.15		0.15		0.15		0.15		0.15			0.15	0.15	0.15
Total Phosphorus			0.125		0.125		0.125		0.125		0.125	0.125	0.125	0.125		0.125		0.125		0.28		0.125			0.52	0.125	0.125

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Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)				BH206																					
HEAVY METALS	µg/l		27/07/2021	27/10/2021	25/01/2022	20/07/2016	09/08/2016	27/09/2016	11/04/2018	11/04/2019	19/02/2020	24/02/2020	01/07/2020	22/07/2020	27/07/2020	26/08/2020	05/10/2020	23/11/2020	17/02/2021	14/04/2021	28/07/2021	01/11/2021	27/01/2022	20/07/2016	09/08/2016	20/07/2017	24/10/2017
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		10.00	0.00						10.00	10.00						10.00		6.28	12.90	16.68	7.42	7.35			12.50	10.00
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l		1.000							1.000	1.000						1.000		0.025	0.025	0.025	0.025	0.025			5.000	1.000
Chromium (diss.filt)	50 (5)		2.500								0.950						0.799		0.675	1.275	1.354	0.806	0.777			12.500	
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	29.325							13.600	10.000						2.500		0.125	0.805	0.250	0.125	0.125			10.000	8.300
Iron (diss.)	1000 (AA) (1&2)		29900	7838	27600					27900	38000						107		14389	29400	14004	10346	4095			8890	11700
Mercury (diss.filt)	0.07 MAC (1&2)									0.0025	0.0025						0.0025		0.0025	0.0025	0.0025	0.0025	0.0025				
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	3627.849036	3440.285818	3115.456553					13000	12900						10826.34101		7770	8440	10100	8080	6260			1170	1620
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	8.18							30.70	16.10						32.22		20.55	26.02	53.00	32.70	16.86			12.50	86.90
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	10							10	10						10		0.125	1.200486617	0.025	0.125	0.125			12.5	10
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10									0.50						0.51		0.52	0.68	0.60	0.56	0.48				
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	7.90							6.00	5.77						3.34		1.03	6.05	4.23	1.35	0.50			10.00	6.62
Iron (Total)			43900	23300	46000														42300	25900	65300	36700	25400			50200	45600
Manganese (Total)			3870	3640	3340														8390	8690	11700	8670	7000			1450	1875.970162
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)										0.48						0.80		0.68	1.28	1.40	0.81	0.78				
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)										0.025						0.025		0.025	0.025	0.025	0.025	0.025				
Aluminium (diss.filt)			20	20	20					20	20						20		20	20	20	20	20			50	50
Vanadium (diss.filt)																	0.741		0.991	2.146	1.498	0.866	1.009				
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)									22.50		60.00					490.00			370.00	570.00	22.50	22.50				
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)									10		10	10	10	10		10	10	10	10	10	10	10				
EC>C6-C8	15000 (7)									151		12.5	12.5	12.5	12.5		12.5	12.5	12.5	12.5	12.5	12.5	134.966				
EC>C8-C10	300 (7)									123		7.5	7.5	7.5	7.5		7.5	7.5	7.5	7.5	7.5	7.5	59.848				
EC>C10-C12	300 (7)									390		5															
EC>C12-C16	300 (7)									910		10															
EC>C16-C21										1400		310															
EC>C21-C35										680		340															
EC>C35-C44										30		5															
Aromatics																											
EC C5-C7	10 (7)									179		19.4	2313	463	850		744	114.544	152.209	99.584	1383.73	904.609	1				
EC>C7-C8	700 (7)									2.5		2.5	208	32.3	72.3		180	28.114	91.674	58.641	812.771	496.611	2.5				
EC>C8-C10	300 (7)									25																	
EC>C10-C12	90 (7)									390		5															
EC>C12-C16	90 (7)									780		150															
EC>C16-C21	90 (7)									470		38															
EC>C21-C35	90 (7)									70		5															
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)									179.00		19.40	2227.00	453.00	807.00		687.00	112.14	146.46	96.41	1342.12	826.83	70.76				
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)									0.50		0.50	86.10	9.74	43.10		56.70	2.40	5.75	3.17	41.61	77.78	3.54				
Ethylbenzene	300 (8)									0.50		0.50	106.00	15.10	14.70		111.00	22.85	34.10	21.06	325.37	165.70	23.06				
p/m-Xylene										1.00		1.00	9.40	4.07	8.28		7.78	1.00	50.24	33.67	436.21	245.03	33.19				
o-Xylene										0.50		0.50	6.70	3.47	6.17		4.86	1.16	1.58	0.50	9.59	8.10	0.50				
Sum of detected Xylenes	500 (8)											1.50	16.10	7.53	14.50		12.60	1.50	51.83	34.41	445.79	253.13	34.07				
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.014	0.294	0.068					36.135		192.620					93.848	37.664	12.065	12.259	142.385	189.159	5.494				
Acenaphthylene (aq)	-		0.005	0.009	0.012					4.741		33.150					16.139	8.710	0.614	5.650	21.655	6.714	5.577				
Acenaphthene (aq)	-		0.024	0.043	0.133					6.313		18.741					11.335	9.424	0.467	0.004	11.986	5.040	5.634				
Fluorene (aq)	-		0.031	0.107	0.117					4.050		1.274					1.504	1.193	2.976	1.139	1.185	1.216	0.673				
Phenanthrene (aq)	-		0.019	0.032	0.063					5.402		1.439					1.749	1.417	1.108	0.419	0.655	0.634	0.664				
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.012	0.014	0.024					0.728		0.139					0.212	0.240	0.277	0.116	0.418	0.283	0.070				
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.014	0.033	0.025					1.192		0.403					0.843	0.651	0.328	0.113	0.158	0.518	0.239				
Pyrene (aq)	-		0.013	0.045	0.031					1.259		0.416					0.864	0.601	0.265	0.083	0.084	0.612	0.204				
Benzo(a)anthracene (aq)	-		0.003	0.005	0.004					0.218		0.061					0.237	0.125	0.224	0.033	0.013	0.155	0.057				
Chrysene (aq)	-		0.003	0.007	0.007					0.303		0.120					0.353	0.178	0.331	0.045	0.013	0.189	0.060				
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.012	0.009	0.011					0.092		0.023					0.206	0.134	0.117	0.023	0.008	0.133	0.042				
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.005	0.004	0.005					0.047		0.007					0.138	0.080	0.078	0.030	0.007	0.060	0.029				
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		0.007	0.013	0.037					0.088		0.027					0.258	0.103	0.160	0.055	0.010	0.130	0.048				
Indeno(1,2,3-cd)pyrene (aq)	-		0.004	0.016	0.001					0.085		0.013					0.200	0.141	0.106	0.025	0.007	0.152	0.035				
Dibenzo(a,h)anthracene (aq)	-		0.002	0.002	0.017					0.086		0.002					0.042	0.021	0.010	0.016	0.002	0.008	0.002				
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.005	0.008	0.003					0.085		0.010					0.136	0.089	0.075	0.017	0.011	0.073	0.027				
INORGANICS	mg/l																										
Dissolved Organic Carbon				23.7	30.8	65	45	54	64.2			49.6					36.8		51.6	55.9		83.4	64	83	110		68.8
pH	6 - 9 (2&4)		7.1	6.9	7	7.4	6.9	6.8	7.1			7					6.9		7.2	7	7	7	6.9	7.1	7.2	7.9	6.8
Alkalinity (Total)			979	976	1029	330	740	520	1019			849					955		878	1020	1244	1089	1061	2000	3000		1792
Chloride	250 (5)		67	51	55	2000	1900	2000	1324			932					990		581	402	442	411	234	340	460	491	204
Ammoniacal Nitrogen			22.05	27.26	33.07	0.24	0.067	0.055	7.04			15.02					27.43		17.33	16.89	95.37	52.51	27.82	1.6	3.8	378	209
Nitrite			0.01	0.01	0.01	0.059	0.01	0.01	0.01			0.01					0.01		0.01	0.01	0.01	0.01	0.01	0.047	0.01	0.016	0.0025
Nitrate	50 (5)		0.125	0.125	0.125	0.25	0.25	0.25	0.15			0.125					0.125		0.125	0.125	0.125	0.125	0.125	0.25	0.25	0.03	0.03
Sulphate	250 (5)		28.77	30.59	17.75					66.10	39.40						22.02		65.17	148.15	17.92	21.67	111.97			14.50	8.05
Sulphide																											
Calcium			320.00	296.00	289.00					503.00	407.00						305.55		317.00	339.00	233.00	229.00	323.00			239.00	182.00
Potassium			44.13	52.79	51.89					25.90	33.00						37.47		22.98	25.91	61.59	40.39	24.30			239.00	128.00
Magnesium			38.52	38.93	39.80					75.90	68.30						62.16		57.95	57.18	66.69	54.09	49.20			148.00	72.80
Sodium	200(5)		63.65	68.07	61.23					642.00	446.00						349.22		319.00	244.00	331.00	301.00	275.00			503.00	242.00
Biochemical Oxygen Demand			2.5	2.5	4.8				25.0			7.7					13.0		6.6	12.0	15.0	9.0	21.0				25.0
Chemical Oxygen Demand			46	51	56				1725			179					237		36	152	57	48	178				386
Conductivity			1948	1990	2066				5730			4290					3560		3310	3280	3650	3300	2928			6747	3898
Total Oxidisable Nitrogen			0.15	0.15	0.15				0.15			0.15					0.15		0.15	0.15	0.15	0.15	0.15			0.03	0.03
Total Phosphorus			0.125	0.31	0.125				1.57			0.51					0.49		0.125	0.125	0.125	0.46	0.3				1.61

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH207																									
HEAVY METALS	µg/l		12/01/2018	22/02/2018	17/04/2018	27/06/2018	03/07/2018	03/10/2018	16/10/2018	09/01/2019	17/01/2019	11/04/2019	29/04/2019	05/07/2019	09/07/2019	15/10/2019	24/10/2019	06/10/2020	15/04/2021	02/08/2021	02/11/2021	31/01/2022	20/07/2016	09/08/2016	08/04/2019	11/04/2019	03/07/2019	05/07/2019
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		10.00			10.00		10.00		10.00		10.00		10.00		10.00		10.00	1.49	3.07	2.49	2.75				10.00		10.00
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**		**1.000**			**1.000**		**1.000**		**1.000**		**1.000**		**1.000**		**1.000**		**1.000**	0.025	0.025	0.025	0.025				**1.000**		**1.000**
Chromium (diss.filt)	**50 (5)**		2.500			7.640		2.500		2.500								1.990	1.830	2.656	1.750	1.840				0.250		3.700
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	23.900			18.400		11.800		22.600		2.500		10.100		8.570		2.500	0.125	0.500	0.125	0.125				2.500		17.400
Iron (diss.)	**1000 (AA) (1&2)**		**36900**			**1300**		**25600**		**22000**		**23200**		**25700**		**26600**		**1028**	**22500**	**25600**	**14457**	**29700**				**3270**		**37000**
Mercury (diss.filt)	**0.07 MAC (1&2)**									0.0025		0.0025		0.0025		0.0025		0.0025	0.0025	0.0025	0.0025	0.0025				0.0025		0.0025
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	**1670**			**1090**		**1810**		**1330**		**1360**		**1340**		**1420**		**1725.811551**	**1521.86651**	**1609.945461**	**2317.59049**	**1669.823829**				**2290**		**5140**
Molybdenum (diss.filt)	**70 (8) ?**																											
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	**57.50**					**22.50**		**34.90**		**22.10**		**25.70**		**23.80**		**15.61**	7.74	**14.99**	12.30	10.30				11.00		**20.30**
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	**10**			**10**		**10**		**10**		**10**		**10**		**10**		**10**	0.125	0.125	0.125	0.125				**10**		**10**
Antimony (diss.filt)	**5 (5)**																											
Selenium (diss.filt)	**10(5)**	**10**																0.10	0.21	0.24	0.22	0.10				0.50		0.50
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	9.13			**95.90**		5.23		8.67		5.62		5.37		6.17		4.88	0.50	2.96	0.50	0.50				9.95		12.70
Iron (Total)				74400	73900		39600												54600	62900	44700	54200						
Manganese (Total)				2143.926884	2090		1200												1589.889734	1781.211981	2326.591695	1743.944525						
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**																	1.99	1.83	2.70	1.75	1.80				0.25		1.85
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**																	0.025	0.050	0.025	0.025	0.025				0.025		0.025
Aluminium (diss.filt)			20			61		20		52		20		20		20		20	20	20	20	20				20		20
Vanadium (diss.filt)																		2.000	0.283	0.578	0.368	0.340						
Phenols	**ug/l**																											
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**										**70.00**		22.50		**1220.00**		22.50	**640.00**	**490.00**	22.50	**480.00**	22.50			22.50		22.50	
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	**15000 (7)**										10		10		10		10	10	10	10	10	10			10		10	
EC>C6-C8	**15000 (7)**										12.5		12.5		12.5		12.5	12.5	12.5	12.5	12.5	12.5			12.5		12.5	
EC>C8-C10	**300 (7)**										7.5		7.5		7.5		7.5	7.5	7.5	7.5	7.5	7.5			7.5		7.5	
EC>C10-C12	**300 (7)**										20		80		**330**		5								5		40	
EC>C12-C16	**300 (7)**										5		5		10		5								5		5	
EC>C16-C21											20		5		20		5								5		5	
EC>C21-C35											40		50		310		5								5		10	
EC>C35-C44											5		5		30		5								5		5	
Aromatics																												
EC C5-C7	**10 (7)**										1		1		5.3		2.4	3.73	3.832	5.712	3.984	4.451			1		1	
EC>C7-C8	**700 (7)**										2.5		2.5		65		10.6	18.2	27.853	46.211	9.576	8.229			2.5		2.5	
EC>C8-C10	**300 (7)**										25		25												25			
EC>C10-C12	**90 (7)**										20		80		**330**		5								5		40	
EC>C12-C16	**90 (7)**										40		**150**		**610**		5								5		**120**	
EC>C16-C21	**90 (7)**										50		**170**		**510**		5								20		**180**	
EC>C21-C35	**90 (7)**										20		90		**320**		5								5		60	
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**										4.00		0.50		5.30		2.40	3.23	3.62	4.98	3.75	4.07			0.50		1.50	
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**										7.78		0.50		0.50		0.50	0.50	0.50	0.50	0.50	0.50			0.50		0.50	
Ethylbenzene	**300 (8)**										24.50		0.50		24.40		0.50	2.11	3.60	7.17	0.50	0.50			0.50		0.50	
p/m-Xylene											23.60		1.00		30.40		7.00	14.60	23.24	35.31	7.84	6.49			1.00		1.00	
o-Xylene											4.17		0.50		10.20		3.60	1.03	0.50	3.00	0.50	0.50			0.50		0.50	
Sum of detected Xylenes	**500 (8)**														40.60		10.60	15.60	24.04	38.32	8.54	6.88					1.50	
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**										0.525		**3.518**		0.016		**6.955**	1.109	1.137	1.161	0.116	0.638			0.054		0.066	
Acenaphthylene (aq)	**-**										0.022		0.067		0.030		0.151	0.041		0.090	0.012	0.040			0.003		0.016	
Acenaphthene (aq)	**-**										0.128		0.502		0.049		0.485	0.155	0.079	0.128	0.043	0.100			0.011		0.021	
Fluorene (aq)	**-**										0.170		0.475		0.080		0.431	0.137	0.053	0.089	0.030	0.096			0.020		0.038	
Phenanthrene (aq)	**-**										0.520		0.631		0.273		0.776	0.425	0.147	0.131	0.024	0.157			0.022		0.063	
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**										0.122		0.114		0.090		0.112	0.090	0.017	0.085	0.014	0.020			0.003		0.016	
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**										1.123		0.531		0.406		0.684	0.443	0.034	0.045	0.040	0.187			0.006		0.023	
Pyrene (aq)	**-**										1.238		0.549		0.385		0.662	0.391	0.025	0.036	0.045	0.158			0.006		0.022	
Benzo(a)anthracene (aq)	**-**										1.683		0.186		0.156		0.130	0.146	0.006	0.010	0.011	0.082			0.001		0.002	
Chrysene (aq)	**-**										1.683		0.258		0.224		0.183	0.236	0.012	0.018	0.012	0.090			0.002		0.016	
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**												**0.446**		**0.260**		**0.117**	**0.171**	0.007	**0.022**	0.012	**0.075**			0.001		**0.019**	
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**												**0.136**		**0.147**		**0.094**	**0.100**	0.005	0.011	0.004	**0.055**			0.001		0.013	
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**										**1.734**		**0.265**		**0.179**		**0.084**	**0.191**	**0.010**	**0.023**	**0.012**	**0.109**			0.001		**0.008**	
Indeno(1,2,3-cd)pyrene (aq)	**-**										1.302		0.370		0.291		0.138	0.153	0.010	0.026	0.019	0.060			0.002		0.002	
Dibenzo(a,h)anthracene (aq)	**-**										0.618		0.028		0.045		0.044	0.019	0.002	0.002	0.002	0.002			0.002		0.004	
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**										1.229		0.274		0.282		0.097	0.121	0.009	0.028	0.009	0.058			0.002		0.001	
INORGANICS	**mg/l**																											
Dissolved Organic Carbon					70.2		88.4		33.4		52		39.9		56.1		46	40.6	37		37.4	35.1	83	100	4.3		21.3	
pH	**6 - 9 (2&4)**				6.9		6.9		7.1		6.8		6.8		6.9		7.4	6.7	6.7	6.7	6.7	6.7	6.8	7	6.7		7	
Alkalinity (Total)					1933		2228		1129		1790		1599		1682		1710	1387	1123	1541	1251	1203	930	2300	153		609	
Chloride	**250 (5)**				207		**253**		88		161		104		130		131	78	31	110	67	45	45	0.28	28		25	
Ammoniacal Nitrogen				211	225		274		109		261		185		191		177.5	3.53	128.01	157.6	125.4	130.21	0.6	1.2	5.61		40	
Nitrite					0.015		0.009		0.008		0.008		0.01		0.01		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06		0.01	
Nitrate	**50 (5)**				0.03		0.03		0.03		0.03		0.15		0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.25	0.25	1.46		0.125	
Sulphate	**250 (5)**		7.54			16.60		44.30		17.20		7.80		6.72		7.38		6.21	3.16	5.27	18.88	4.08				25.40		10.00
Sulphide																												
Calcium			184.00			196.00		174.00		137.00		170.00		193.00		181.00		177.42	169.00	219.00	202.00	183.00				53.00		138.00
Potassium			128.00			157.00		69.70		118.00		108.00		106.00		115.00		82.11	61.65	76.25	67.56	66.14				6.69		16.50
Magnesium			21.80			98.00		44.50		73.10		72.20		74.00		73.70		59.17	52.37	66.53	56.47	53.91				8.65		16.60
Sodium	**200(5)**		**213.00**			**308.00**		105.00		156.00		138.00		178.00		180.00		108.75	66.61	114.69	94.61	68.78				20.90		24.70
Biochemical Oxygen Demand					36.0		33.0		20.0		25.0		26.0		17.0		15.0	14.0	13.0	8.5	9.9	8.3			2.5		5.6	
Chemical Oxygen Demand					581		770		40		513		287		288		396	484	239	49	47	48			10		50	
Conductivity				1682	4058		4952		2462		3900		3340		3570		3620	2950	2392	3105	2590	2484			475		1300	
Total Oxidisable Nitrogen					0.03		0.03		0.03		0.03		0.15		0.15		0.15	0.15	0.15	0.15	0.15	0.15			1.52		0.15	
Total Phosphorus					2.28		1.91		0.65		1.6		0.94		1.44		1.05	1.73	0.91	0.72	0.7	0.93			0.125		0.37	

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH208										BH209														
HEAVY METALS	**µg/l**		15/10/2019	21/10/2019	23/10/2019	18/02/2020	19/02/2020	08/10/2020	20/04/2021	04/08/2021	25/10/2021	24/01/2022	20/07/2016	09/08/2016	03/10/2018	11/10/2018	07/01/2019	09/01/2019	11/04/2019	15/04/2019	03/07/2019	05/07/2019	15/10/2019	21/10/2019	18/02/2020	19/02/2020	28/09/2020
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		10.00				10.00	10.00	0.47	3.17		3.07			10.00			10.00	10.00			10.00	10.00			10.00	10.00
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**		**1.000**				**1.000**	**2.191**	0.053	0.025		0.025			**1.000**			**1.000**	**1.000**			**1.000**	**1.000**			**1.000**	**1.000**
Chromium (diss.filt)	**50 (5)**		2.700				0.250	1.756	0.125	0.600		0.125			2.500			2.500									2.500
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	26.800				2.500	**68.930**	0.472	0.500		0.125			**40.400**			13.200	2.500			10.300	2.500			2.500	2.500
Iron (diss.)	**1000 (AA) (1&2)**		**62700**				**10900**	**77700**	**1120**	**68400**		**5181**			**60300**			**24000**	92			**30600**	**9920**			**7250**	199
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025				0.0025	0.0025	0.0025	0.0025		0.0025			0.0025												
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	**2760**				**2460**	**3053.240212**	**1481.30418**	**5410**		**1433.906949**			**2810**			**1990**	**1450**			**2120**	**1330**			**1380**	**1594.078169**
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	7.11				8.37	7.97	6.13	**21.30**		4.81			2.50			5.68	7.32			5.38	2.50			2.50	2.50
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	**10**				**10**	**10**	0.125	0.125		0.125			**10**			**10**	**10**			**10**	**10**			**10**	**10**
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**	0.50				0.50	0.22	0.10	0.24		0.10															
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	7.66				5.88	12.79	3.34	5.88		2.92			7.22			5.19	2.58			4.29	2.05			4.90	4.63
Iron (Total)									2048.823402	103000		6470.892															
Manganese (Total)									1492.222946	5770		1463.35655															
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		1.35				0.25	1.76	0.13	0.60		0.13															
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.025				0.025	0.025	0.025	0.025		0.025															
Aluminium (diss.filt)			20				20	20	20	20		20			20			20	20			20	20			20	20
Vanadium (diss.filt)								0.125	0.125	0.125		0.125															
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**				**130.00**	22.50		22.50	22.50	22.50		22.50															
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**					10		10	10	10	10	10															
EC>C6-C8	**15000 (7)**					12.5		12.5	12.5	12.5	12.5	12.5															
EC>C8-C10	**300 (7)**					7.5		7.5	7.5	7.5	7.5	7.5															
EC>C10-C12	**300 (7)**				5	5																					
EC>C12-C16	**300 (7)**				5	5																					
EC>C16-C21					5	5																					
EC>C21-C35					5	5																					
EC>C35-C44					5	5																					
Aromatics																											
EC C5-C7	**10 (7)**					1		1	1	1	1	1															
EC>C7-C8	**700 (7)**					2.5		2.5	2.5	2.5	2.5	2.5															
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**90 (7)**				5	5																					
EC>C12-C16	**90 (7)**				5	5																					
EC>C16-C21	**90 (7)**				5	5																					
EC>C21-C35	**90 (7)**				5	5																					
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**					0.50		1.89	0.50	0.50	0.50	0.50															
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**					0.50		0.50	0.50	0.50	0.50	0.50															
Ethylbenzene	**300 (8)**					0.50		0.50	0.50	0.50	0.50	0.50															
p/m-Xylene						1.00		1.00	1.00	1.00	1.00	1.00															
o-Xylene						0.50		0.50	0.50	0.50	0.50	0.50															
Sum of detected Xylenes	**500 (8)**					1.50		1.50	1.50	1.50	1.50	1.50															
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**				**2.263**	0.249		0.100	0.013	0.054		0.017															
Acenaphthylene (aq)	**-**				0.247	0.002		0.009	0.003	0.009		0.004															
Acenaphthene (aq)	**-**				0.163	0.013		0.009	0.001	0.028		0.018															
Fluorene (aq)	**-**				0.297	0.010		0.015	0.002	0.021		0.015															
Phenanthrene (aq)	**-**				0.626	0.022		0.088	0.003	0.040		0.021															
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**				0.042	0.003		0.007	0.003	0.026		0.007															
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**				0.142	0.003		0.035	0.003	0.011		0.013															
Pyrene (aq)	**-**				0.096	0.004		0.023	0.003	0.005		0.012															
Benzo(a)anthracene (aq)	**-**				0.013	0.001		0.006	0.001	0.009		0.016															
Chrysene (aq)	**-**				0.028	0.002		0.009	0.002	0.005		0.013															
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**				**0.028**	0.001		0.005	0.001	0.004		0.014															
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**				0.005	0.001		0.004	0.001	0.001		0.017															
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**				**0.003**	0.001		**0.008**	0.001	**0.003**		**0.036**															
Indeno(1,2,3-cd)pyrene (aq)	**-**				0.011	0.001		0.006	0.001	0.003		0.001															
Dibenzo(a,h)anthracene (aq)	**-**				0.002	0.002		0.002	0.002	0.002		0.017															
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**				0.007	0.001		0.004	0.001	0.005		0.010															
INORGANICS	**mg/l**																										
Dissolved Organic Carbon				27.7		6.4		16.6	3.4			2	69	79		100.4	49.1			36.6	59.4			20.7	20.8		36.3
pH	**6 - 9 (2&4)**			6.6		6.9		6.5	6.4	6.6		6.5	6.7	6.8		7	6.9			7	7			6.9	7		7.1
Alkalinity (Total)				674		218		538	116	469		135	940	1800		528	1294			1148	1480			749	889		1241
Chloride	**250 (5)**			28		29		26	24	28		31	210	220		**771**	147			117	183			39	57		231
Ammoniacal Nitrogen				65.5		11.55		33.06	2.09	15.54		4.11	0.16	57		83	45.3			34	48			16.41	25.24		14.65
Nitrite				0.01		0.028		0.01	0.01	0.01		0.01	0.033	0.01		0.141	0.0025			0.01	0.01			0.01	0.01		0.01
Nitrate	**50 (5)**			0.125		1.54		0.125	1.7	0.125		1.62	0.25	0.25		0.03	0.03			0.15	0.125			0.125	0.125		0.125
Sulphate	**250 (5)**		13.40				23.80	9.15	25.11	5.68		24.72			55.20			122.00	75.40			51.50	160.00			92.40	17.02
Sulphide																											
Calcium			151.00				64.70	142.17	42.08	144.39		46.90			437.00			419.00	347.00			414.00	301.00			321.00	371.00
Potassium			13.50				9.14	9.30	5.95	16.73		6.80			72.40			50.70	42.60			55.90	26.30			36.00	49.70
Magnesium			9.53				9.71	9.08	8.07	24.31		8.62			74.20			50.30	42.00			63.00	24.30			30.80	47.62
Sodium	**200(5)**		22.00				19.50	15.40	19.13	23.96		19.59			176.00			115.00	104.00			138.00	44.90			63.00	112.02
Biochemical Oxygen Demand				5.0		1.5		17.0	2.5	8.9		1.5				14.0	5.2			5.7	7.1			6.9	7.1		3.7
Chemical Oxygen Demand				35		10		26	10	10		10				10	53			124	58			102	98		153
Conductivity				1470		596		1250	405	1030		452				3600	2780			2390	3170			1690	1870		2590
Total Oxidisable Nitrogen				0.15		1.57		0.15	1.7	0.15		1.62				0.03	0.03			0.15	0.15			0.15	0.15		0.15
Total Phosphorus				1.66		0.27		1.09	0.125	0.125		0.125				0.52	0.34			0.26	0.125			0.44	0.48		0.27

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
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3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)					BH210																					
HEAVY METALS	**µg/l**		20/04/2021	04/08/2021	25/10/2021	24/01/2022	01/08/2017	17/10/2017	09/01/2018	12/01/2018	11/04/2018	17/04/2018	26/06/2018	27/06/2018	01/10/2018	03/10/2018	07/01/2019	09/01/2019	11/04/2019	15/04/2019	02/07/2019	05/07/2019	15/10/2019	21/10/2019	18/02/2020	19/02/2020	28/09/2020	20/04/2021
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		1.85	10.00	0.00		12.50	12.50		10.00		10.00		10.00		10.00		10.00	10.00			10.00	10.00			10.00	10.00	0.17
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**		0.025	**1.000**			**5.000**	**5.000**		**1.000**		**1.000**		**1.000**		**1.000**		**1.000**	**1.000**			**1.000**	**1.000**			**1.000**	**1.000**	**0.420**
Chromium (diss.filt)	**50 (5)**		0.875	2.500			12.500			2.500		2.500		2.500		2.500		2.500									2.500	0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	0.125	8.934			10.000	10.000		2.500		2.500		2.500		2.500		2.500	2.500			2.500	2.500			2.500	2.500	3.421
Iron (diss.)	**1000 (AA) (1&2)**		**2609**	**38600**	935	**2836**	50	50		87		20		20		20		20	20			20	20			20	20	20
Mercury (diss.filt)	**0.07 MAC (1&2)**																											
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	**1376.451457**	**2836.803**	**1441.803088**	**1240.560293**	**3950**	**2010**		**4980**		**5750**		**6370**		**1910**		113	**1270**			**1080**	89			**1020**	**1807.552651**	**3268.657998**
Molybdenum (diss.filt)	**70 (8) ?**																											
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	5.04	2.50			12.50	12.50		5.48		7.84		8.87		2.50		2.50	2.50			2.50	2.50			2.50	2.50	6.64
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.125	**10**			**12.5**	**12.5**		**10**		**10**		**10**		**10**		**10**	**10**			**10**	**10**			**10**	**10**	0.125
Antimony (diss.filt)	**5 (5)**																											
Selenium (diss.filt)	**10(5)**	**10**	0.35																									0.10
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	1.01	5.01			10.00	10.00		4.65		4.33		5.71		2.03		2.54	3.92			2.51	2.11			1.00	2.46	3.50
Iron (Total)			17600	64000	19600	10119.0112	698	1130	467.5975166		985		586															344.5457093
Manganese (Total)			1497.41214	3180	1497.034874	1282.196647	4130	2000	4700		5770		6430															3740
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.87																									0.13
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.025																									0.074
Aluminium (diss.filt)			20	20	20	20	50	50		20		20		20		20		20	20			20	20			20	20	20
Vanadium (diss.filt)			0.506																									0.125
Phenols	**ug/l**																											
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																											
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	**15000 (7)**																											
EC>C6-C8	**15000 (7)**																											
EC>C8-C10	**300 (7)**																											
EC>C10-C12	**300 (7)**																											
EC>C12-C16	**300 (7)**																											
EC>C16-C21																												
EC>C21-C35																												
EC>C35-C44																												
Aromatics																												
EC C5-C7	**10 (7)**																											
EC>C7-C8	**700 (7)**																											
EC>C8-C10	**300 (7)**																											
EC>C10-C12	**90 (7)**																											
EC>C12-C16	**90 (7)**																											
EC>C16-C21	**90 (7)**																											
EC>C21-C35	**90 (7)**																											
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																											
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																											
Ethylbenzene	**300 (8)**																											
p/m-Xylene																												
o-Xylene																												
Sum of detected Xylenes	**500 (8)**																											
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																											
Acenaphthylene (aq)	**-**																											
Acenaphthene (aq)	**-**																											
Fluorene (aq)	**-**																											
Phenanthrene (aq)	**-**																											
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																											
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																											
Pyrene (aq)	**-**																											
Benzo(a)anthracene (aq)	**-**																											
Chrysene (aq)	**-**																											
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																											
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																											
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																											
Indeno(1,2,3-cd)pyrene (aq)	**-**																											
Dibenzo(a,h)anthracene (aq)	**-**																											
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																											
INORGANICS	**mg/l**																											
Dissolved Organic Carbon			35.7		42.1	40		5.1	3.8		3.6		2.7		3.8		3.6			4.6	3.2			4	3.1		3.4	4.1
pH	**6 - 9 (2&4)**		6.9	6.8	6.8	6.9	7.1	7.8	8.1		6.9		6.9		6.8		7.1			7.2	6.9			6.8	7.1		6.9	6.7
Alkalinity (Total)			1260	1633	1291	1317		255	246		227		226		249		258			271	225			261	232		236	218
Chloride	**250 (5)**		117	243	102	112	19	15	21		21		24		20		17			19	20			17	23		23	16
Ammoniacal Nitrogen			38.05	64.1	44.89	43.4	0.02	0.26	1.16		0.16		0.02		0.02		0.02			0.54	0.2			0.2	0.2		0.2	0.05
Nitrite			0.01	0.01	0.01	0.01	0.0025	0.023	0.009		0.0025		0.017		0.011		0.0025			0.02	0.01			0.01	0.01		0.01	0.01
Nitrate	**50 (5)**		0.125	0.125	0.125	0.125	3.21	5.39	2.24		4.06		3.6		2.87		3.3			3.9	2.98			3.46	1.57		3.86	3.11
Sulphate	**250 (5)**		76.63	21.22	**346.03**	**268.42**	46.10	87.80		45.70		70.40		48.10		44.10		49.70	89.30			47.40	45.00			40.90	34.07	34.72
Sulphide																												
Calcium			367.00	442.00	410.00	493.00	101.00	109.00		101.00		99.30		98.90		107.00		108.00	114.00			94.80	105.00			93.10	96.36	89.50
Potassium			50.27	70.19	54.93	54.10	9.74	18.10		10.90		10.40		8.43		11.20		13.80	17.10			10.60	16.40			10.70	10.83	8.65
Magnesium			49.32	78.27	53.72	54.01	9.26	10.80		9.89		10.20		9.82		8.04		8.59	11.30			8.98	8.39			7.67	8.25	9.20
Sodium	**200(5)**		109.15	175.00	100.81	112.69	20.50	29.50		19.50		21.70		18.50		19.00		22.00	24.30			18.80	22.40			21.10	17.74	16.80
Biochemical Oxygen Demand			2.5	10.0	2.5	9.9		2.5	2.5		2.5		1.5		1.5		1.5			1.5	1.5			1.5	1.5		1.5	2.5
Chemical Oxygen Demand			92	202	111	112		20	20		10		10		10		10			10	10			10	10		10	10
Conductivity			2638	3500	2940	2948	646	745	656		675		625		661		683			772	613			659	610		618	581
Total Oxidisable Nitrogen			0.015	0.15	0.15	0.15	3.21	5.41	2.25		4.06		3.62		2.88		3.3			3.9	2.98			3.46	1.57		3.86	3.11
Total Phosphorus			0.125	0.125	0.27	0.26		0.125	0.125		0.125		0.125		0.125		0.125			0.125	0.125			0.125	0.125		0.125	0.125

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Notes:
Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)				BH212								
HEAVY METALS	**µg/l**		04/08/2021	25/10/2021	24/01/2022	17/01/2019	29/04/2019	08/07/2019	22/10/2019	24/02/2020	12/10/2020	03/08/2021	27/10/2021	25/01/2022
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		10.00	0.00		10.00	10.00	10.00	10.00	10.00	10.00	2.25	2.76	2.04
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**		**1.000**			**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	0.025	0.025	0.025
Chromium (diss.filt)	**50 (5)**		2.500			2.500	1.400	0.250	0.740	0.250	0.125	0.125	0.125	0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	2.500			2.500	2.500	2.500	2.500	2.500	2.500	0.500	0.125	0.125
Iron (diss.)	**1000 (AA) (1&2)**		20	20	20	**1660.00**	108.00	20	**2370**	319	20	**3386**	20	20
Mercury (diss.filt)	**0.07 MAC (1&2)**					0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	**3458.751601**	14.80121297	5	**1330**	**1350**	**1600**	**1360**	**1070**	**1355.593863**	**3389.510202**	**1461.600881**	**1389.995129**
Molybdenum (diss.filt)	**70 (8) ?**													
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	7.08			2.50	2.50	2.50	2.50	2.50	2.50	3.39	0.58	0.54
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	**10**			**10**	**10**	**10**	**10**	**10**	**10**	0.125	0.125	0.125
Antimony (diss.filt)	**5 (5)**													
Selenium (diss.filt)	**10(5)**	**10**					0.50	0.50	0.50	0.50	0.10	0.10	0.10	0.10
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	4.20			1.00	1.00	1.00	1.00	1.00	1.00	1.61	0.50	0.50
Iron (Total)			419.9193759	604.9558082	783.0388289							15500	6148.112165	17700
Manganese (Total)			4080	429.3324841	1221.166127							3490	1465.879427	1450.229954
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**						0.70	0.25	0.37	0.25	0.13	0.13	0.13	0.13
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**						0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Aluminium (diss.filt)			20	20	20	20	20	20	20	20	20	20	20	20
Vanadium (diss.filt)											0.125	0.125	0.125	0.125
Phenols	**ug/l**													
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**					22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50
Speciated TPH	**ug/l**													
Aliphatics														
EC C5-C6	**15000 (7)**					10	10	10		10	10	10	10	10
EC>C6-C8	**15000 (7)**					12.5	12.5	12.5		12.5	12.5	12.5	12.5	12.5
EC>C8-C10	**300 (7)**					7.5	7.5	7.5		7.5	7.5	7.5	7.5	7.5
EC>C10-C12	**300 (7)**					50	10	30	5	5				
EC>C12-C16	**300 (7)**					5	5	5	5	5				
EC>C16-C21						5	5	5	5	5				
EC>C21-C35						5	5	60	5	5				
EC>C35-C44						5	5	5	5	5				
Aromatics														
EC C5-C7	**10 (7)**					1	1	1		1	1	1	1	1
EC>C7-C8	**700 (7)**					2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5
EC>C8-C10	**300 (7)**					25	25							
EC>C10-C12	**90 (7)**					50	10	30	5	5				
EC>C12-C16	**90 (7)**					**120**	30	60	5	5				
EC>C16-C21	**90 (7)**					**120**	40	90	5	5				
EC>C21-C35	**90 (7)**					10	30	**150**	5	5				
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**					0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**					0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50
Ethylbenzene	**300 (8)**					0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50
p/m-Xylene						1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
o-Xylene						0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50
Sum of detected Xylenes	**500 (8)**							1.50		1.50	1.50	1.50	1.50	1.50
Polyaromatic Hydrocabons	**µg/l**													
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**					0.073	0.205	0.069	0.371	0.154	0.618	**41.324**	0.309	0.053
Acenaphthylene (aq)	**-**					0.006	0.009	0.014	0.012	0.012	0.002	1.646	0.004	0.009
Acenaphthene (aq)	**-**					0.029	0.096	0.040	0.274	0.028	0.177	0.831	0.050	0.054
Fluorene (aq)	**-**					0.050	0.109	0.067	0.326	0.020	0.108	0.160	0.079	0.060
Phenanthrene (aq)	**-**					0.090	0.153	0.069	0.140	0.022	0.246	0.156	0.029	0.055
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**					0.013	0.017	0.003	0.019	0.003	0.028	0.100	0.019	0.019
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**					0.065	0.062	0.024	0.083	0.017	0.104	0.022	0.036	0.030
Pyrene (aq)	**-**					0.064	0.059	0.016	0.050	0.019	0.070	0.009	0.018	0.023
Benzo(a)anthracene (aq)	**-**					0.265	0.016	0.002	0.002	0.008	0.009	0.003	0.001	0.001
Chrysene (aq)	**-**					0.265	0.023	0.009	0.004	0.013	0.016	0.005	0.003	0.005
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**						**0.035**	0.010	0.002	0.009	0.009	0.007	0.001	0.003
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**						0.013	**0.020**	0.001	0.001	0.008	0.004	0.001	0.002
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**					**0.944**	**0.012**	**0.005**	0.001	**0.017**	**0.015**	**0.008**	**0.003**	**0.025**
Indeno(1,2,3-cd)pyrene (aq)	**-**					0.087	0.003	0.001	0.003	0.014	0.011	0.009	0.002	0.001
Dibenzo(a,h)anthracene (aq)	**-**					0.138	0.002	0.002	0.002	0.014	0.002	0.002	0.002	0.014
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**					0.081	0.001	0.001	0.002	0.013	0.009	0.008	0.002	0.001
INORGANICS	**mg/l**													
Dissolved Organic Carbon				3	3.1	15.9	11.4	13.2	11.9	9.6	11		11.3	10.6
pH	**6 - 9 (2&4)**		6.8	7.1	6.8	7.2	7.3	7.2	7.3	7.6	7.3	7.1	7.4	7.5
Alkalinity (Total)			236	229	242	538	535	545	446	352	401	463	456	425
Chloride	**250 (5)**		19	5	15	14	18	19	12	18	19	15	18	16
Ammoniacal Nitrogen			0.2	0.2	0.2	2.91	2.99	2.91	3.04	2.49	4.43	3.05	5.23	2.12
Nitrite			0.01	0.01	0.01	0.0025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Nitrate	**50 (5)**		3.31	0.88	2.59	0.03	0.15	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Sulphate	**250 (5)**		28.80	27.88	33.68	6.01	2.11	2.50	1.21	0.60	2.61	1.25	1.42	0.60
Sulphide														
Calcium			94.68	92.78	102.65	155.00	176.00	195.00	158.00	130.00	153.00	171.00	174.00	158.00
Potassium			8.78	10.30	13.37	10.50	10.30	11.30	9.79	7.18	9.06	8.43	8.25	7.44
Magnesium			9.43	4.85	8.39	13.30	13.00	14.10	10.80	8.80	9.82	12.70	9.99	9.49
Sodium	**200(5)**		16.05	15.70	18.70	13.00	13.80	15.40	11.40	10.30	11.76	17.69	10.89	10.11
Biochemical Oxygen Demand			5.4	1.5	1.5	6.9	15.0	2.5	13.0	8.5	4.1	9.0	7.0	13.0
Chemical Oxygen Demand			10	10	10	30	45	35	29	34	26	26	28	26
Conductivity			616	527	591	991	917	1040	845	719	769	882	851	808
Total Oxidisable Nitrogen			3.31	0.88	2.59	0.03	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Total Phosphorus			0.125	0.125	0.125	1.55	0.125	0.125	0.125	0.45	0.125	0.125	0.125	0.125

Sample Point / Determinands	BH213				BH214								
HEAVY METALS	10/07/2017	02/08/2017	18/10/2017	10/01/2018	10/08/2016	19/07/2017	24/10/2017	12/01/2018	21/02/2018	17/04/2018	18/04/2018	27/06/2018	04/07/2018
Arsenic (diss.filt)						12.50	10.00	10.00		10.00		10.00	
Cadmium (diss.filt)						**5.000**	**1.000**	**1.000**		**1.000**		**1.000**	
Chromium (diss.filt)						12.500		2.500		2.500		2.500	
Copper (diss.filt)						10.000	2.500	2.500		2.500		2.500	
Iron (diss.)						**3230**	**3310**	**2970**		**6380**		908	
Mercury (diss.filt)													
Manganese (diss.filt)						**1090**	**4540**	**1410**		**3960**			
Molybdenum (diss.filt)													
Nickel (diss.filt)						12.50	2.50	2.50		2.50		2.50	
Lead (diss.filt)						**12.5**	**10**	**10**		**10**		**10**	
Antimony (diss.filt)													
Selenium (diss.filt)													
Zinc (diss.filt)						10.00	1.00	2.44		1.00		1.00	
Iron (Total)		2610000		453000		3840	17100		3847.406367		10100		5890
Manganese (Total)		62800		10100		1090	4710		1425.058194		4040		2580
Chromium III (diss.filt)													
Chromium VI (diss.filt)													
Aluminium (diss.filt)						50	50	20		20		20	
Vanadium (diss.filt)													
Phenols													
Phenols, Total	**25000.00**												
Speciated TPH													
Aliphatics													
EC C5-C6													
EC>C6-C8													
EC>C8-C10													
EC>C10-C12													
EC>C12-C16													
EC>C16-C21													
EC>C21-C35													
EC>C35-C44													
Aromatics													
EC C5-C7													
EC>C7-C8													
EC>C8-C10													
EC>C10-C12													
EC>C12-C16													
EC>C16-C21													
EC>C21-C35													
Benzene	**40.00**												
Toluene	**130.00**												
Ethylbenzene	40.00												
p/m-Xylene	173.00												
o-Xylene	40.00												
Sum of detected Xylenes													
Polyaromatic Hydrocabons													
Naphthalene (aq)	**40.000**												
Acenaphthylene (aq)													
Acenaphthene (aq)													
Fluorene (aq)													
Phenanthrene (aq)													
Anthracene (aq)													
Fluoranthene (aq)													
Pyrene (aq)													
Benzo(a)anthracene (aq)													
Chrysene (aq)													
Benzo(b)fluoranthene (aq)													
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Benzo(a)pyrene (aq)													
Indeno(1,2,3-cd)pyrene (aq)													
Dibenzo(a,h)anthracene (aq)													
Benzo(g,h,i)perylene (aq)													
INORGANICS													
Dissolved Organic Carbon				4836	430		7				5.8		3.7
pH		6.5	6.5	6.9	7.1	6.7	7.4				7.3		6.8
Alkalinity (Total)		17734	16484	11700	7900		246				190		141
Chloride		**3500**	**3610**	**2970**	**1500**	26	20				21		27
Ammoniacal Nitrogen		2880	2811	2670	9.1	0.37	0.38		0.22		1.08		0.44
Nitrite				0.075	0.01	0.01	0.011				0.006		0.019
Nitrate				0.03	0.25	5.63	0.87				0.82		2.87
Sulphate						14.80	18.40	24.60		15.30			
Sulphide													
Calcium						52.90	96.20	21.50		70.70			
Potassium						12.50	7.36	13.00		7.88			
Magnesium						3.52	7.02	4.54		5.60			
Sodium						14.60	13.80	13.60		13.00			
Biochemical Oxygen Demand			51700.0	26400.0			2.5				1.5		2.5
Chemical Oxygen Demand			79200	43100			57				10		10
Conductivity		36700	36900	31170		421	572		394		470		442
Total Oxidisable Nitrogen						5.64	0.88				0.83		2.89
Total Phosphorus				5.16			0.125				0.125		0.125

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Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH216																									
HEAVY METALS	**µg/l**		03/10/2018	18/10/2018	09/01/2019	10/01/2019	11/04/2019	16/04/2019	28/05/2019	31/05/2019	05/07/2019	23/07/2019	15/10/2019	29/10/2019	30/09/2020	19/04/2021	03/08/2021	03/11/2021	31/01/2022	19/07/2017	24/10/2017	12/01/2018	21/02/2018	17/04/2018	18/04/2018	27/06/2018	04/07/2018	03/10/2018
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		10.00		10.00		10.00			10.00	10.00		10.00		10.00	2.00	10.00	0.00		12.50	10.00	10.00		10.00		10.00		10.00
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l		1.000		1.000		1.000			1.000	1.000		1.000		1.000	0.025	1.000			5.000	1.000	1.000		1.000		1.000		1.000
Chromium (diss.filt)	50 (5)		2.500		2.500					2.500					2.500	0.125	2.500			12.500		2.500		2.500		2.500		2.500
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	2.500		2.500		2.500			2.500	2.500		2.500		2.500	0.897	2.500			10.000	2.500	2.500		2.500		2.500		2.500
Iron (diss.)	1000 (AA) (1&2)		6570		2730		3230			3240	5010		2780		2202	2968	1001	437	3645		259	4700		766		736		1300
Mercury (diss.filt)	0.07 MAC (1&2)									0.0025																		
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	3000		8550		4100			2120	2310		5670		3095.665025	3126.046335	1175.817096	2227.500661	3586.291256	2320	3200	2250		3810		1660		6160
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	14.10		13.00		5.90			2.50	2.50		6.27		2.50	3.71	2.50			12.50	10.30	6.22		7.56		5.88		9.25
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	10		10		10			10	10		10		10	0.125	10			12.5	10	10		10		10		10
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10													0.00	0.23												
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	4.50		4.11		3.28			1.00	1.00		1.00		2.28	1.14	1.00			10.00	1.00	1.00		1.00		1.00		1.00
Iron (Total)																24600	2079.944301	2331.998714	4706.902248	155000	26691.20175		37100		71900		2860	
Manganese (Total)																3390	1201.786767	2304.384434	3660	6180	3840		2980		7100		1730	
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)															0.13												
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)															0.050												
Aluminium (diss.filt)			20		20		20			20	20		20		20	20	20	20	20	50	50	20		20		20		20
Vanadium (diss.filt)																0.125												
Phenols	**ug/l**																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																											
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	15000 (7)																											
EC>C6-C8	15000 (7)																											
EC>C8-C10	300 (7)																											
EC>C10-C12	300 (7)																											
EC>C12-C16	300 (7)																											
EC>C16-C21																												
EC>C21-C35																												
EC>C35-C44																												
Aromatics																												
EC C5-C7	10 (7)																											
EC>C7-C8	700 (7)																											
EC>C8-C10	300 (7)																											
EC>C10-C12	90 (7)																											
EC>C12-C16	90 (7)																											
EC>C16-C21	90 (7)																											
EC>C21-C35	90 (7)																											
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)																											
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)																											
Ethylbenzene	300 (8)																											
p/m-Xylene																												
o-Xylene																												
Sum of detected Xylenes	500 (8)																											
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)																											
Acenaphthylene (aq)	-																											
Acenaphthene (aq)	-																											
Fluorene (aq)	-																											
Phenanthrene (aq)	-																											
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)																											
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)																											
Pyrene (aq)	-																											
Benzo(a)anthracene (aq)	-																											
Chrysene (aq)	-																											
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																											
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)																											
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																											
Indeno(1,2,3-cd)pyrene (aq)	-																											
Dibenzo(a,h)anthracene (aq)	-																											
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																											
INORGANICS	**mg/l**																											
Dissolved Organic Carbon				4.6		6		7	4.5			5.1		7.4	2.6	5.9		8	7		68.8				59.9		59.9	
pH	6 - 9 (2&4)			6.7		7.1		6.8	7			7.2		7	7.3	6.9	6.7	6.7	6.9	7.5	7.5				7.9		7.4	
Alkalinity (Total)				140		169		174	139			142		204	150	184	111	146	188		487				430		301	
Chloride	250 (5)			27		25		24	30			31		21	41	21	29	28	27	47	37				34		49	
Ammoniacal Nitrogen				5.08		0.35		0.48	0.52			0.52		0.2	0.2	0.42	0.2	0.2	0.49	16	14		6.35		12.1		11.1	
Nitrite				0.007		0.0025		0.01	0.01			0.01		0.01	0.02	0.01	0.032	0.01	0.01	0.007	0.0025				0.009		0.009	
Nitrate	50 (5)			1.87		1.75		1.3	4.8			4.1		1.5	3.99	1.62	6.65	1.35	3.02	0.63	0.03				0.14		0.32	
Sulphate	250 (5)		256.00		107.00		44.70			25.50	22.30		48.90		25.12	19.32	20.64	95.36	49.17	383.00	437.00	52.70		437.00		175.00		439.00
Sulphide																												
Calcium			144.00		97.20		76.60			63.80	64.30		93.80		64.78	75.94	57.05	94.56	94.17	250.00	318.00	93.40		292.00		145.00		284.00
Potassium			12.30		7.55		8.18			10.30	10.60		6.59		8.42	6.90	12.27	8.04	6.83	19.70	20.70	13.80		16.60		15.40		19.90
Magnesium			9.82		6.93		5.98			5.19	5.11		6.47		5.20	5.08	4.83	6.25	6.24	11.80	16.00	7.39		15.20		7.74		17.90
Sodium	200(5)		19.80		14.70		15.00			15.20	15.10		14.60		14.91	14.47	15.45	17.28	15.39	64.30	60.50	22.30		54.60		52.80		62.50
Biochemical Oxygen Demand				1.5		1.5		1.5	1.5			1.5		1.5	1.5	2.5	2.5	2.5	1.5		3.1				2.5		2.5	
Chemical Oxygen Demand				10		10		10	10			10		10	10	10	10	20	10		176				150		161	
Conductivity				833		1368		527	465			471		584	466	484	438	574	565	1534	1788		684		1592		1093	
Total Oxidisable Nitrogen				1.88		1.75		1.3	4.8			4.1		1.5	4.01	1.62	6.68	1.35	3.02	0.64	0.03				0.15		0.33	
Total Phosphorus				0.125		0.125		0.125	0.125			0.125		0.125	0.125	0.125	0.125	0.125	0.125		0.26				0.83		0.35	

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH217																								
HEAVY METALS	µg/l		18/10/2018	09/01/2019	10/01/2019	11/04/2019	16/04/2019	28/05/2019	31/05/2019	05/07/2019	23/07/2019	15/10/2019	29/10/2019	30/09/2020	19/04/2021	03/08/2021	03/11/2021	31/01/2022	25/10/2017	12/01/2018	21/02/2018	17/04/2018	18/04/2018	27/06/2018	04/07/2018	17/10/2018	18/10/2018	09/01/2019
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			10.00		10.00			10.00	10.00		10.00		10.00	12.81	10.00	0.00		10.00	10.00		10.00		10.00				10.00
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l			**1.000**		**1.000**			**1.000**	**1.000**		**1.000**		**1.000**	0.025	**1.000**			**1.000**	**1.000**		**1.000**		**1.000**				**1.000**
Chromium (diss.filt)	50 (5)			2.500					2.500					2.500	0.560	2.500				10.500		8.130		7.200				2.500
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94		6.410		2.500			2.500	2.500		2.500		2.500	0.125	2.500			2.500	2.500		2.500		2.500				2.500
Iron (diss.)	1000 (AA) (1&2)			**14300**		936			280	464		144		333	336	575	244	379	873	**1720**		**1450**		**1220**				**4000**
Mercury (diss.filt)	0.07 MAC (1&2)								0.0025																			
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92		**8520**		**4550**			**1630**	**1900**		**6190**		**2949.978559**	**6510**	**2225.854844**	**7270**	**6020**	**602**	**751**		**755**		**738**				**1460**
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		2.50		5.59			2.50	5.46		2.50		2.50	2.77	2.50			**50.30**	**74.10**		**79.60**		**68.40**				**35.40**
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		**10**		**10**			**10**	**10**		**10**		**10**	0.125	**10**			**10**	**10**		**10**		**10**				**10**
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10													0.91													
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15		4.40		1.00			1.00	1.00		1.00		1.00	0.50	1.00			6.93	3.83		12.80		7.52				2.36
Iron (Total)															2031.148101	1112.852408	1134.53526	2576.02842	26100		96400		235000		17500			
Manganese (Total)															6470	2247.476013	7360	6320	1060.914819		3510		8850		925			
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)														0.56													
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)														0.050													
Aluminium (diss.filt)				20		20			20	20		20		20	20	20	20	20	50	42		50		41				20
Vanadium (diss.filt)															2.401													
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																											
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)																				10		10		10	10		
EC>C6-C8	15000 (7)																				12.5		12.5		12.5	12.5		
EC>C8-C10	300 (7)																				7.5		7.5		7.5	7.5		
EC>C10-C12	300 (7)																				5		5		5	**540**		
EC>C12-C16	300 (7)																				5		5		30	5		
EC>C16-C21																					6		120		211	5		
EC>C21-C35																					448		763		2480	580		
EC>C35-C44																							114		312	5		
Aromatics																												
EC C5-C7	10 (7)																				1		1		1	1		
EC>C7-C8	700 (7)																				2.5		2.5		2.5	2.5		
EC>C8-C10	300 (7)																				25		25		25	25		
EC>C10-C12	90 (7)																				5		5		5	**540**		
EC>C12-C16	90 (7)																				18		5		50	**600**		
EC>C16-C21	90 (7)																				5		5		39	**770**		
EC>C21-C35	90 (7)																				**124**		5		40	**220**		
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)																											
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)																											
Ethylbenzene	300 (8)																											
p/m-Xylene																												
o-Xylene																												
Sum of detected Xylenes	500 (8)																											
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)																				0.004		0.981		0.004	0.262		
Acenaphthylene (aq)	-																				0.002		0.020		0.002	0.014		
Acenaphthene (aq)	-																				0.001		0.293		0.001	0.253		
Fluorene (aq)	-																				0.002		0.092		0.002	0.141		
Phenanthrene (aq)	-																				0.003		0.059		0.003	0.147		
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)																				0.003		0.012		0.003	0.012		
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)																				0.001		0.037		0.001	0.095		
Pyrene (aq)	-																				0.001		0.049		0.001	0.122		
Benzo(a)anthracene (aq)	-																				0.001		0.029		0.001	0.045		
Chrysene (aq)	-																				0.001		0.029		0.001	0.045		
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																				0.001		**0.029**		0.001	**0.031**		
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)																				0.001		**0.029**		0.001	**0.031**		
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																				0.001		0.001		0.001	**0.013**		
Indeno(1,2,3-cd)pyrene (aq)	-																				0.001		0.012		0.001	0.010		
Dibenzo(a,h)anthracene (aq)	-																				0.002		0.002		0.002	0.002		
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																				0.001		0.017		0.001	0.014		
INORGANICS	mg/l																											
Dissolved Organic Carbon			43.3		35.6		54.6	17.5			46.5		48.1	30.8	40.8		33.1	44.5	244.8		367		275		253		37.4	
pH	6 - 9 (2&4)		7.4		6.9		7.5	7.6			7.8		7.7	7.4	7.6	7.5	7.6	7.6	7.3		7.2		7.4		7.2		7.4	
Alkalinity (Total)			400		539		426	190			344		532	508	444	337	382	418	3384		3758		3583		3351		3965	
Chloride	250 (5)		40		22		35	30			45		35	83	33	45	35	33	**638**		**872**		**808**		**758**		**916**	
Ammoniacal Nitrogen			9.08		8.38		12	3.4			8.6		11.18	13.38	8.26	8.53	9.02	11.36	513		562		537		499		638	
Nitrite			0.015		0.0025		0.01	0.05			0.06		0.01	0.01	0.01	0.038	0.01	0.01	0.01		0.025		0.013		0.015		0.025	
Nitrate	50 (5)		0.35		0.03		0.15	3.1			0.93		0.125	0.125	0.125	0.85	0.125	0.125	0.03		0.03		0.03		0.03		0.03	
Sulphate	250 (5)			174.00		217.00			59.60	86.30		**255.00**		71.49	167.15	16.90	**512.32**	**272.90**	36.90	56.10		49.90		45.40				43.00
Sulphide																												
Calcium				228.00		203.00			87.10	124.00		239.00		174.00	216.00	102.35	330.00	242.00	95.20	145.00		135.00		135.00				152.00
Potassium				15.00		15.30			10.80	14.10		15.50		17.06	12.62	12.71	15.94	14.91	441.00	472.00		451.00		418.00				299.00
Magnesium				16.90		13.40			6.02	8.20		12.90		10.84	11.53	6.57	17.48	15.14	111.00	161.00		155.00		150.00				113.00
Sodium	200(5)			39.50		52.00			27.30	41.50		48.60		49.45	41.64	35.23	47.37	41.32	**570.00**	**692.00**		**668.00**		**594.00**				**394.00**
Biochemical Oxygen Demand			2.5		11.0		2.5	1.5			2.1		2.7	2.5	2.5	2.5	5.7	3.3	33.0		49.0		57.0		38.0		64.0	
Chemical Oxygen Demand			107		57		138	40			117		115	154	91	119	79	95	774		971		948		912		1386	
Conductivity			1496		672		1280	622			986		1490	1210	1165	814	1590	1265	8367		9377		8698		8378		9873	
Total Oxidisable Nitrogen			0.36		0.03		0.15	3.1			0.99		0.15	0.15	0.15	0.89	0.15	0.15	0.03		0.03		0.03		0.03		0.08	
Total Phosphorus			0.125		0.26		0.125	0.125			0.125		0.25	0.28	0.125	0.26	0.29	0.125	2.25		2.46		4.41		1.8		1.78	

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH218														BH219											
HEAVY METALS	µg/l		23/01/2019	11/04/2019	16/04/2019	05/07/2019	23/07/2019	15/10/2019	29/10/2019	19/02/2020	04/03/2020	06/10/2020	19/04/2021	03/08/2021	03/11/2021	31/01/2022	12/01/2018	22/02/2018	17/04/2018	03/10/2018	17/10/2018	09/01/2019	11/04/2019	17/04/2019	05/07/2019	17/07/2019	15/10/2019	24/10/2019
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			10.00		10.00		10.00		10.00		10.00	10.63	10.00	0.00		10.00		10.00	10.00		10.00	10.00		10.00		10.00	
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l			**1.000**		**1.000**		**1.000**		**1.000**		**1.000**	0.025	**1.000**			**1.000**		**1.000**	**1.000**		**1.000**	**1.000**		**1.000**		**1.000**	
Chromium (diss.filt)	50 (5)											8.085	8.476	9.735			2.500		2.500			2.500						
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94		2.500		6.040		2.500		2.500		2.500	0.386	2.500			27.100		**35.500**			2.500	14.400		17.500		22.900	
Iron (diss.)	1000 (AA) (1&2)			**6750**		**15200**		676		**6750**		882	**1896**	**1905**	985	**1576**	**42100**		**45400**			**12400**	**29900**		**34300**		**65100**	
Mercury (diss.filt)	0.07 MAC (1&2)																											
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92		**926**		**890**		**838**		**1020**		**796.8800836**	**811.7856063**	**832.23931**	**767.8785978**	**805.3980711**	**9600**		**9630**	**8440**		**6420**	**8880**		**8430**		**9640**	
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		**60.20**		**45.60**		**40.20**		**83.30**		**58.31**	**62.40**	**65.38**	0.00		2.50		2.50	2.50		2.50	2.50		2.50		2.50	
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		**10**		**10**		**10**		**10**		**10**	0.125	**10**			**10**		**10**	**10**		**10**	**10**		**10**		**10**	
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	**10**										0.00	1.54															
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15		4.57		3.38		2.63		2.88		5.34	1.23	2.92			7.65		7.65	8.08		8.06	6.79		4.29		7.75	
Iron (Total)													37100	24600	25500	24200		63800	55600									
Manganese (Total)													1170.594143	931.5017737	845.7862789	931.6999379		10000	9880									
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)												**8.48**															
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)												0.050															
Aluminium (diss.filt)				43		20		20		49		20	45.99903605	20	20	40.24189044	20		20	20		20	20		20		20	
Vanadium (diss.filt)													6.601															
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)											22.50																
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)		10		10		10		10		10	10	10	10	10	10												
EC>C6-C8	15000 (7)		12.5		12.5		12.5		12.5		12.5	12.5	12.5	12.5	12.5	12.5												
EC>C8-C10	300 (7)		7.5		7.5		7.5		7.5		7.5	7.5	7.5	7.5	7.5	7.5												
EC>C10-C12	300 (7)		240		290		190		5		5																	
EC>C12-C16	300 (7)		5		**410**		5		5		5																	
EC>C16-C21			30		570		600		5		5																	
EC>C21-C35			70		220		770		5		560																	
EC>C35-C44			5		5		5		5		5																	
Aromatics																												
EC C5-C7	10 (7)		1		1		7.2		3.8		4.59	5.94	7.959	7.092	2.414	6.707												
EC>C7-C8	700 (7)		2.5		2.5		47.6		39.2		26.6	35.9	40.632	39.736	12.284	37.12												
EC>C8-C10	300 (7)		25		25																							
EC>C10-C12	90 (7)		**240**		**290**		**190**		5		5																	
EC>C12-C16	90 (7)		**190**		5		**320**		5		5																	
EC>C16-C21	90 (7)		**280**		60		40		5		5																	
EC>C21-C35	90 (7)		20		**180**		5		5		5																	
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)				0.50		4.30		3.80		4.59	4.66	6.55	5.70	1.99	5.37												
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)				0.50		2.90		0.50		0.50	1.28	1.41	1.40	0.50	1.34												
Ethylbenzene	300 (8)				0.50		6.90		15.10		4.39	7.16	8.28	8.51	0.50	7.05												
p/m-Xylene					1.00		23.80		13.40		11.90	16.30	18.36	17.29	6.61	17.55												
o-Xylene					0.50		14.00		10.70		10.30	11.20	12.59	12.55	4.53	11.18												
Sum of detected Xylenes	500 (8)						37.80		24.10		22.20	27.40	30.95	29.83	11.14	28.73												
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.976		**2.048**		0.041		**10.387**		0.052	**3.637**	1.448	**6.203**	0.083	0.560												
Acenaphthylene (aq)	-		0.012		0.043		0.037		0.119		0.003	0.002	0.015	0.410	0.014	0.011												
Acenaphthene (aq)	-		0.189		0.530		0.361		1.744		0.013	0.867	0.091	0.352	0.025	0.151												
Fluorene (aq)	-		0.114		0.261		0.196		0.751		0.005	0.362	0.086	0.144	0.033	0.096												
Phenanthrene (aq)	-		0.168		0.316		0.215		0.797		0.003	0.600	0.124	0.155	0.105	0.095												
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.020		0.031		0.033		0.080		0.003	0.207	0.032	0.102	0.067	0.052												
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.091		0.104		0.097		0.226		0.002	0.230	0.062	0.055	0.051	0.048												
Pyrene (aq)	-		0.109		0.092		0.093		0.262		0.003	0.256	0.054	0.042	0.026	0.039												
Benzo(a)anthracene (aq)	-		0.150		0.026		0.020		0.033		0.001	0.084	0.016	0.011	0.047	0.011												
Chrysene (aq)	-		0.150		0.034		0.037		0.050		0.001	0.164	0.028	0.022	0.016	0.016												
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)				**0.019**		**0.040**		**0.022**		0.001	**0.094**	**0.018**	0.014	0.003	0.013												
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)				0.006		0.016		**0.020**		0.001	**0.079**	0.014	0.011	0.004	0.009												
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.603**		**0.019**		**0.024**		**0.020**		0.001	**0.167**	**0.019**	**0.023**	**0.013**	**0.016**												
Indeno(1,2,3-cd)pyrene (aq)	-		0.073		0.040		0.036		0.016		0.001	0.084	0.020	0.012	0.010	0.014												
Dibenzo(a,h)anthracene (aq)	-		0.106		0.007		0.052		0.005		0.002	0.020	0.002	0.002	0.002	0.002												
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.068		0.036		0.053		0.012		0.001	0.037	0.021	0.013	0.004	0.011												
INORGANICS	mg/l																											
Dissolved Organic Carbon			359		272.7		369.2		178		365	300	316.5		199.6	281.8			14.1		30.2	17.6		13.4		17.8		20.5
pH	6 - 9 (2&4)		7.1		7.2		7.3		7		7.2	7.1	7.2	7.2	7.2	7.1			7.3		7	7.1		7		6.9		6.8
Alkalinity (Total)			2731		3542		3070		2753		4552	3498	5000	4440	3198	4247			952		1107	887		947		1093		1175
Chloride	250 (5)		**466**		**667**		**572**		**479**		**956**	**503**	**674**	**723**	**500**	**571**			22		26	18		17		23		20
Ammoniacal Nitrogen			380		1.44		1.8		374.3		0.2	250.74	0.74	1	1.73	0.97		13.7	13		27.7	16.4		9.2		1.31		15.56
Nitrite			0.018		0.01		0.15		0.01		0.01	0.01	0.01	0.01	0.01	0.19			0.045		0.009	0.0025		0.01		0.01		0.01
Nitrate	50 (5)		0.07		0.15		0.125		0.125		0.125	0.125	0.125	0.125	0.125	0.125			0.03		0.06	0.03		0.15		0.125		0.125
Sulphate	250 (5)			48.40		34.10		29.20		66.90		42.40	48.85	49.59	61.89	42.18	16.20		20.60	53.70		36.50	42.20		5.27		4.16	
Sulphide																												
Calcium				170.00		160.00		162.00		204.00		161.77	163.00	175.00	138.74	158.00	301.00		325.00	378.00		306.00	353.00		381.00		409.00	
Potassium				454.00		365.00		332.00		607.00		463.70	548.00	575.00	408.00	500.00	18.70		16.60	23.60		16.70	13.20		15.70		17.90	
Magnesium				158.00		139.00		124.00		188.00		141.08	173.00	185.00	127.10	162.00	26.50		23.70	25.90		17.60	18.10		20.80		23.60	
Sodium	200(5)			**657.00**		**500.00**		**440.00**		**938.00**		**668.94**	**785.00**	**793.00**	**553.00**	**659.00**	28.00		22.50	27.30		19.00	17.20		22.20		26.50	
Biochemical Oxygen Demand			77.0		48.0		30.0		20.0		41.0	44.0	43.0	42.0	23.0	34.0			2.5		19.0	15.0		2.5		11.0		7.5
Chemical Oxygen Demand			843		10		668		501		995	888	837	10	579	781			28		42	53		27		322		20
Conductivity			6580		8450		7360		6410		10800	8220	9834	9866	7170	9109		4051	1740		2000	1606		1690		1820		2030
Total Oxidisable Nitrogen			0.09		0.15		0.15		0.15		0.15	0.15	0.15	0.15	0.15	0.15			0.03		0.07	0.03		0.15		0.15		0.15
Total Phosphorus			3		2.25		1.94		1.77		3.43	3.12	2.75	2.24	1.58	2.63			0.125		0.42	0.125		0.125		0.44		0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)							
HEAVY METALS	µg/l		19/02/2020	25/02/2020	30/09/2020	19/04/2021	03/08/2021	02/11/2021	31/01/2022
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		10.00		10.00	13.50	10.00	0.00	
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l		**1.000**		**1.000**	0.025	**1.000**		
Chromium (diss.filt)	50 (5)				2.500	0.357	2.500		
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	2.500		2.500	0.410	6.606		
Iron (diss.)	1000 (AA) (1&2)		**21600**		**18500**	**83500**	**28400**	**27900**	**21800**
Mercury (diss.filt)	0.07 MAC (1&2)								
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	**2900**		**8610**	**12300**	**10200**	**6510**	**6960**
Molybdenum (diss.filt)	70 (8) ?								
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	5.08		2.50	2.99	2.50		
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	**10**		**10**	0.125	**10**		
Antimony (diss.filt)	5 (5)								
Selenium (diss.filt)	10(5)	10			0.00	0.27			
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	3.34		4.52	3.07	4.44		
Iron (Total)						239000	42400	43200	31100
Manganese (Total)						14700	10700	6354	7210
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)					0.36			
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)					0.050			
Aluminium (diss.filt)			20		20	20	20	20	20
Vanadium (diss.filt)						0.125			
Phenols	ug/l								
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)								
Speciated TPH	ug/l								
Aliphatics									
EC C5-C6	15000 (7)								
EC>C6-C8	15000 (7)								
EC>C8-C10	300 (7)								
EC>C10-C12	300 (7)								
EC>C12-C16	300 (7)								
EC>C16-C21									
EC>C21-C35									
EC>C35-C44									
Aromatics									
EC C5-C7	10 (7)								
EC>C7-C8	700 (7)								
EC>C8-C10	300 (7)								
EC>C10-C12	90 (7)								
EC>C12-C16	90 (7)								
EC>C16-C21	90 (7)								
EC>C21-C35	90 (7)								
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)								
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)								
Ethylbenzene	300 (8)								
p/m-Xylene									
o-Xylene									
Sum of detected Xylenes	500 (8)								
Polyaromatic Hydrocabons	µg/l								
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)								
Acenaphthylene (aq)	-								
Acenaphthene (aq)	-								
Fluorene (aq)	-								
Phenanthrene (aq)	-								
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)								
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)								
Pyrene (aq)	-								
Benzo(a)anthracene (aq)	-								
Chrysene (aq)	-								
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)								
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)								
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**								
Indeno(1,2,3-cd)pyrene (aq)	-								
Dibenzo(a,h)anthracene (aq)	-								
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)								
INORGANICS	mg/l								
Dissolved Organic Carbon				10.8	8.5	12.5		17.6	105.5
pH	6 - 9 (2&4)			6.8	6.7	6.7	6.8	6.8	6.8
Alkalinity (Total)				1100	839	1109	1249	995	806
Chloride	250 (5)			14	27	12	15	17	32
Ammoniacal Nitrogen				8.82	5.56	9.72	18.37	24.77	30.58
Nitrite				0.01	0.01	0.01	0.01	0.01	0.01
Nitrate	50 (5)			0.125	0.125	0.125	0.125	0.125	0.125
Sulphate	250 (5)		23.90		1.31	1.37	10.31	162.91	2.54
Sulphide									
Calcium			218.00		308.00	409.00	460.00	414.00	305.00
Potassium			32.30		11.61	15.04	17.34	21.50	13.07
Magnesium			26.20		12.99	19.99	25.03	25.13	13.59
Sodium	200(5)		49.60		13.03	20.79	23.62	25.35	12.30
Biochemical Oxygen Demand				7.8	2.5	10.0	6.5	7.8	2.5
Chemical Oxygen Demand				150	10	10	35	10	67
Conductivity				1830	1540	2042	2247	1980	1464
Total Oxidisable Nitrogen				0.15	0.15	0.15	0.15	0.15	0.15
Total Phosphorus				0.39	0.31	0.125	0.125	0.42	0.3

Sample Point / Determinands	BH220																	
HEAVY METALS	20/07/2016	09/08/2016	19/10/2017	17/04/2018	27/06/2018	03/07/2018	03/10/2018	17/10/2018	09/01/2019	11/04/2019	16/04/2019	05/07/2019	22/07/2019	15/10/2019	24/10/2019	19/02/2020	25/02/2020	29/09/2020
Arsenic (diss.filt)			12.50	10.00	10.00		10.00		10.00	10.00		10.00		10.00		10.00		10.00
Cadmium (diss.filt)			**5.000**	**1.000**	**1.000**		**1.000**		**1.000**	**1.000**		**1.000**		**1.000**		**1.000**		**1.000**
Chromium (diss.filt)				2.500	2.500		2.500		2.500									2.500
Copper (diss.filt)			10.000		6.980		7.690		10.700	13.700		6.330		9.250		14.500		2.500
Iron (diss.)			**7580**		**13500**		**18500**		**23700**	**20900**		**15600**		**30100**		**54800**		**7441**
Mercury (diss.filt)																		
Manganese (diss.filt)			**2130**	**3020**	**3160**		**3460**		**4210**	**3420**		**3100**		**3990**		**11500**		**3476.173502**
Molybdenum (diss.filt)																		
Nickel (diss.filt)			12.50	5.94	7.49		5.94		5.35	5.60		5.07		5.54		2.50		5.99
Lead (diss.filt)			**12.5**	**10**	**10**		**10**		**10**	**10**		**10**		**10**		**10**		**10**
Antimony (diss.filt)																		
Selenium (diss.filt)																		
Zinc (diss.filt)			10.00	3.07	2.83		2.11		3.46	4.04		2.13		3.15		6.58		2.43
Iron (Total)			29300	11200		19200												
Manganese (Total)			3780	2900		3120												
Chromium III (diss.filt)																		
Chromium VI (diss.filt)																		
Aluminium (diss.filt)			50	20	20		20		20	20		20		20		20		20
Vanadium (diss.filt)																		
Phenols																		
Phenols, Total																		
Speciated TPH																		
Aliphatics																		
EC C5-C6																		
EC>C6-C8																		
EC>C8-C10																		
EC>C10-C12																		
EC>C12-C16																		
EC>C16-C21																		
EC>C21-C35																		
EC>C35-C44																		
Aromatics																		
EC C5-C7																		
EC>C7-C8																		
EC>C8-C10																		
EC>C10-C12																		
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Benzo(b)fluoranthene (aq)																		
Benzo(k)fluoranthene (aq)																		
Benzo(a)pyrene (aq)																		
Indeno(1,2,3-cd)pyrene (aq)																		
Dibenzo(a,h)anthracene (aq)																		
Benzo(g,h,i)perylene (aq)																		
INORGANICS																		
Dissolved Organic Carbon	47	290	25.6	18.5		29.4		31.5	21.8		21		43.5		46.1		23.7	12.8
pH	6.9	6.9	6.8	6.8		6.9		7	6.8		6.9		7.4		6.8		6.9	6.7
Alkalinity (Total)	820	1200	951	761		918		1225	965		878		896		947		847	922
Chloride	65	81	63	50		63		95	54		48		66		57		49	93
Ammoniacal Nitrogen	0.28	0.34	60	42.4		52		73	54		44		61		57.7		44.04	11.68
Nitrite	0.053	0.01	0.0025	0.02		0.0025		0.005	0.0025		0.01		0.01		0.01		0.01	0.01
Nitrate	0.25	0.25	0.03	0.03		0.03		0.03	0.03		0.15		0.125		0.125		0.125	0.125
Sulphate			57.60	34.00	13.70		8.85		37.90	47.00		3.53		2.51		0.60		3.25
Sulphide																		
Calcium			198.00	199.00	233.00		298.00		267.00	178.00		217.00		247.00		374.00		233.00
Potassium			48.60	33.10	42.80		57.00		39.20	36.40		42.50		41.00		13.10		42.25
Magnesium			29.80	22.60	29.30		43.60		27.90	25.60		28.10		26.80		18.00		27.79
Sodium			72.20	47.70	58.90		83.40		56.20	54.40		58.40		58.30		15.20		60.08
Biochemical Oxygen Demand			2.5	2.5		6.9		2.5	4.9		13.0		3.1		9.5		13.0	2.5
Chemical Oxygen Demand			106	47		92		95	41		49		50		43		77	97
Conductivity			2078	1603		1904		2460	1946		1790		1840		1910		1740	1900
Total Oxidisable Nitrogen			0.03	0.03		0.03		0.03	0.03		0.15		0.15		0.15		0.15	0.15
Total Phosphorus			0.38	0.3		0.26		0.125	0.28		0.28		0.125		0.125		0.43	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
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8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)					BH221																				
HEAVY METALS	µg/l		19/04/2021	03/08/2021	02/11/2021	31/01/2022	24/10/2017	12/01/2018	20/02/2018	12/04/2018	17/04/2018	27/06/2018	02/10/2018	03/10/2018	09/01/2019	11/04/2019	15/04/2019	05/07/2019	08/07/2019	15/10/2019	22/10/2019	19/02/2020	24/02/2020	29/09/2020	13/04/2021	27/07/2021	08/11/2021
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		4.03	10.00	0.00		10.00	10.00			10.00	10.00		10.00	10.00	10.00		10.00		10.00		10.00		10.00	7.73	10.00	0.00
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l		0.025	1.000			1.000	1.000			1.000	1.000		1.000	1.000	1.000		1.000		1.000		1.000		1.000	0.025	1.000	
Chromium (diss.filt)	50 (5)		0.696	2.500				2.500			2.500	2.500		2.500										2.500	0.385	2.500	
Copper (diss.filt)	1 (AA) bioavailable $^{(see Note 1)}$ (1) $^{(see Note 4)}$ (2)	34.94	0.125	2.500			2.500	2.500			2.500	2.500		2.500	2.500	2.500		2.500		2.500		2.500		2.500	0.259	8.923	
Iron (diss.)	1000 (AA) (1&2)		12372	5553	14570	15400	2680	1540			225	1090		2530	12800	57		1120		6700		4020		53	865	8493	6405
Mercury (diss.filt)	0.07 MAC (1&2)																			0.0025							
Manganese (diss.filt)	123 (AA) $^{(see note 1)}$	276.92	2228.822276	2290.524715	3510.313677	2710.715456	2890	1810			3320	3330		5300		2390		2810		2960		1600		2363.311217	1359.712321	1735.265744	2419.956964
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{(see note 5)}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	4.13	2.50			2.50	2.50			2.50	2.50		5.75	2.50	2.50		7.84		9.99		2.50		2.50	2.33	2.50	
Lead (diss.filt)	1.2$^{(see note 5)}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.125	10			10	10			10	10		10	10	10		10		10		10		10	0.125	10	
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10	0.10																					0.00	0.29		
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{(see Note 2)}$	37.15	0.50	1.00			2.62	1.00			32.30	1.00		3.18	8.24	2.01		1.00		1.00		1.00		1.00	4.38	7.20	
Iron (Total)			25200	14000	30800	25900	29500		28500	13500		11400													8568.687151	21100	17200
Manganese (Total)			2376.159466	2352.69666	3510	2753.099994	3310		2076.803088	3290		3460													1362.292037	1830.863054	2490.917883
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.70																						0.38		
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.050																						0.025		
Aluminium (diss.filt)			20	20	20	20	50	20			20	20		20	20	20		20		20		20		20	20	20	20
Vanadium (diss.filt)			0.332																						0.378		
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																										
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)																										
EC>C6-C8	15000 (7)																										
EC>C8-C10	300 (7)																										
EC>C10-C12	300 (7)																										
EC>C12-C16	300 (7)																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	10 (7)																										
EC>C7-C8	700 (7)																										
EC>C8-C10	300 (7)																										
EC>C10-C12	90 (7)																										
EC>C12-C16	90 (7)																										
EC>C16-C21	90 (7)																										
EC>C21-C35	90 (7)																										
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)																										
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)																										
Ethylbenzene	300 (8)																										
p/m-Xylene																											
o-Xylene																											
Sum of detected Xylenes	500 (8)																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)																										
Acenaphthylene (aq)	-																										
Acenaphthene (aq)	-																										
Fluorene (aq)	-																										
Phenanthrene (aq)	-																										
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)																										
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)																										
Pyrene (aq)	-																										
Benzo(a)anthracene (aq)	-																										
Chrysene (aq)	-																										
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))																										
Indeno(1,2,3-cd)pyrene (aq)	-																										
Dibenzo(a,h)anthracene (aq)	-																										
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																										
INORGANICS	mg/l																										
Dissolved Organic Carbon			13		23.9	24.3	17.3			9.6		19.7	24.5		12.1		20.2		24.1		23.8		13.7	6	17.2		17.08
pH	6 - 9 (2&4)		6.8	7	6.6	6.8	7.7			7.2		7.3	7.3		7.6		7.2		7.1		7.1		7.4	7.2	7.5	7.2	7.4
Alkalinity (Total)			618	754	948	721	439			432		561	962		669		513		790		667		346	585	419	493	534
Chloride	250 (5)		36	41	53	44	21			24		41	56		26		34		40		38		32	54	34	41	25
Ammoniacal Nitrogen			29.52	39.8	54.47	39.66	12		6.49	8.93		11.2	24.9		15.4		13.6		19.7		27.97		12.5	14.52	13.89	14.9	14.29
Nitrite			0.01	0.01	0.01	0.01	0.006			0.041		0.0025	0.006		0.0025		0.01		0.01		0.01		0.01	0.01	0.01	0.01	0.01
Nitrate	50 (5)		0.125	0.125	0.125	0.125	0.03			0.03		0.03	0.03		0.03		0.15		0.125		0.125		0.125	0.125	0.125	0.125	0.125
Sulphate	250 (5)		7.87	2.31	4.17	8.80	3.77	16.30			48.30	0.60		8.23		3.99		2.23		2.04		14.00		2.60	1.62	2.34	6.07
Sulphide																											
Calcium			170.00	208.00	264.00	189.00	133.00	91.40			144.00	168.00		278.00		134.00		174.00		163.00		103.00		164.00	108.20	124.32	161.00
Potassium			26.08	32.22	42.70	32.03	12.10	8.12			9.02	11.90		25.90	18.10	15.50		19.50		24.20		13.00		17.86	16.47	15.79	14.28
Magnesium			18.06	21.93	28.70	21.07	13.90	9.60			15.10	21.50		39.00	18.70	20.00		24.40		24.20		13.20		20.97	16.61	21.73	19.01
Sodium	200(5)		38.57	41.29	62.08	47.44	22.80	19.00			23.70	47.40		70.90	20.10	50.40		57.10		51.30		26.70		38.36	37.97	60.17	31.26
Biochemical Oxygen Demand			11.0	2.5	10.0	16.0	4.5			4.5		6.0	14.0		8.3		5.7		27.0		10.0		4.9	5.9	2.5	2.5	9.0
Chemical Oxygen Demand			28	42	59	41	138			42		193	177		41		118		1190		82		99	131	42	84	107
Conductivity			1317	1538	1910	1517	875		637	920		1139	1808		1272		1040		1390		1330		786	1150	887	1051	1050
Total Oxidisable Nitrogen			0.15	0.15	0.15	0.15	0.03			0.03		0.03	0.03		0.03		0.15		0.15		0.15		0.15	0.15	0.15	0.15	0.15
Total Phosphorus			0.125	0.125	0.29	0.125	0.125			0.36		0.27	0.26		0.125		0.54		1.09		0.125		0.39	0.125	0.125	0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)		BH2A Drumahoe	BH301											BH302											
HEAVY METALS	**µg/l**		25/01/2022	27/04/2021	11/04/2019	03/07/2019	05/07/2019	15/10/2019	04/11/2019	19/02/2020	13/10/2020	21/04/2021	19/07/2021	26/10/2021	02/02/2022	09/04/2019	11/04/2019	15/10/2019	06/11/2019	17/02/2020	19/02/2020	13/10/2020	21/04/2021	19/07/2021	26/10/2021	02/02/2022	10/04/2019
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**			1.73	31.90		32.20	10.00		10.00	10.00	19.53	16.71	13.28	18.11		10.00	10.00			28.60	35.54	**66.30**	45.70	36.80	**65.70**	
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l**			0.025	**1.000**		**1.000**	**1.000**		**1.000**	**1.000**	0.025	0.025	0.025	0.025		**1.000**	**1.000**			**1.000**	**1.000**	0.025	0.025	0.025	0.025	
Chromium (diss.filt)	**50 (5)**			0.125	0.805		1.400	1.300		0.250	0.488	0.349	0.397	0.388	0.360			14.000				8.940	6.041	3.691	3.032	5.488	
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**		0.125	15.800		20.800	23.800		8.140	6.241	0.125	0.250	1.412	0.125		13.400	12.800			2.500	19.818	7.153	5.151	4.431	2.381	
Iron (diss.)	**1000 (AA) (1&2)**		**6055**	969	**29900**		**45200**	**44500**		**25100**	**9356**	**20400**	**31200**	**27500**	**28700**		**21500**	536			**1850**	438	463	350	353	509	
Mercury (diss.filt)	**0.07 MAC (1&2)**			0.0025	0.0025		0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	**1711.547773**	**2582.97181**	**4730**		**3410**	**4820**		**3350**	**3296.811115**	**1064.697877**	**2399.375302**	**4650**	**3052.128357**		**5590**	**956**			**704**	**790.7612041**	**631.865184**	**735.2114665**	**703.9422247**	**619.7424775**	
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**		4.76	**18.20**		**16.20**	**22.10**		8.35	**15.74**	5.74	12.33	**17.15**	12.84		**263.00**	**350.00**			**241.00**	**395.97**	**243.00**	**273.00**	**267.00**	**205.00**	
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**		0.125	**10**		**10**	**10**		**10**	**10**	0.125	0.025	0.125	0.125		**10**	**10**			**10**	**10**	0.481226249	0.605	0.352	0.622386403	
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**		0.34	0.50		0.50	0.50		0.50	0.10	0.10	0.10	0.10	0.10			1.20				0.20	0.83	0.57	0.41	0.76	
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**		5.77	7.65		8.68	7.94		4.55	3.15	0.50	6.53	1.70	1.97		10.40	19.70			13.70	28.08	4.98	3.79	2.03	2.56	
Iron (Total)			14200	18800								37100	42000	36200	36400								50700	5543.407044	5817.419507	16200	
Manganese (Total)			1837.750661	2868.430704								1143.71737	2434.103025	4570	2940								1958.786803	899.4431603	775.2424386	896.732002	
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**			0.13	0.40		0.70	0.65		0.25	0.49	0.35	0.39	0.39	0.25			**7.00**				**8.94**	**6.04**	3.70	3.03	**5.49**	
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**			0.130	0.025		0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.107			0.025				0.025	0.025	0.025	0.025	0.025	
Aluminium (diss.filt)			20	20	20		20	20		20	20	20	20	20	20		47	41			70	60.33050341	20	20	20	20	
Vanadium (diss.filt)				0.125							0.125	0.125	0.120	0.125	0.125							4.920	3.164	2.050	1.597	2.371	
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**			22.50	22.50	22.50			22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50			**200.00**	**60.00**		**1940.00**	22.50	22.50	2.10	22.50	22.50
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**			10	10	10			10	10	10	10	10	10	10	10			10	10		10	10	10	10	10	10
EC>C6-C8	**15000 (7)**			12.5	12.5	12.5			12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5			12.5	12.5		12.5	12.5	12.5	12.5	12.5	1462.5
EC>C8-C10	**300 (7)**			7.5	7.5	7.5			7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5			7.5	7.5		7.5	7.5	7.5	7.5	7.5	7.5
EC>C10-C12	**300 (7)**				5	10			5	5						**950**			5	5							240
EC>C12-C16	**300 (7)**				5	5			5	5						30			5	5							5
EC>C16-C21					5	5			5	5						5			5	5							5
EC>C21-C35					20	5			5	5						5			5	5							30
EC>C35-C44					5	5			5	5						5			5	5							5
Aromatics																											
EC C5-C7	**10 (7)**			1	1	1			1	1	1	1	1	1	1	1			3.6	6.5		5.27	4.833	4.848	4.084	1	**1470**
EC>C7-C8	**700 (7)**			2.5	2.5	2.5			2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5			10.9	15.5		15.4	8.969	8.196	2.5	2.5	51
EC>C8-C10	**300 (7)**				25											25											140
EC>C10-C12	**90 (7)**				5	10			5	5						**950**			5	5							**240**
EC>C12-C16	**90 (7)**				40	30			5	5						**1500**			5	5							**610**
EC>C16-C21	**90 (7)**				40	50			5	5						**1200**			5	5							**600**
EC>C21-C35	**90 (7)**				40	10			5	5						**800**			5	5							60
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**			0.50	0.50	0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50			3.60	5.18		4.29	4.33	4.22	3.56	0.50	**1470.00**
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**			0.50	0.50	0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50			0.50	1.32		0.50	0.50	0.50	0.50	0.50	51.00
Ethylbenzene	**300 (8)**			0.50	0.50	0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50			4.50	5.25		6.66	4.11	2.90	0.50	0.50	127.00
p/m-Xylene				1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			3.90	5.47		5.02	2.80	3.11	2.33	1.00	1.00
o-Xylene				0.50	0.50	0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50			2.50	3.39		2.77	1.56	1.56	1.17	0.50	0.50
Sum of detected Xylenes	**500 (8)**			1.50		1.50			1.50	1.50	1.50	1.50	1.50	1.50	1.50				6.40	8.86		7.78	4.35	4.67	3.49	1.50	
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**			0.105	0.408	0.039			0.712	0.008	0.004	0.217	0.061	0.312	0.114	0.473			0.462	1.560		0.033	0.586	0.175	0.515	0.542	**730.775**
Acenaphthylene (aq)	**-**			0.009	0.031	0.024			0.002	0.002	0.002		0.011	0.007	0.031	0.027			0.002	0.017		0.002		0.003	0.011	0.057	27.949
Acenaphthene (aq)	**-**			0.013	0.095	0.022			0.138	0.001	0.001	0.026	0.016	0.034	0.095	0.063			0.042	0.138		0.001	0.067	0.046	0.053	0.049	56.595
Fluorene (aq)	**-**			0.010	0.123	0.038			0.134	0.002	0.028	0.030	0.020	0.041	0.037	0.106			0.034	0.076		0.018	0.073	0.036	0.099	0.074	2.931
Phenanthrene (aq)	**-**			0.057	0.356	0.044			0.175	0.003	0.086	0.042	0.023	0.020	0.041	0.260			0.085	0.185		0.073	0.154	0.026	0.066	0.071	1.030
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**			0.003	0.027	0.003			0.003	0.003	0.003	0.003	0.015	0.012	0.003	0.013			0.039	0.033		0.003	0.033	0.017	0.056	0.029	0.067
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**			0.014	0.084	0.013			0.043	0.001	0.029	0.015	0.008	0.016	0.016	0.082			0.038	0.062		0.040	0.228	0.012	0.019	0.026	0.096
Pyrene (aq)	**-**			0.010	0.054	0.008			0.035	0.001	0.021	0.011	0.003	0.007	0.011	0.061			0.034	0.060		0.034	0.060	0.007	0.191	0.023	0.056
Benzo(a)anthracene (aq)	**-**			0.001	0.034	0.005			0.009	0.001	0.003	0.002	0.002	0.001	0.002	0.021			0.010	0.025		0.018	0.004	0.003	0.141	0.007	0.013
Chrysene (aq)	**-**			0.003	0.040	0.007			0.011	0.001	0.005	0.004	0.004	0.001	0.004	0.028			0.012	0.032		0.026	0.009	0.007	0.030	0.011	0.017
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**			0.001	**0.032**	0.017			0.010	0.001	0.002	0.002	0.004	0.001	0.003	**0.020**			0.006	0.009		**0.023**	0.004	0.013	0.007	0.010	0.009
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**			0.001	**0.030**	0.017			0.010	0.001	0.002	0.002	0.003	0.001	0.002	0.008			0.006	0.008		**0.018**	0.004	0.010	0.001	0.007	0.006
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**			0.001	**0.015**	**0.007**			**0.007**	0.001	**0.004**	**0.002**	0.001	0.001	**0.003**	**0.018**			**0.007**	**0.011**		**0.040**	**0.004**	**0.008**	**0.007**	**0.014**	**0.006**
Indeno(1,2,3-cd)pyrene (aq)	**-**			0.001	0.057	0.002			0.006	0.001	0.003	0.002	0.006	0.001	0.003	0.035			0.006	0.003		0.020	0.005	0.031	0.005	0.012	0.016
Dibenzo(a,h)anthracene (aq)	**-**			0.002	0.078	0.002			0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.010			0.002	0.002		0.015	0.002	0.007	0.002	0.002	0.014
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**			0.001	0.046	0.001			0.004	0.001	0.002	0.002	0.007	0.001	0.002	0.032			0.004	0.005		0.016	0.005	0.027	0.004	0.011	0.013
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			17.8	1.9	8.9	10.2			10	7.8	10.6	7		10.1	8.1	235		170		304		304	143.1		330	133.5	79
pH	**6 - 9 (2&4)**		7.3	6.5	6.9	6.8			6.8	7	6.7	7	6.9	6.8	6.8	7.2		7.2		7.4		7.1	7.5	7.1	6.8	7.1	6.9
Alkalinity (Total)			460	134	351	438			384	347	435	317	331	371	322	3480		3646		3904		3368	3022	2865	2864	2752	1629
Chloride	**250 (5)**		31	55	41	36			39	30	35	18	31	33	27	**1107**		**730**		**867**		**5569**	**692**	**675**	164	**635**	145
Ammoniacal Nitrogen			15.9	0.2	4.5	15.5			10.69	3.99	13.06	2.37	10.86	9.82	6.7	441		399.41		1.41		1.92	1.78	471.74	70.09	1.97	104
Nitrite			0.01	0.01	0.01	0.01			0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03		0.01		0.062		0.01	0.054	0.143	0.01	0.01	0.01
Nitrate	**50 (5)**		0.125	1.86	0.15	0.125			0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.15		0.125		0.125		0.125	0.125	0.125	0.125	0.125	0.15
Sulphate	**250 (5)**		1.69	28.17	168.00		32.70	80.20		109.00	74.20	84.03	77.43	74.58	77.21		31.80	27.80			27.30	24.77	18.84	17.80	18.10	17.44	
Sulphide																											
Calcium			118.79	48.73	167.00		110.00	109.00		146.00	125.31	134.02	110.00	121.03	121.85		74.90	47.80			75.80	52.11	57.78	36.70	37.48	72.40	
Potassium			16.02	3.84	19.70		35.10	32.80		14.20	30.50	13.72	27.05	27.95	24.49		227.00	307.00			379.00	292.00	270.00	254.00	255.00	248.00	
Magnesium			18.04	6.05	15.50		20.30	20.10		13.50	20.09	12.80	17.40	19.24	17.08		142.00	138.00			158.00	133.94	112.22	103.00	109.57	111.47	
Sodium	**200(5)**		35.85	40.90	34.70		44.30	37.50		26.60	33.21	21.54	31.15	33.56	26.61		**1050.00**	**1055.00**			**986.00**	**858.00**	**709.00**	**727.00**	**744.00**	**625.00**	
Biochemical Oxygen Demand			12.0	2.5	2.5	4.4			2.5	3.1	3.9	2.5	5.0	5.2	4.3	65.0		41.0		36.0		27.0	15.0	13.0	6.9	19.0	11.0
Chemical Oxygen Demand			38	10	10	10			10	10	10	10	10	10	10	1184		10		751		632	488	59	46	423	10
Conductivity			956	492	1080	1080			985	951	1100	872	944	1010	912	9150		9230		9650		8430	7589	7425	2560	6930	3550
Total Oxidisable Nitrogen			0.15	1.86	0.15	0.15			0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15		0.15		0.15		0.15	0.15	0.15	0.15	0.15	0.15
Total Phosphorus			0.125	0.125	0.34	0.29			0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.67		0.84		1		0.93	0.39	0.62	0.27	0.56	0.59

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH303						BH401				BH402				BH403				BH404				BH405			
HEAVY METALS	µg/l		11/04/2019	15/10/2019	31/10/2019	19/02/2020	26/11/2020	17/02/2021	13/04/2021	28/07/2021	27/10/2021	25/01/2022	14/04/2021	28/07/2021	01/11/2021	27/01/2022	15/04/2021	02/08/2021	01/11/2021	27/01/2022	14/04/2021	02/08/2021	01/11/2021	27/01/2022	27/04/2021	04/08/2021	11/08/2021	26/04/2021
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		10.00	10.00		10.00			4.12	3.48	2.74	3.77	6.09	7.41	10.59	9.27	7.14	11.69	7.22	6.20	17.90	33.40	26.70	24.40	14.00	11.15		8.14
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l		**1.000**	**1.000**		**1.000**			0.025	0.025	0.025	0.025	**1.495**	**1.510**	**0.365**	**0.690**	0.070	0.094	0.025	0.025	**0.771**	**0.971**	**0.597**	**0.878**	0.025	0.025		0.025
Chromium (diss.filt)	50 (5)		2.400	2.600		1.900			0.832	1.076	0.880	1.250	0.618	0.125	0.125	0.125	2.297	1.792	0.886	2.801	0.774	0.500	0.432	0.454	0.834	1.116		0.546
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	2.500	2.500		2.500			0.125	0.250	0.125	0.125	16.574	1.568	1.543	1.242	1.725	1.489	0.294	0.901	4.130	1.933	0.903	0.860	0.445	0.500		0.776
Iron (diss.)	1000 (AA) (1&2)		547	**4460**		**9770**			**19700**	**27500**	**31000**	**44900**	20	489	**2356**	612	**1450**	**6952**	**20500**	**1160**	**3799**	**9752**	**6314**	**3142**	**26600**	**11458**		**7031**
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025		0.0025			0.0025	0.0025	0.0025	0.0025	0.0125	0.0121	0.0143	0.0157	0.0025	0.0025	0.0025	0.0025	0.0157	0.0113	0.00958	0.0112	0.0025	0.00922		0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	**4880**	**2320**		**3220**			**6780**	**9090**	**9430**	**7310**	**37400**	**28300**	**29500**	**20100**	**9750**	**13600**	**5760**	**7640**	**15100**	**13700**	**13000**	**12200**	**8490**	**12100**		**15500**
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	**19.10**	**18.60**		10.60			4.05	3.88	3.37	2.40	**98.40**	**97.40**	**99.30**	**73.50**	**57.48**	**55.50**	13.02	**41.50**	**23.95**	**17.20**	**15.73**	**15.91**	**38.20**	**66.50**		**22.67**
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	**10**	**10**		**10**			0.125	0.098342739	0.125	0.125	1.50817893	0.369778819	0.125	0.329424802	0.579248681	0.975588888	0.125	0.413061883	1.347457226	0.125	0.125	0.125	0.125	0.125		0.125
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10	0.50	0.50		0.50			0.46	0.33	0.30	0.48	0.38	0.24	0.20	0.10	0.53	0.40	0.10	0.42	0.30	0.27	0.23	0.23	0.31	0.32		0.27
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	2.53	3.80		3.18			**72.25**	27.80	10.80	9.92	32.58	26.20	18.67	14.36	3.76	3.10	2.07	1.41	**50.92**	14.51	9.81	9.27	13.27	6.48		20.62
Iron (Total)									32600	50600	42500	51600	3019.208595	48400	5204.536805	5095.814351	16900	17500	38800	29500	8939.071318	32000	14400	15700	42900	18200		36300
Manganese (Total)									7040	9720	9420	7820	37500	48100	29600	22100	10400	14900	6020	8120	16700	14300	13400	13300	8750	12800		15700
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		1.20	1.30		0.95			0.83	1.10	0.88	1.30	0.62	0.13	0.13	0.13	2.30	1.80	0.89	2.80	0.77	0.50	0.43	0.45	0.83	1.10		0.55
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025	0.025		0.025			0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.050	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025		0.025
Aluminium (diss.filt)			20	20		20			20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20		20
Vanadium (diss.filt)									0.350	0.705	0.360	2.040	1.694	0.922	0.125	0.125	0.660	0.807	0.266	0.657	0.731	0.273	0.270	0.125	0.125	0.600		0.125
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)				**100.00**	22.50			22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	**720.00**	22.50	22.50	**610.00**	**240.00**	**140.00**	**90.00**	**250.00**	22.50		**460.00**	22.50
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)				10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	38.716	39.104	10	10	10		10	10
EC>C6-C8	15000 (7)				12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	34.574	37.689	12.5	12.5	12.5		12.5	12.5
EC>C8-C10	300 (7)				7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5		7.5	7.5
EC>C10-C12	300 (7)				**440**	5																						
EC>C12-C16	300 (7)				5	5																						
EC>C16-C21					5	5																						
EC>C21-C35					500	5																						
EC>C35-C44					5	5																						
Aromatics																												
EC C5-C7	10 (7)				**19.4**	**136.6**	**2644.753**	**1961.964**	1	1	1	1	**3733.535**	**2779.153**	**3229.508**	**1055.502**	3.056	**13.46**	3.998	4.232	**4655.122**	**4776.867**	**1909.462**	**3243.325**	**66.642**		**2590.592**	1
EC>C7-C8	700 (7)				281	24.8	206.841	**713.365**	8.753	7.784	2.5	5.106	353.386	239.338	380.924	329.647	6.717	2.5	9.79	5.344	**2023.633**	**2329.426**	**987.048**	**1503.425**	2.5		**743.276**	2.5
EC>C8-C10	300 (7)																											
EC>C10-C12	90 (7)				**440**	5																						
EC>C12-C16	90 (7)				**300**	5																						
EC>C16-C21	90 (7)				**150**	5																						
EC>C21-C35	90 (7)				5	5																						
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)				0.50	**131.70**	**2498.31**	**1850.13**	0.50	0.50	0.50	0.50	**3545.99**	**2626.72**	**3000.22**	**826.89**	2.99	**13.28**	3.50	4.00	**3516.76**	**3650.21**	**1461.10**	**2477.81**	**64.15**		**2261.87**	0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)				19.40	4.88	**146.44**	**111.84**	0.50	0.50	0.50	0.50	**187.55**	**152.43**	**229.28**	**228.62**	0.50	0.50	0.50	0.50	**1138.37**	**1126.65**	**448.36**	**765.52**	2.49		**328.73**	0.50
Ethylbenzene	300 (8)				128.70	18.30	41.35	241.40	0.50	3.43	0.50	0.50	100.74	57.91	96.59	56.11	1.56	0.50	5.01	0.50	**751.22**	**1041.76**	**434.97**	**600.29**	0.50		**371.38**	0.50
p/m-Xylene					128.10	1.00	8.26	352.77	8.56	4.21	4.81	4.96	39.61	16.56	31.62	27.57	3.63	1.00	3.42	4.32	91.55	96.88	62.28	84.74	1.00		27.18	1.00
o-Xylene					4.80	1.56	10.79	7.37	0.50	0.50	0.50	0.50	25.50	12.44	23.43	17.35	1.46	0.50	0.50	0.50	42.49	64.14	41.44	52.88	0.50		15.99	0.50
Sum of detected Xylenes	500 (8)				132.90	1.50	19.05	360.13	1.50	4.29	4.84	5.00	65.10	29.00	55.05	44.92	5.09	1.50	4.29	5.02	134.04	161.01	103.73	137.63	1.50		43.17	1.50
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)				**622.980**	**39.036**	**811.681**	**567.396**	1.076	0.447	0.375	0.438	**3.589**		**164.481**	**1462.373**	0.667	**5.422**	**4.374**	**13.312**	**2.528**	**1013.751**	**137.957**	**4832.956**	0.718		**102.600**	0.062
Acenaphthylene (aq)	-				4.628	1.496	10.284	11.214	0.022	0.022	0.003	0.013	0.427	13.152	47.740	23.433		0.535	0.360	0.987	0.014	141.464	21.355	606.708	0.102		10.113	0.005
Acenaphthene (aq)	-				29.269	5.490	92.947	27.577	0.065	0.045	0.044	0.115	0.001	25.160	21.872	48.532	0.066	0.312	0.578	0.761	0.009	83.531	17.615	72.806	0.058		3.426	0.012
Fluorene (aq)	-				1.697	0.367	5.393	3.713	0.048	0.025	0.088	0.107	0.712	2.055	9.497	5.683	0.049	0.125	0.335	0.223	1.491	30.941	10.325	33.606	0.029		0.354	0.009
Phenanthrene (aq)	-				1.051	0.234	2.078	0.664	0.078	0.060	0.011	0.104	0.694	1.870	1.984	4.005	0.112	0.121	0.139	0.198	1.362	37.706	5.254	30.319	0.043		0.194	0.030
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)				0.027	0.020	0.058	0.022	0.003	0.039	0.007	0.035	0.051	1.164	0.999	1.012	0.024	0.079	0.080	0.071	0.098	13.097	4.055	0.761	0.003		0.126	0.003
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)				0.096	0.044	0.034	0.018	0.013	0.024	0.023	0.038	0.022	0.102	1.157	0.277	0.039	0.019	0.043	0.026	0.011	0.033	0.050	0.074	0.011		0.031	0.019
Pyrene (aq)	-				0.079	0.060	0.028	0.012	0.006	0.011	0.029	0.024	0.029	0.039	0.307	0.174	0.018	0.013	0.074	0.049	0.009	0.023	0.056	0.074	0.008		0.028	0.013
Benzo(a)anthracene (aq)	-				0.013	0.013	0.005	0.005	0.002	0.005	0.003	0.003	0.001	0.010	0.021	0.003	0.004	0.003	0.001	0.003	0.001	0.003	0.003	0.004	0.001		0.003	0.004
Chrysene (aq)	-				0.018	0.020	0.007	0.010	0.004	0.005	0.007	0.007	0.002	0.007	0.026	0.004	0.007	0.003	0.009	0.005	0.002	0.005	0.005	0.006	0.003		0.005	0.007
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)				0.008	0.005	0.012	0.007	0.003	0.011	0.005	0.005	0.001	0.004	0.016	0.009	0.003	0.003	0.002	0.002	0.001	0.004	0.002	0.009	0.002		0.004	0.006
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)				0.008	0.015	0.001	0.005	0.002	0.009	0.003	0.003	0.003	0.004	**0.018**	0.005	0.003	0.002	0.001	0.003	0.002	0.003	0.002	0.004	0.001		0.005	0.005
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**				**0.009**	**0.026**	**0.010**	**0.008**	**0.002**	**0.010**	**0.006**	**0.026**	**0.008**	**0.006**	**0.022**	**0.018**	**0.003**	**0.005**	**0.003**	**0.027**	0.001	**0.005**	**0.006**	**0.028**	**0.003**		**0.006**	**0.008**
Indeno(1,2,3-cd)pyrene (aq)	-				0.006	0.008	0.057	0.009	0.001	0.006	0.003	0.001	0.004	0.007	0.022	0.001	0.003	0.004	0.003	0.001	0.001	0.002	0.005	0.001	0.002		0.003	0.008
Dibenzo(a,h)anthracene (aq)	-				0.002	0.034	0.012	0.002	0.002	0.002	0.002	0.020	0.002	0.002	0.002	0.012	0.002	0.002	0.002	0.013	0.002	0.002	0.002	0.010	0.002		0.002	0.002
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)				0.004	0.015	0.038	0.009	0.001	0.015	0.008	0.001	0.004	0.003	0.012	0.001	0.003	0.003	0.002	0.001	0.001	0.001	0.002	0.002	0.002		0.001	0.007
INORGANICS	mg/l																											
Dissolved Organic Carbon					73	46.2			25.8		27.9	35.7	30.5		35.9	36	67.4		24.3	74	33.2		39.2	50.4	37.3		58.8	31.4
pH	6 - 9 (2&4)				7	6.8			6.7	6.6	6.6	6.6	6.8	6.9	6.7	6.7	6.9	6.9	6.7	7.1	6.8	6.8	6.8	6.8	7		7	6.8
Alkalinity (Total)					1805	1210			566	574	583	578	797	877	870	824	1703	1508	795	1706	812	1031	907	967	1182			1094
Chloride	250 (5)				144	48			35	37	32	33	134	208	**267**	166	67	217	37	196	53	66	54	56	143		155	154
Ammoniacal Nitrogen					127.86	78.46			18.53	24.3	23.89	24.9	9.53	14.93	14.18	13.68	169.53	116.01	55.52	161.28	29.64	47.37	41.09	49.37	69.9		66.38	62.33
Nitrite					0.01	0.01			0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.027	0.01	0.01	0.01	0.01	0.01	0.01	0.01		0.01	0.01
Nitrate	50 (5)				0.125	0.125			0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125
Sulphate	250 (5)		**254.00**	24.50		144.00			2.68	2.79	2.38	2.43	130.94	104.53	108.31	108.14	18.69	19.01	23.74	26.32	38.05	31.90	32.88	33.76	28.69	40.12		9.67
Sulphide																												
Calcium			374.00	357.00		329.00			157.00	163.00	174.00	172.00	209.00	243.00	272.00	228.00	279.00	272.00	181.00	277.00	195.00	258.00	231.00	235.00	242.00	241.00		230.00
Potassium			87.40	101.00		51.00			12.00	12.59	13.23	13.18	32.84	52.54	67.06	61.73	89.79	77.85	37.77	109.00	51.93	60.60	56.88	63.11	71.30	94.87		64.12
Magnesium			74.30	73.00		44.60			18.23	17.58	17.00	16.18	47.59	52.20	59.68	49.05	71.70	64.00	29.60	82.82	35.99	42.41	36.80	35.36	55.66	62.92		48.40
Sodium	200(5)		178.00	197.00		55.30			35.37	39.50	39.65	37.55	131.56	148.40	167.00	133.99	**211.00**	192.00	55.67	**229.00**	68.03	63.96	63.88	64.05	145.72	86.57		139.26
Biochemical Oxygen Demand					11.0	5.0			7.6	4.8	6.2	5.0	22.0	11.0	15.0	22.0	5.0	2.5	4.5	5.3	21.0	32.0	22.0	32.0	6.0		35.0	2.5
Chemical Oxygen Demand					228	97			139	52	56	57	98	94	40	101	186	161	56	60	10	136	29	132	106		161	92
Conductivity					3600	2470			1215	1240	1260	1273	1927	2310	2470	2176	3726	3275	1700	3812	1726	2053	1880	2075	2694		2800	2461
Total Oxidisable Nitrogen					0.15	0.15			0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15		0.15	0.15
Total Phosphorus					0.68	0.46			0.36	0.125	0.37	0.125	4.58	0.125	0.69	0.71	0.29	0.125	0.125	0.36	0.57	0.125	0.54	0.45	0.125		0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH406		BH407				BH408		BH409	BH410	BH411	BH5				BH6 (Lynches)									
HEAVY METALS	µg/l		04/08/2021	11/08/2021	26/04/2021	04/08/2021	11/08/2021	03/02/2022	26/04/2021	11/08/2021	26/01/2022	26/01/2022	27/01/2022	08/01/2019	09/01/2019	11/04/2019	19/02/2020	11/04/2019	01/05/2019	05/07/2019	24/07/2019	15/10/2019	05/11/2019	06/11/2019	15/10/2020	15/10/2019	31/10/2019
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		9.21		3.93	5.32		5.25	0.52		0.70	2.78	0.38		10.00	10.00	10.00	10.00		10.00		10.00			10.00	10.00	
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.540		0.025	0.025		0.025	0.025		0.060	0.025	0.336		1.000	1.000	1.000	1.000		1.000		1.000			1.000	1.000	
Chromium (diss.filt)	50 (5)		0.663		0.125	0.125		0.125	0.125		0.125	0.339	0.125		2.500	0.250	0.250	0.250		0.250		0.250			0.125	2.000	
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	2.481		0.125	0.500		0.125	0.125		0.125	0.338	1.203		2.500	2.500	2.500	9.710		6.100		2.500			2.500	2.500	
Iron (diss.)	1000 (AA) (1&2)		8051		1628	20		211	20		5386	537	181		20	20	20	18600		13200		8770			9172	588	
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025		0.0025	0.0025		0.0025	0.0025		0.0025	0.0025	0.0025		0.0025	0.0025	0.0025			0.0025		0.0025			0.0025	0.0025	
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	18300		3301.436372	2362.356428		2760.002588	849.378608		27400	21100	6450		3770	191	5	2370		1680		2670			2088.661116	17200	
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	28.40		3.62	12.01		11.77	4.73		19.82	44.50	16.89		21.50	2.50	2.50	2.50		2.50		2.50			2.50	53.20	
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.371081313		0.125	0.125		0.125	0.125		0.125	0.125	0.125		10	10	10	10		10		10			10	10	
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10	0.23		0.10	0.10		0.10	0.10		0.24	0.22	0.10			0.50	0.50	0.50		0.50		0.50			0.10	0.50	
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	6.31		0.50	0.50		0.50	42.50		8.50	9.79	1.33		4.00	2.36	1.00	2.58		1.00		2.27			2.36	8.90	
Iron (Total)			20100		16300	4794.039412		43100	553.8874803		57100	59800	9748.281336														
Manganese (Total)			18700		3620	2482.86751		3580	901.3707953		29500	24000	6770														
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.66		0.13	0.13		0.13	0.13		0.13	0.34	0.13			0.25	0.25	0.25		0.25		0.25			0.13	1.00	
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025		0.025	0.025		0.025	0.025		0.025	0.025	0.025			0.025	0.063	0.025		0.025		0.025			0.025	0.025	
Aluminium (diss.filt)			20		20	20		20	20		20	20	20		20	20	20	20		20		20			20	20	
Vanadium (diss.filt)			0.263		0.125	0.125		0.125	0.125		0.125	0.125	0.125												0.125		
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)			22.50	150.00		340.00	250.00	22.50		22.50	22.50	22.50				22.50		22.50		22.50			22.50	22.50		
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)			10	10		10	10	10		10	10	10				10		10		10			10	10		10
EC>C6-C8	15000 (7)			12.5	12.5		12.5	12.5	12.5		12.5	12.5	12.5				12.5		12.5		12.5			12.5	12.5		12.5
EC>C8-C10	300 (7)			7.5	7.5		7.5	7.5	7.5		7.5	7.5	7.5				7.5		7.5		7.5			7.5	7.5		7.5
EC>C10-C12	300 (7)																5		5		5			5			
EC>C12-C16	300 (7)																5		5		5			5			
EC>C16-C21																	5		5		5			5			
EC>C21-C35																	5		5		5			5			
EC>C35-C44																	5		5		5			5			
Aromatics																											
EC C5-C7	10 (7)			11.003	3.011		2.556	3.88	1		1	1368.17	2.476				1		1		1			1	1		1
EC>C7-C8	700 (7)			2.5	2.5		2.5	5.507	2.5		2.5	63.838	2.5				2.5		2.5		2.5			2.5	2.5		2.5
EC>C8-C10	300 (7)																		25								
EC>C10-C12	90 (7)																5		5		5			5			
EC>C12-C16	90 (7)																5		5		5			5			
EC>C16-C21	90 (7)																5		5		5			5			
EC>C21-C35	90 (7)																5		5		5			5			
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)			10.73	0.50		1.16	3.21	0.50		0.50	1348.67	2.20				0.50		0.50		0.50			0.50	0.50		0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)			0.50	2.26		1.40	0.50	0.50		0.50	19.50	0.50				0.50		0.50		0.50			0.50	0.50		0.50
Ethylbenzene	300 (8)			0.50	0.50		0.50	0.50	0.50		0.50	22.25	0.50				0.50		0.50		0.50			0.50	0.50		0.50
p/m-Xylene				1.00	1.00		1.00	1.00	1.00		1.00	10.94	1.00				1.00		1.00		1.00			1.00	1.00		1.00
o-Xylene				0.50	0.50		0.50	0.50	0.50		0.50	11.15	0.50				0.50		0.50		0.50			0.50	0.50		0.50
Sum of detected Xylenes	500 (8)			1.50	1.50		1.50	1.50	1.50		1.50	22.09	1.50				1.50				1.50			1.50	1.50		1.50
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)			0.559	0.144		1.798	0.299	0.046		0.466	272.306	0.515				0.369		0.004		0.044			0.703	0.021		
Acenaphthylene (aq)	-			0.071	0.010		0.216	0.028	0.002		0.122	47.228	0.114				0.010		0.014		0.009			0.028	0.002		
Acenaphthene (aq)	-			0.881	0.030		0.171	0.046	0.003		0.204	36.484	0.094				0.032		0.005		0.022			0.056	0.002		
Fluorene (aq)	-			0.078	0.018		0.069	0.035	0.002		0.083	2.821	0.189				0.010		0.041		0.024			0.055	0.002		
Phenanthrene (aq)	-			0.062	0.038		0.071	0.125	0.003		0.112	3.735	0.066				0.051		0.145		0.060			0.168	0.017		
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)			0.041	0.003		0.046	0.009	0.003		0.024	0.359	0.024				0.003		0.033		0.003			0.003	0.003		
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)			0.007	0.012		0.004	0.068	0.004		0.152	0.348	0.340				0.012		0.096		0.011			0.042	0.009		
Pyrene (aq)	-			0.005	0.007		0.002	0.077	0.003		0.137	0.308	0.244				0.011		0.092		0.008			0.033	0.008		
Benzo(a)anthracene (aq)	-			0.001	0.001		0.002	0.006	0.001		0.091	0.058	0.002				0.006		0.153		0.002			0.020	0.011		
Chrysene (aq)	-			0.003	0.002		0.004	0.010	0.001		0.083	0.054	0.003				0.008		0.151		0.003			0.026	0.016		
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)			0.003	0.001		0.005	0.008	0.001		0.100	0.042	0.002				0.005		0.315		0.005			0.017	0.012		
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)			0.002	0.002		0.005	0.005	0.001		0.088	0.055	0.003				0.006		0.293		0.004			0.028	0.011		
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**			0.004	0.001		0.004	0.008	0.001		0.216	0.091	0.021				0.012		0.330		0.003			0.030	0.023		
Indeno(1,2,3-cd)pyrene (aq)	-			0.002	0.002		0.001	0.005	0.002		0.192	0.085	0.001				0.002		0.230		0.002			0.022	0.010		
Dibenzo(a,h)anthracene (aq)	-			0.002	0.002		0.002	0.002	0.002		0.085	0.015	0.012				0.002		0.276		0.050			0.024	0.009		
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)			0.002	0.001		0.001	0.005	0.001		0.146	0.044	0.001				0.003		0.143		0.004			0.017	0.007		
INORGANICS	mg/l																										
Dissolved Organic Carbon				34.9	248		233	308.1	4.9		13.5	28.5	4.6	2		2.2	3.8		3.4		2.3		3.9		3.3		36.5
pH	6 - 9 (2&4)			7.7	7.2		7.8	7.6	7.3		6.7	6.8	7.2	6.4		6.8	7.5		6.8		7.3		6.9		6.5		6.9
Alkalinity (Total)					400			491	148		679	853	340	294		205	192		94		78		119		85		1240
Chloride	250 (5)			170	152		149	194	108		137	160	53	17		26	40		33		27		42		32		192
Ammoniacal Nitrogen				66.89	1.1		0.2	0.2	2.05		0.53	24.93	5.44	0.5		0.2	0.2		0.74		0.61		0.8		0.67		67.38
Nitrite				0.01	0.01		0.01	0.01	0.01		0.01	0.01	0.01	0.007		0.01	0.01		0.01		0.01		0.01		0.01		0.01
Nitrate	50 (5)			0.125	0.125		0.125	0.125	0.125		0.125	0.125	1.31	3.68		6.3	1.01		0.15		0.125		0.125		1.28		0.125
Sulphate	250 (5)		13.05		4.76	24.28		10.00	37.62		114.80	89.50	44.45		35.30	82.50	118.00	10.50		13.10		12.20			15.55	21.70	
Sulphide																											
Calcium			267.00		158.00	142.57		171.00	70.09		165.00	217.00	104.45		97.20	110.00	119.00	29.40		29.70		38.30			39.00	271.00	
Potassium			63.51		4.31	2.24		2.42	3.70		2.17	70.02	15.62		5.87	11.00	9.17	3.81		4.79		4.64			5.17	72.40	
Magnesium			49.99		55.65	49.42		61.43	21.67		52.92	47.00	24.76		6.80	8.18	8.72	2.73		2.85		3.58			3.66	53.50	
Sodium	200(5)		160.00		90.84	83.49		110.65	38.49		110.24	157.00	38.77		14.00	16.80	23.50	18.80		13.80		23.50			18.77	174.00	
Biochemical Oxygen Demand				2.5	509.0		75.0	45.0	1.5		9.8	6.1	1.5	4.5		2.5	1.5		2.5		1.5		1.5		2.5		2.5
Chemical Oxygen Demand				107	744		700	958	10		491	223	10	10		40	10		45		10		10		10		104
Conductivity				2640	1361		1330	1629	709		1770	2188	900	564		691	741		297		267		377		370		2730
Total Oxidisable Nitrogen				0.15	0.15		0.15	0.15	0.15		0.15	0.15	1.31	3.69		6.3	1.01		0.15		0.15		0.15		1.28		0.15
Total Phosphorus				0.125	0.125		0.125	0.125	0.125		0.33	0.125	0.32	0.125		0.125	0.125		0.125		0.125		0.125		0.125		0.125

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Notes:

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	BH6CIW						BHW1																		
HEAVY METALS	**µg/l**		17/02/2020	19/02/2020	14/10/2020	26/04/2021	20/07/2021	27/10/2021	08/01/2019	09/01/2019	10/04/2019	11/04/2019	04/07/2019	05/07/2019	15/10/2019	04/11/2019	19/02/2020	20/02/2020	14/10/2020	26/10/2021	02/02/2022	31/08/2017	05/09/2017	07/09/2017	12/09/2017	14/09/2017	15/09/2017
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**			10.00	10.00	12.58	10.30	8.65		10.00		10.00		10.00	10.00		10.00		10.00	0.88	0.71	1.70	1.70	1.80	1.79	1.60	
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**			**1.000**	**1.000**	**0.425**	**0.278**	**0.293**		**1.000**		**1.000**		**1.000**	**1.000**		**1.000**		**1.000**	0.025	0.025	0.025	0.025	0.025	0.025	0.025	
Chromium (diss.filt)	**50 (5)**			0.770	0.662	0.529	0.660	0.608		2.500		3.960		8.800	4.800		1.700		3.405	4.522	2.918	0.425	0.362	0.349	0.349	0.349	
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**		2.500	2.500	0.602	0.654	0.608		15.100		2.500		8.630	5.830		2.500		17.854	0.339	0.379	5.370	4.250	3.460	3.270	2.730	
Iron (diss.)	**1000 (AA) (1&2)**			**5900**	246	**11993**	**7430**	**5373**		**28200**		**4420**		**24500**	**12400**		**6250**		**24300**	**45100**	**14446**	276	304	249	202	243	
Mercury (diss.filt)	**0.07 MAC (1&2)**			0.0025	0.0025	0.0025	0.0025			0.0025		0.0025		0.0025	0.0025		0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**		**16100**	**16300**	**15100**	**16600**	**14800**		**2120**		**994**		**1120**	**966**		**543**		**930.3193319**	**1104.455467**	**1052.003466**	**800**	**541**	**526**	**365**	**340**	
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**		**39.50**	**43.11**	**27.70**	**39.00**	**38.90**		12.40		8.65		9.33	8.17		5.72		5.37	5.29	5.62	4.44	3.98	3.97	3.72	3.48	
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**		**10**	**10**	0.125	0.237	0.125		**10**		**10**		**10**	**10**		**10**		**10**	0.125	0.125	0.392	0.125	0.125	0.125	0.125	
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**		0.50	0.31	0.31	0.24	0.26				0.50		0.50	0.50		0.50		0.10	0.10	0.10	0.29	0.27	0.36	0.27	0.33	
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**		8.85	6.01	3.93	3.57	2.89		7.43		2.03		6.97	2.98		5.82		4.10	1.14	5.39	19.80	16.70	13.70	13.80	14.30	
Iron (Total)						21500	24300	17200												51900	34700						
Manganese (Total)						15900	17200	15000												1051.301653	1077.359857						
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**			0.39	0.66	0.47	0.66	0.61				1.98		4.40	2.40		0.85		3.40	4.52	2.92						
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**			0.025	0.025	0.062	0.025	0.025				0.025		0.025	0.025		0.025		0.025	0.025	0.025						
Aluminium (diss.filt)				20	20	20	20	20		20		20		51	20		20		20	20	20	50	50	50	696	50	
Vanadium (diss.filt)					0.125	0.125	0.300	0.125											1.060	0.507	0.125	0.409	0.243	0.259	0.211	0.191	
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		**350.00**		**230.00**	22.50	22.50	**190.00**	22.50		**120.00**		**210.00**			**360.00**	22.50		**60.00**	**1070.00**	22.50						22.50
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**		10		10	10	10	10	10		10		10			10	10		10	10	10						
EC>C6-C8	**15000 (7)**		12.5		12.5	12.5	12.5	12.5	12.5		12.5		12.5			12.5	12.5		12.5	12.5	12.5						
EC>C8-C10	**300 (7)**		7.5		7.5	7.5	7.5	7.5	7.5		7.5		7.5			7.5	7.5		7.5	7.5	7.5						
EC>C10-C12	**300 (7)**		5						5		160		230			5	5										
EC>C12-C16	**300 (7)**		5						5		5		5			5	5										
EC>C16-C21			5						20		5		5			5	5										
EC>C21-C35			5						5		20		20			5	5										
EC>C35-C44			5						5		5		5			5	5										
Aromatics																											
EC C5-C7	**10 (7)**		**13.1**		**24.4**	1	**45.96**	**50.229**	1		1		**27.6**			1	1		9.09	6.446	8.298						
EC>C7-C8	**700 (7)**		2.5		2.5	2.5	5.968	2.5	2.5		2.5		97.8			19.1	2.5		15.5	8.588	2.5						
EC>C8-C10	**300 (7)**								25		25																
EC>C10-C12	**90 (7)**		5						5		**160**		**230**			5	5										
EC>C12-C16	**90 (7)**		5						5		**340**		**470**			5	5										
EC>C16-C21	**90 (7)**		5						20		**280**		**470**			**200**	5										
EC>C21-C35	**90 (7)**		5						10		**230**		**320**			5	5										
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		**13.10**		**24.20**	0.50	**45.01**	**49.90**	**11.60**		0.50		**25.40**			1.20	0.50		9.10	6.24	8.23						0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		0.50		0.50	0.50	0.50	0.50	0.50		0.50		2.20			0.50	0.50		0.50	0.50	0.50						0.50
Ethylbenzene	**300 (8)**		0.50		0.50	0.50	3.89	0.50	40.50		0.50		64.10			6.30	2.00		1.81	0.50	0.50						0.50
p/m-Xylene			1.00		1.00	1.00	1.00	1.00	7.63		1.00		19.90			5.50	1.00		6.85	6.40	1.00						1.00
o-Xylene			0.50		0.50	0.50	0.50	0.50	5.66		0.50		11.60			7.30	0.50		6.83	2.02	0.50						0.50
Sum of detected Xylenes	**500 (8)**		1.50		1.50	1.50	1.50	1.50					31.50			12.80	1.50		13.70	8.42	1.50						
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.015		0.120	1.616	0.745	0.436	0.126		**5.108**		**3.037**			**8.140**	1.518		1.027	1.142	1.321						
Acenaphthylene (aq)	**-**		0.029		0.291	0.087	0.267	0.622	0.004		0.290		0.069			0.002	0.024		0.054	0.019	0.079						
Acenaphthene (aq)	**-**		0.206		0.643	0.033	3.623	1.850	0.019		0.943		0.208			0.674	0.111		0.300	0.145	0.293						
Fluorene (aq)	**-**		0.034		0.053	0.035	0.250	0.200	0.022		0.402		0.283			0.968	0.083		0.168	0.239	0.343						
Phenanthrene (aq)	**-**		0.031		0.025	0.294	0.176	0.124	0.028		0.909		0.359			0.844	0.116		0.194	0.100	0.513						
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		0.034		0.056	0.007	0.128	0.175	0.003		0.065		0.007			0.085	0.023		0.022	0.060	0.030						
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		0.008		0.011	0.267	0.011	0.026	0.009		0.299		0.416			0.669	0.030		0.108	0.166	0.327						
Pyrene (aq)	**-**		0.011		0.007	0.075	0.007	0.025	0.012		0.566		0.797			0.510	0.044		0.175	0.315	0.460						
Benzo(a)anthracene (aq)	**-**		0.001		0.001	0.001	0.004	0.001	0.016		0.042		0.006			0.035	0.006		0.006	0.036	0.032						
Chrysene (aq)	**-**		0.001		0.001	0.004	0.001	0.001	0.016		0.063		0.044			0.050	0.010		0.013	0.035	0.059						
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001		0.001	0.002	0.001	0.001			**0.024**		0.015			**0.020**	0.002		0.005	0.008	**0.029**						
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001		0.001	0.001	0.002	0.001			**0.019**		0.006			0.011	0.002		0.002	0.002	0.016						
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		0.001		0.001	0.001	0.001	**0.002**	**0.024**		**0.022**		**0.007**			**0.019**	**0.004**		**0.006**	**0.011**	**0.035**						
Indeno(1,2,3-cd)pyrene (aq)	**-**		0.001		0.001	0.001	0.002	0.001	0.006		0.032		0.001			0.012	0.002		0.005	0.016	0.024						
Dibenzo(a,h)anthracene (aq)	**-**		0.002		0.002	0.002	0.002	0.002	0.014		0.033		0.004			0.002	0.002		0.002	0.002	0.002						
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		0.001		0.001	0.001	0.003	0.001	0.007		0.031		0.001			0.009	0.003		0.005	0.002	0.033						
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			34		220	32.7		41.3	48.9		37.2		40.9			34		17.7	22	45.2	31.5	15.3	7.4	13.1	12.1	12	
pH	**6 - 9 (2&4)**		7.4		6.8	6.8	7	6.8	6.7		7.3		6.7			6.7		6.9	6.6	6.7	6.6	7.2	7.4	7.5	7.2	7.5	
Alkalinity (Total)			1236		1286	1095	1262	1284	1084		1144		1200			884		593	738	1316	910	69	73	75	83	93	
Chloride	**250 (5)**		196		186	156	185	169	50		50		47			39		44	26	37	43	16	16	16	17	16	
Ammoniacal Nitrogen			68.94		62.2	61.73	66.81	65.76	72		58		86			52.29		25.64	28.91	71.64	50.01	1.2	0.81	0.7	1.02	1.39	
Nitrite			0.01		0.01	0.01	0.01	0.01	0.006		0.01		0.01			0.01		0.01	0.01	0.01	0.01	0.038	0.037	0.04	0.062	0.076	
Nitrate	**50 (5)**		0.125		0.125	0.125	0.125	0.125	0.03		0.15		0.125			0.125		0.125	0.125	0.125	0.125	0.08	0.25	0.15	0.38	0.4	
Sulphate	**250 (5)**			17.60	25.18	10.49	12.45	18.32		144.00		17.30		7.18	35.70		89.30		37.46	9.17	7.87	48.50	58.30	61.00	46.70	47.20	
Sulphide																											
Calcium				254.00	285.00	231.00	286.00	292.00		361.00		314.00		311.00	235.00		189.00		223.00	277.00	246.00	33.30	40.80	43.30	39.00	42.30	
Potassium				69.50	72.31	62.49	70.01	72.90		6.80		27.20		39.70	24.50		14.10		20.41	33.84	26.03	9.70	10.50	11.60	11.00	10.80	
Magnesium				53.60	56.39	48.65	54.10	56.19		25.30		23.90		29.90	21.10		12.60		18.70	26.48	22.10	2.41	4.46	4.89	3.89	4.93	
Sodium	**200(5)**			161.00	172.00	142.14	177.00	172.00		50.40		49.50		72.30	48.80		30.80		41.58	52.26	47.47	13.60	13.90	15.00	14.60	14.70	
Biochemical Oxygen Demand			1.5		3.6	2.5	3.1	2.6	53.0		116.0		50.0			32.0		32.0	39.0	128.0	32.0	5.8	7.4	7.7	3.6	1.5	
Chemical Oxygen Demand			109		112	86	119	106	305		624		206			37		261	47	10	118	47	60	52			
Conductivity			2730		2840	2469	2822	2800	2330		2070		2450			1810		1360	1550	2200	1802	337	331	338	343	359	
Total Oxidisable Nitrogen			0.15		0.15	0.15	0.15	0.15	0.03		0.15		0.15			0.15		0.15	0.15	0.15	0.15	0.12	0.29	0.19	0.44	0.48	
Total Phosphorus			0.125		0.125	0.125	0.125	0.125	0.86		0.48		0.78			2.31		3.68	2.29	2.81	2.11	0.125	0.125	0.125	0.125	0.125	

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)												
HEAVY METALS	µg/l		18/09/2017	21/09/2017	22/09/2017	25/10/2017	30/11/2017	04/12/2017	12/01/2018	18/01/2018	17/04/2018	18/04/2018	27/06/2018	28/06/2018
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		1.81	1.70		1.00	0.60	0.57	0.47		0.69		1.25	
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**		0.025	0.025		0.025	0.025	0.025	0.025		0.025		0.025	
Chromium (diss.filt)	**50 (5)**		0.354	0.258		0.324	0.360	0.343	0.398		0.125		0.125	
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	2.260	2.520		1.880	2.690	2.640	3.090		3.220		1.850	
Iron (diss.)	**1000 (AA) (1&2)**		616	615		341	20	20	20		20		20	
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025	0.0025		0.0025		0.0025	0.0025		0.0025		0.0025	
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	**360**	**362**		73	26.6	13.5	12.5		12.5		12.5	
Molybdenum (diss.filt)	**70 (8) ?**													
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	3.71	3.62		3.48	3.45	3.51	3.25		2.75		2.82	
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.125	0.125		0.125	0.125	0.125	**10**		0.125		0.125	
Antimony (diss.filt)	**5 (5)**													
Selenium (diss.filt)	**10(5)**	**10**	0.31	0.31		0.34	0.30	0.32	0.31		0.26		0.41	
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	14.00	14.10		8.24	12.40	11.50	20.30		4.74		0.50	
Iron (Total)						505				164.0702078		112		
Manganese (Total)						94				26.9592088		23		
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**													
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**													
Aluminium (diss.filt)			50	50		50	5	50	50		50		50	
Vanadium (diss.filt)			0.245	0.258		0.125	0.111	0.096	0.148		0.125		0.139	
Phenols	ug/l													
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**				22.50					22.50		22.50		22.50
Speciated TPH	ug/l													
Aliphatics														
EC C5-C6	**15000 (7)**									10		10		10
EC>C6-C8	**15000 (7)**									12.5		12.5		12.5
EC>C8-C10	**300 (7)**									7.5		7.5		7.5
EC>C10-C12	**300 (7)**									5		5		5
EC>C12-C16	**300 (7)**									5		5		5
EC>C16-C21										5		5		5
EC>C21-C35										5		5		5
EC>C35-C44										5		5		5
Aromatics														
EC C5-C7	**10 (7)**									1		1		1
EC>C7-C8	**700 (7)**									2.5		2.5		2.5
EC>C8-C10	**300 (7)**									25		25		25
EC>C10-C12	**90 (7)**									5		5		5
EC>C12-C16	**90 (7)**									5		5		5
EC>C16-C21	**90 (7)**									5		5		5
EC>C21-C35	**90 (7)**									5		5		5
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**				0.50					0.50		0.50		0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**				0.50					0.50		0.50		0.50
Ethylbenzene	**300 (8)**				0.50					0.50		0.50		0.50
p/m-Xylene					1.00					1.00		1.00		1.00
o-Xylene					0.50					0.50		0.50		0.50
Sum of detected Xylenes	**500 (8)**													
Polyaromatic Hydrocabons	µg/l													
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**									0.003		0.003		0.003
Acenaphthylene (aq)	-									0.001		0.001		0.001
Acenaphthene (aq)	-									0.001		0.001		0.003
Fluorene (aq)	-									0.001		0.003		0.004
Phenanthrene (aq)	-									0.002		0.008		0.006
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**									0.001		0.001		0.001
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**									0.001		0.020		0.001
Pyrene (aq)	-									0.001		0.019		0.001
Benzo(a)anthracene (aq)	-									0.001		0.013		0.001
Chrysene (aq)	-									0.001		0.013		0.001
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**									0.001		**0.019**		0.001
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**									0.001		**0.019**		0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**									0.001		0.001		0.001
Indeno(1,2,3-cd)pyrene (aq)	-									0.001		0.007		0.001
Dibenzo(a,h)anthracene (aq)	-									0.002		0.002		0.002
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**									0.002		0.007		0.002
INORGANICS	mg/l													
Dissolved Organic Carbon			11.5	11.3		8.1	6.5	6.7		5.5		5.9		7.5
pH	**6 - 9 (2&4)**		7.3	7.3		7.7	7.9	7.7		7.7		8.5		8.9
Alkalinity (Total)			98	100		93	111	106		127		104		77
Chloride	**250 (5)**		17	17		17	19	18		20		18		13
Ammoniacal Nitrogen				1.99		0.26	0.93	0.51		1.2		0.02		0.02
Nitrite				0.097		0.093	0.052	0.043		0.034		0.018		0.0025
Nitrate	**50 (5)**			0.47		2.21	2.83	2.91		4.73		2.62		0.03
Sulphate	**250 (5)**		48.20	43.00		37.90	42.60	41.90	48.30		51.90		29.30	
Sulphide														
Calcium			42.90	41.30		41.40	47.30	48.50	58.60		51.10		27.30	
Potassium			11.30	11.20		13.00	12.90	12.80	11.80		10.40		7.77	
Magnesium			5.19	4.72		5.24	5.83	5.86	6.92		6.23		4.97	
Sodium	**200(5)**		15.40	15.10		18.30	18.80	18.50	19.30		17.60		16.80	
Biochemical Oxygen Demand				1.5		1.5	2.5	2.4		2.7		1.5		3.0
Chemical Oxygen Demand				29		20	20	21		10		10		24
Conductivity			366	365		360	407	390		465		399		259
Total Oxidisable Nitrogen				0.57		2.3	2.88	2.95		4.76		2.64		0.03
Total Phosphorus				0.125		0.125	0.125	0.125		0.125		0.125		0.125

Sample Point / Determinands														
HEAVY METALS	20/08/2018	20/09/2018	03/10/2018	04/10/2018	20/11/2018	21/11/2018	10/12/2018	11/12/2018	09/01/2019	14/01/2019	07/02/2019	11/02/2019	27/03/2019	28/03/2019
Arsenic (diss.filt)	0.50	0.68	0.60			0.39		0.33	0.35			0.31		0.35
Cadmium (diss.filt)	0.025	0.025	0.025			0.025		0.025	0.025			0.025		0.025
Chromium (diss.filt)	0.250	0.125	0.125			0.250		0.250	0.125			0.250		0.250
Copper (diss.filt)	1.220	2.220	1.410			1.950		2.510	1.940			2.830		3.055
Iron (diss.)	136	63	20			20		20	20			20		20
Mercury (diss.filt)	0.0025	0.0025	0.0025			0.0025		0.0025	0.0025			0.0025		0.0025
Manganese (diss.filt)	12.5	12.49771102	12.5			12.5		12.5	12.5			12.5		12.5
Molybdenum (diss.filt)														
Nickel (diss.filt)	2.26	1.80	1.68			1.35		1.47	1.45			1.52		2.02
Lead (diss.filt)	0.125	0.125	0.125			0.125		0.125	0.125			0.125		0.125
Antimony (diss.filt)														
Selenium (diss.filt)	0.21	0.10	0.10			0.10		0.24	0.10			0.10		0.24
Zinc (diss.filt)	2.50	5.06	0.50			8.24		10.90	6.08			7.19		4.18
Iron (Total)														
Manganese (Total)														
Chromium III (diss.filt)	0.25					0.25		0.25				0.25		0.25
Chromium VI (diss.filt)	0.025					0.025		0.025				0.025		0.025
Aluminium (diss.filt)	50	50	50			50		50	50			50		50
Vanadium (diss.filt)	2.000	0.115	0.056			0.052		0.095	0.025			0.092		0.073
Phenols														
Phenols, Total				22.50										
Speciated TPH														
Aliphatics														
EC C5-C6				10										
EC>C6-C8				12.5										
EC>C8-C10				7.5										
EC>C10-C12														
EC>C12-C16														
EC>C16-C21														
EC>C21-C35														
EC>C35-C44														
Aromatics														
EC C5-C7				1										
EC>C7-C8				2.5										
EC>C8-C10				25										
EC>C10-C12														
EC>C12-C16														
EC>C16-C21														
EC>C21-C35														
Benzene				0.50										
Toluene				0.50										
Ethylbenzene				0.50										
p/m-Xylene				1.00										
o-Xylene				0.50										
Sum of detected Xylenes														
Polyaromatic Hydrocabons														
Naphthalene (aq)				0.003										
Acenaphthylene (aq)				0.001										
Acenaphthene (aq)				0.001										
Fluorene (aq)				0.001										
Phenanthrene (aq)				0.002										
Anthracene (aq)				0.001										
Fluoranthene (aq)				0.001										
Pyrene (aq)				0.001										
Benzo(a)anthracene (aq)				0.001										
Chrysene (aq)				0.001										
Benzo(b)fluoranthene (aq)				0.001										
Benzo(k)fluoranthene (aq)				0.001										
Benzo(a)pyrene (aq)				0.001										
Indeno(1,2,3-cd)pyrene (aq)				0.001										
Dibenzo(a,h)anthracene (aq)				0.002										
Benzo(g,h,i)perylene (aq)				0.010										
INORGANICS														
Dissolved Organic Carbon	8.8	6.7	6.4				4.5			5	4.1		5.6	
pH	7.9	7.6	8.1		7.7		7.7			7.5	8		8.2	
Alkalinity (Total)	97	78	83		69		67			71	71		89	
Chloride	9.52	7.56	8.06		7.3		11			38	5.9		18	
Ammoniacal Nitrogen	0.02	0.02	0.02		0.05		0.22			9.89	0.17		0.02	
Nitrite	0.005	0.0025	0.0025		0.013		0.019			0.007	0.017		0.018	
Nitrate	0.03	0.08	0.03		0.37		0.85			0.03	1.38		1.5	
Sulphate	19.10	18.81	19.80			23.60		26.30	28.10			27.70		46.14
Sulphide	0.005					0.005		0.005				0.005		0.005
Calcium	33.80	29.65	32.90			30.30		30.30	33.30			32.74		45.09
Potassium	8.29	6.64	6.97			6.74		6.77	7.20			7.13		8.01
Magnesium	3.96	2.71	2.82			2.64		3.02	3.27			3.56		5.13
Sodium	14.70	9.88	10.50			8.94		10.80	10.80			12.05		15.70
Biochemical Oxygen Demand	6.8	1.5	7.0		2.5		5.5			17.0	3.3		12.0	
Chemical Oxygen Demand	34	24	28		10		10			79	10		34	
Conductivity	269	230	240		222		241			952	257		345	
Total Oxidisable Nitrogen	0.03	0.08	0.03		0.38		0.87			0.03	1.4		1.52	
Total Phosphorus	0.125	0.0125	0.125		0.125		0.125			0.25	0.125		0.125	

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	Lagoon																								
HEAVY METALS	µg/l		11/04/2019	29/04/2019	21/05/2019	22/05/2019	19/06/2019	20/06/2019	04/07/2019	05/07/2019	07/08/2019	08/08/2019	10/09/2019	11/09/2019	15/10/2019	06/11/2019	06/01/2020	07/01/2020	22/01/2020	26/02/2020	18/03/2020	10/08/2020	07/09/2020	13/10/2020	10/11/2020	01/12/2020	11/01/2021
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.44			0.47		0.49		0.60		0.57		0.43	0.39	0.31	0.25		0.25	0.27	0.28	0.49	0.42	0.60	0.26	0.28	0.18
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025			0.025		0.025		0.025		0.025		0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Chromium (diss.filt)	50 (5)		0.250			0.250		0.250		0.250		0.250		0.250	0.250	0.250	0.250		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	3.130			2.236		1.810		1.400		0.918		0.780	2.230	1.186	1.806		1.590	2.020	1.910	1.230	0.813	0.517	0.967	1.751	0.845
Iron (diss.)	1000 (AA) (1&2)		20			77		47		68		66		89	66	105	20		20	20	20	97	94	62	20	89	20
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025			0.0025		0.0025		0.0025		0.0025		0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	12.5			37.93472149		28		48		61.24225962		48.22478916	77	69.29220755	12.5		12.5	12.5	45	58	50.94516445	12.5	12.5	12.5	12.5
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	2.32			2.23		1.83		1.71		1.17		1.07	1.21	1.07	1.28		1.13	1.32	1.94	0.99	0.99	1.06	1.01	1.50	0.81
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.125			0.125		0.125		0.125		0.125		0.125	0.125	0.125	0.125		0.125	0.125	0.025	0.025	0.025	0.025	0.025	0.155685323	0.025
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10	0.40			0.27		0.10		0.22		0.61		0.10	0.10	0.10	0.10		0.10	0.10	0.21	0.10	0.10	0.10	0.10	0.10	0.10
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	7.73			3.62		3.78		4.81		2.95		3.91	4.40	9.19	8.40		9.67	16.30	16.00	1.89	2.48	0.25	3.75	9.71	7.70
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.25			0.25		0.25		0.25		0.25		0.25	0.25	0.25	0.25					0.13	0.13	0.08	0.13	0.13	0.13
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025			0.025		0.025		0.025		0.025		0.025	0.025	0.025	0.025					0.025	0.025	0.025	0.025	0.025	0.125
Aluminium (diss.filt)			50			50		50		50		50		50	50	50	50		50	50	50	50	50	50	50	50	50
Vanadium (diss.filt)			0.052			0.025		0.025				0.075		0.025	0.025	0.025	0.025		0.056	0.099	0.077	0.053	0.025	0.025	0.025	0.074	0.025
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																										
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)																										
EC>C6-C8	15000 (7)																										
EC>C8-C10	300 (7)																										
EC>C10-C12	300 (7)																										
EC>C12-C16	300 (7)																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	10 (7)																										
EC>C7-C8	700 (7)																										
EC>C8-C10	300 (7)																										
EC>C10-C12	90 (7)																										
EC>C12-C16	90 (7)																										
EC>C16-C21	90 (7)																										
EC>C21-C35	90 (7)																										
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)																										
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)																										
Ethylbenzene	300 (8)																										
p/m-Xylene																											
o-Xylene																											
Sum of detected Xylenes	500 (8)																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)																										
Acenaphthylene (aq)	-																										
Acenaphthene (aq)	-																										
Fluorene (aq)	-																										
Phenanthrene (aq)	-																										
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)																										
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)																										
Pyrene (aq)	-																										
Benzo(a)anthracene (aq)	-																										
Chrysene (aq)	-																										
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))																										
Indeno(1,2,3-cd)pyrene (aq)	-																										
Dibenzo(a,h)anthracene (aq)	-																										
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																										
INORGANICS	mg/l																										
Dissolved Organic Carbon				7	8.3		8.3		8.1		4.9		6.3		5.2	5.2		4	4.4	4.2	4.6	5.8	7.5	5.7	5	4.2	5.4
pH	6 - 9 (2&4)			7.7	7.8		7.8		7.5		7.2		7.2		7.2	7.5		7.7	7.8	7.7	7.6	7.5	7.5	7.3	7.3	7.2	7.5
Alkalinity (Total)				99	103		92		92		73		73		84	81		86	79	85	102	73	76	82	80	85	58
Chloride	250 (5)			19	17		11		11		7.3		6.6		7.9	7.7		13	13	18	19	6.7	5.6	6.4	11	14	7.5
Ammoniacal Nitrogen				0.02	0.02		0.02		0.02		0.02		0.02		0.02	0.02		0.02	0.02	0.64	0.18	0.02	0.02	0.02	0.02	0.09	0.02
Nitrite				0.013	0.007		0.0025		0.0025		0.0025		0.0025		0.0025	0.007		0.008	0.008	0.023	0.017	0.0025	0.0025	0.0025	0.01	0.041	0.0025
Nitrate	50 (5)			1.44	0.14		0.03		0.03		0.03		0.03		0.03	0.13		0.5	0.69	1.13	2.1	0.03	0.03	0.03	0.07	0.49	0.25
Sulphate	250 (5)		50.40			38.70		26.40		22.30		14.02		13.33	11.90	12.06	14.48		18.00	29.14	36.63	10.70	10.84	11.70	12.55	15.75	11.96
Sulphide						0.005		0.005				0.005		0.005		0.005	0.03										
Calcium			52.90			43.66		37.90		38.80		28.32		30.08	32.30	30.81	27.15		32.39	40.50	49.90	29.13	30.00	30.10	30.55	34.60	25.70
Potassium			9.25			6.63		4.88		5.07		4.99		4.92	5.44	6.34	6.65		8.13	7.10	7.76	5.11	4.10	4.21	5.17	6.10	4.01
Magnesium			6.34			5.40		4.01		3.90		2.35		2.46	2.79	2.68	2.87		3.42	4.53	5.58	2.29	2.27	2.33	2.66	3.21	2.63
Sodium	200(5)		19.20			16.68		12.90		12.70		8.67		8.14	8.80	8.98	9.36		11.65	13.90	15.90	7.70	6.41	6.92	8.07	8.71	7.15
Biochemical Oxygen Demand				6.0	5.2		4.3		3.5		3.3		1.5		1.5	1.5		1.5	2.7	3.4	3.2	1.0	3.2	1.0	2.5	1.0	2.5
Chemical Oxygen Demand				30	29		29		25		23		10		10	10		10	10	10	10	21	20	10	10	11	5
Conductivity				368	340		279		270		204		200		219	219		261	249	307	359	203	193	205	215	241	178
Total Oxidisable Nitrogen				1.45	0.15		0.03		0.03		0.03		0.03		0.03	0.14		0.51	0.7	1.15	2.12	0.03	0.03	0.03	0.08	0.53	0.25
Total Phosphorus				0.125	0.125		0.125		0.125		0.125		0.125		0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125

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Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																								
HEAVY METALS	**µg/l**		**03/02/2021**	**09/03/2021**	**20/04/2021**	**21/04/2021**	**11/05/2021**	**23/06/2021**	**21/07/2021**	**05/08/2021**	**23/09/2021**	**20/10/2021**	**24/11/2021**	**08/12/2021**	**24/01/2022**	**22/02/2022**	**29/03/2022**	**09/01/2017**	**11/01/2017**	**06/03/2017**	**29/08/2017**	**30/08/2017**	**31/08/2017**	**05/09/2017**	**07/09/2017**	**12/09/2017**	**14/09/2017**
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.19	0.27		0.32	0.36	0.48	0.44	0.49	0.51	0.33	0.28	0.26	0.29	0.37	0.42	12.50		12.50	1.63		2.63	1.48	2.87	1.33	0.91
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**		0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	**5.000**		**5.000**	0.079		0.025	0.025	0.025	0.025	0.025
Chromium (diss.filt)	**50 (5)**		0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	12.500		12.500	0.125		0.917	0.125	0.125	0.125	0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	1.277	0.994		0.884	0.816	1.140	0.779	1.198	0.250	1.680	0.599	1.811	1.410	1.900	1.774	10.000		10.000	8.130		5.120	5.040	1.670	0.500	0.500
Iron (diss.)	**1000 (AA) (1&2)**		20	20		20	47	53	20	69	137	20	20	20	20	20	20	50		50	745		784	388	**1570**	982	500
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025	0.0025		0.0025	0.0255	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	12.5	12.5		12.5	33.76779169	60.84121669	80.94683023	52.86778162	**727.7895773**	29.66740287	26.66771865	12.5	12.5	12.5	12.5	5		5	256		**820**	**305**	**1520**	**1060**	**673**
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.06	1.26		1.07	1.18	1.15	1.04	1.39	0.74	0.90	0.71	1.08	0.97	1.27	1.13	12.50		12.50	2.74		3.47	3.42	5.37	6.72	7.18
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	**12.5**		**12.5**	0.848		0.763	0.415	0.394	0.125	0.125
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**	0.10	0.10		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10				0.10		0.10	0.10	0.10	0.10	0.10
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	13.71	6.74		4.04	5.21	6.64	4.90	18.22	1.96	6.17	5.02	6.98	8.65	4.82	4.40	10.00		10.00	6.80		6.22	3.18	1.80	2.43	1.77
Iron (Total)																			1540	608							
Manganese (Total)																			24	14							
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.13	0.13		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13										
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.080	0.135	0.051				0.025		0.025	0.025	0.025	0.025	0.025
Aluminium (diss.filt)			50	50		50	50	50	50	50	50	50	50	50	50	50	50	50		50	385		271	178	50	50	50
Vanadium (diss.filt)			0.057	0.025		0.025	0.054	0.108	0.067	0.082	0.091	0.087	0.054	0.067	0.058	0.103	0.070				0.986		1.090	0.741	0.497	0.090	0.058
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																					22.50					
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**																	25		25	10		10	10	10	10	10
EC>C6-C8	**15000 (7)**																	30		30	12.5		12.5	12.5	12.5	12.5	12.5
EC>C8-C10	**300 (7)**																	0.05		0.05	7.5		7.5	7.5	7.5	7.5	7.5
EC>C10-C12	**300 (7)**																	3.5			5		5	5	5	5	5
EC>C12-C16	**300 (7)**																	5		5	5		5	5	5	5	5
EC>C16-C21																		2.5		2.5	5		5	5	5	5	5
EC>C21-C35																		10		10	5		5	5	5	5	5
EC>C35-C44																		2.5		2.5	5		5	5	5	5	5
Aromatics																											
EC C5-C7	**10 (7)**																	0.025		0.025	1		1	1	1	1	1
EC>C7-C8	**700 (7)**																	0.025		0.025	2.5		2.5	2.5	2.5	2.5	2.5
EC>C8-C10	**300 (7)**																	0.025			25		25	25	25	25	25
EC>C10-C12	**90 (7)**																	3.5			5		5	5	5	5	5
EC>C12-C16	**90 (7)**																	3		3	5		5	5	5	5	5
EC>C16-C21	**90 (7)**																	15		15	5		5	5	5	5	5
EC>C21-C35	**90 (7)**																	15		15	5		5	5	5	5	5
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																				0.50	0.50	0.50	0.50	0.50	0.50	0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																				0.50	0.50	0.50	0.50	0.50	0.50	0.50
Ethylbenzene	**300 (8)**																				0.50	0.50	0.50	0.50	0.50	0.50	0.50
p/m-Xylene																					1.00	1.00	1.00	1.00	1.00	1.00	1.00
o-Xylene																					0.50	0.50	0.50	0.50	0.50	0.50	0.50
Sum of detected Xylenes	**500 (8)**																										
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																				0.003		0.003	0.003	0.003	0.003	0.003
Acenaphthylene (aq)	**-**																				0.001		0.001	0.001	0.001	0.001	0.001
Acenaphthene (aq)	**-**																				0.001		0.001	0.001	0.001	0.001	0.001
Fluorene (aq)	**-**																				0.001		0.001	0.001	0.001	0.001	0.001
Phenanthrene (aq)	**-**																				0.002		0.002	0.002	0.002	0.002	0.002
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																				0.001		0.001	0.001	0.001	0.001	0.001
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																				0.001		0.001	0.001	0.001	0.001	0.001
Pyrene (aq)	**-**																				0.001		0.001	0.001	0.001	0.001	0.001
Benzo(a)anthracene (aq)	**-**																				0.001		0.001	0.001	0.001	0.001	0.001
Chrysene (aq)	**-**																				0.001		0.001	0.001	0.001	0.001	0.001
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																				0.001		0.001	0.001	0.001	0.001	0.001
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																				0.001		0.001	0.001	0.001	0.001	0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																				0.001		0.001	0.001	0.001	0.001	0.001
Indeno(1,2,3-cd)pyrene (aq)	**-**																				0.001		0.001	0.001	0.001	0.001	0.001
Dibenzo(a,h)anthracene (aq)	**-**																				0.002		0.002	0.002	0.002	0.002	0.002
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																				0.002		0.002	0.002	0.002	0.002	0.002
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			6.9	6	9.2		7.7	10.2			13.1	8.3	6	5	6.1	4.4					18.8		17.5		17.5	6.9	6
pH	**6 - 9 (2&4)**		7.7	7.7	7.9		7.8	7.2	7.3	7.2	7.2	7.2	7.2	7.3	7.5	7.8	7.7				6.6		7.1		6.9	6.6	6.9
Alkalinity (Total)			78	105	101		101	102	84	74	105	79	70	62	89	92	102				19		24		38	31	40
Chloride	**250 (5)**		8.1	10	9.8		9.5	8.1	26	7.5	8.2	4.3	6.1	12	14	19	19				6.5		8		8.3	8.7	7.8
Ammoniacal Nitrogen			0.05	0.02	0.02		0.02	0.05	0.04	0.02	0.02	0.02	0.02	0.04	0.02	0.24	0.02				0.08		0.02		0.02	0.02	0.02
Nitrite			0.007	0.0025	0.0025		0.0025	0.0025	0.0025	0.005	0.0025	0.0025	0.0025	0.0025	0.006	0.014	0.0025				0.013		0.007		0.005	0.0025	0.0025
Nitrate	**50 (5)**		0.73	0.03	0.03		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.15	0.22	0.79	0.84				0.03		0.003		0.03	0.03	0.03
Sulphate	**250 (5)**		19.18	23.98		15.73	18.41	15.81	14.39	13.49	7.41	11.04	9.78	10.74	25.10	30.19	33.49			32.30	5.57		3.00	6.60	12.20	19.80	21.70
Sulphide																											
Calcium			34.66	43.24		31.99	40.80	42.10	34.10	24.38	37.69	33.06	30.05	22.17	40.96	44.71	49.11	15.50		16.20	7.01		6.78	8.11	12.30	16.30	20.40
Potassium			5.17	6.37		4.70	5.09	3.63	2.62	3.36	5.26	4.69	4.35	3.42	6.67	6.35	7.20				8.25		9.21	7.71	8.55	4.00	3.27
Magnesium			3.47	4.19		2.96	3.83	3.54	2.41	1.61	2.29	1.99	1.82	2.03	3.43	4.01	4.66	2.36		3.93	1.66		0.13	1.64	2.52	2.18	3.41
Sodium	**200(5)**		8.45	10.21		7.98	9.91	10.93	9.74	6.38	8.59	7.01	6.33	7.08	11.14	13.29	14.38	7.32		7.15	4.55		4.40	4.57	5.05	4.90	5.14
Biochemical Oxygen Demand			7.1	4.5	2.5		2.9	4.5	6.9	2.5	35.0	2.8	7.8	1.5	4.3	1.5	1.5				3.1		4.9		18.0	6.0	3.2
Chemical Oxygen Demand			20	36	21		23	45	42	29	224	27	29	14	22	21	25				64		64		76	31	
Conductivity			231	290	278		277	263	223	221	245	198	188	199	283	315	352				88		105		127	155	166
Total Oxidisable Nitrogen			0.74	0.03	0.03		0.03	0.03	0.03	0.03	0.03	0.03	0.07	0.15	0.23	0.8	0.84				0.03		0.03		0.03	0.03	0.03
Total Phosphorus			0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125				0.2		0.31		0.35	0.125	0.125

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	Pond 3a																						
HEAVY METALS	µg/l		15/09/2017	18/09/2017	21/09/2017	22/09/2017	25/10/2017	09/01/2019	15/01/2019	11/04/2019	29/04/2019	21/05/2019	22/05/2019	19/06/2019	20/06/2019	04/07/2019	05/07/2019	07/08/2019	08/08/2019	10/09/2019	11/09/2019	15/10/2019	06/11/2019	06/01/2020	07/01/2020	22/01/2020	26/02/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			1.56	1.87			0.49		0.45			0.53		0.68		0.98		0.92		0.65	0.51	0.49	0.38		0.36	0.25
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l			0.025	0.025			0.025		0.025			0.025		0.025		0.025		0.025		0.025	0.025	0.025	0.025		0.025	0.025
Chromium (diss.filt)	50 (5)			0.125	0.125			0.125		0.250			0.250		0.250		0.250		0.250		0.250	0.250	0.250	0.250		0.125	0.125
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94		0.500	0.500			1.064		1.600			1.159		1.080		1.020		1.100		0.694	0.500	3.108	1.000		0.624	0.846
Iron (diss.)	1000 (AA) (1&2)			1830	1870			20		20			20		20		53		45		52	20	860	20		20	20
Mercury (diss.filt)	0.07 MAC (1&2)			0.0025	0.0025			0.0025		0.0025			0.0025		0.0025		0.0025		0.0025		0.0025	0.0105	0.0025	0.0025		0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92		1830	4220			12.5		12.5			48.17146693		38		27		34.69868275		12.5	12.5	74.20279769	12.5		12.5	12.5
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		4.40	7.69			1.26		1.01			1.03		1.21		1.23		0.90		0.94	0.90	1.59	0.99		0.90	0.76
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		0.125	0.125			0.125		0.125			0.125		0.125		0.125		0.125		0.125	0.125	0.125	0.125		0.125	0.125
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10		0.10	0.10			0.43		0.57			0.47		0.51		0.51		0.23		0.51	0.50	0.37	0.44		0.48	0.32
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15		1.20	2.56			0.50		0.50			0.50		0.50		0.50		0.50		0.50	0.50	2.87	0.25		0.50	0.50
Iron (Total)							1620																				
Manganese (Total)							305																				
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)									0.25			0.25		0.25		0.25		0.25		0.25	0.25	0.25	0.25			
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)			0.025	0.025					0.025			0.025		0.025		0.025		0.025		0.025	0.025	0.025	0.025			
Aluminium (diss.filt)				50	50			50		50			50		50		50		50		50	50	50	50		50	50
Vanadium (diss.filt)				0.060	0.055			0.025		0.025			0.025		0.025				0.025		0.025	0.025	0.194	0.025		0.025	0.025
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50			22.50																					
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)			10	10																						
EC>C6-C8	15000 (7)			12.5	12.5																						
EC>C8-C10	300 (7)			7.5	7.5																						
EC>C10-C12	300 (7)			5	5																						
EC>C12-C16	300 (7)			5	5																						
EC>C16-C21				24	5																						
EC>C21-C35				5	5																						
EC>C35-C44				5	5																						
Aromatics																											
EC C5-C7	10 (7)			1	1																						
EC>C7-C8	700 (7)			2.5	2.5																						
EC>C8-C10	300 (7)			25	25																						
EC>C10-C12	90 (7)			5	5																						
EC>C12-C16	90 (7)			5	5																						
EC>C16-C21	90 (7)			5	5																						
EC>C21-C35	90 (7)			5	5																						
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		0.50	0.50	0.50	0.50																					
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50	0.50	0.50	6.30																					
Ethylbenzene	300 (8)		0.50	0.50	0.50	0.50																					
p/m-Xylene			1.00	1.00	1.00	1.00																					
o-Xylene			0.50	0.50	0.50	0.50																					
Sum of detected Xylenes	500 (8)																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)			0.003	0.003																						
Acenaphthylene (aq)	-			0.001	0.001																						
Acenaphthene (aq)	-			0.001	0.001																						
Fluorene (aq)	-			0.001	0.001																						
Phenanthrene (aq)	-			0.002	0.002																						
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)			0.001	0.001																						
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)			0.001	0.001																						
Pyrene (aq)	-			0.001	0.001																						
Benzo(a)anthracene (aq)	-			0.001	0.001																						
Chrysene (aq)	-			0.001	0.001																						
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)			0.001	0.001																						
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)			0.001	0.001																						
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))			0.001	0.001																						
Indeno(1,2,3-cd)pyrene (aq)	-			0.001	0.001																						
Dibenzo(a,h)anthracene (aq)	-			0.002	0.002																						
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)			0.002	0.002																						
INORGANICS	mg/l																										
Dissolved Organic Carbon				8.4					5.3		8.6	7.3		6.2		6.3		4.2		7		6	9.2		4.9	4.9	3.8
pH	6 - 9 (2&4)			6.8					7.9		8.3	8.8		8.5		9.1		8.5		8		8	7.5		7.9	8	7.7
Alkalinity (Total)				51					98		98	91		78		59		80		94		100	61		107	103	65
Chloride	250 (5)			8.4					23		28	27		27		27		26		25		26	17		26	26	22
Ammoniacal Nitrogen									0.06		0.02	0.02		0.02		0.02		0.02		0.02		0.02	0.07		0.17	0.09	0.02
Nitrite									0.013		0.018	0.015		0.007		0.0025		0.0025		0.0025		0.0025	0.007		0.021	0.018	0.011
Nitrate	50 (5)								0.89		1.48	0.95		0.18		0.03		0.03		0.03		0.54	1.05		1.74	1.76	1.23
Sulphate	250 (5)			19.20	38.40			11.50		16.10			15.82		14.00		12.10		9.87		9.16	9.14	9.33	8.78		11.10	10.31
Sulphide													0.005		0.005				0.005		0.005		0.005	0.01			
Calcium				22.60	36.90			35.90		38.40			33.70		26.80		19.30		26.33		34.00	36.20	25.39	31.63		38.75	28.10
Potassium				4.58	4.43			6.63		7.55			7.22		5.95		6.12		5.99		6.17	6.74	2.30	6.21		7.75	5.10
Magnesium				3.65	3.29			6.07		6.54			6.53		6.50		6.59		6.26		6.49	6.60	4.49	5.61		6.91	4.96
Sodium	200(5)			5.12	4.60			15.70		17.10			16.95		17.50		18.10		16.76		16.68	16.90	11.50	14.10		17.44	14.90
Biochemical Oxygen Demand									1.5		4.9	5.5		2.7		1.0		2.1		1.5		1.5	1.5		1.5	3.1	1.0
Chemical Oxygen Demand									10		24	26		10		10		17		10		10	24		10	10	10
Conductivity				190					311		330	314		276		240		267		290		306	207		336	329	244
Total Oxidisable Nitrogen									0.9		1.5	0.96		0.19		0.03		0.03		0.03		0.54	1.06		1.76	1.78	1.24
Total Phosphorus									0.125		0.125	0.125		0.125		0.125		0.125		0.125		0.125	0.125		0.125	0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																								
HEAVY METALS	µg/l		18/03/2020	10/08/2020	07/09/2020	13/10/2020	10/11/2020	01/12/2020	11/01/2021	03/02/2021	09/03/2021	20/04/2021	21/04/2021	11/05/2021	23/06/2021	21/07/2021	23/09/2021	20/10/2021	24/11/2021	08/12/2021	24/01/2022	22/02/2022	22/03/2022	09/01/2017	06/03/2017	05/09/2017	21/09/2017
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.30	0.76	0.73	0.30	0.54	0.43	0.34	0.30	0.34		0.40	0.41	0.70	0.75	1.12	0.88	0.57	0.50	0.41	0.37	0.38				
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025				
Chromium (diss.filt)	50 (5)		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125				
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	0.707	0.507	0.250	0.737	0.835	0.250	0.652	0.875	0.657		0.778	0.821	0.782	0.692	0.250	0.608	0.250	0.525	0.624	0.771	0.770				
Iron (diss.)	1000 (AA) (1&2)		20	56	20	20	20	20	20	20	20		20	20	72	20	56	20	1067	20	20	20	20				
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025				
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	28	36	49.17263606	12.5	153.2489226	12.5	12.5	12.5	27.19203391		12.5	12.5	149.5140349	25.9865455	68.19314082	176.2994667	40.16359406	12.5	12.5	12.5	12.5				
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	1.23	1.07	1.09	0.86	1.15	1.07	1.01	1.20	1.18		1.18	1.10	1.34	1.09	1.13	1.14	1.06	1.10	1.05	1.01	1.05				
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.025	0.025	0.07423994	0.025	0.050823498	0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025				
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10	0.42	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10				
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	0.25	0.25	0.25	1.50	0.25	0.25	0.25	0.52	0.25		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25				
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)			0.13	0.13	0.06	0.13	0.13	0.13	0.13	0.13		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13				
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)			0.025	0.025	0.025	0.025	0.025	0.125	0.025	0.025		0.054	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025				
Aluminium (diss.filt)			50	50	50	50	50	50	50	50	50		50	50	50	50	50	50	164.5187271	50	50	50	50				
Vanadium (diss.filt)			0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025				
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																										
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)																										
EC>C6-C8	15000 (7)																										
EC>C8-C10	300 (7)																										
EC>C10-C12	300 (7)																										
EC>C12-C16	300 (7)																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	10 (7)																										
EC>C7-C8	700 (7)																										
EC>C8-C10	300 (7)																										
EC>C10-C12	90 (7)																										
EC>C12-C16	90 (7)																										
EC>C16-C21	90 (7)																										
EC>C21-C35	90 (7)																										
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)																										
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)																										
Ethylbenzene	300 (8)																										
p/m-Xylene																											
o-Xylene																											
Sum of detected Xylenes	500 (8)																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)																										
Acenaphthylene (aq)	-																										
Acenaphthene (aq)	-																										
Fluorene (aq)	-																										
Phenanthrene (aq)	-																										
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)																										
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)																										
Pyrene (aq)	-																										
Benzo(a)anthracene (aq)	-																										
Chrysene (aq)	-																										
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))																										
Indeno(1,2,3-cd)pyrene (aq)	-																										
Dibenzo(a,h)anthracene (aq)	-																										
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																										
INORGANICS	mg/l																										
Dissolved Organic Carbon			4.7	4.4	7	6.1	5.7	4.4	7.1	6.9	5.3	8.5		5.6	7		6.3	5.2	6.4	5.1	5.7	4.3	4.58	2.8	3.1	13	9.9
pH	6 - 9 (2&4)		8.1	8	7.9	7.8	7.6	7.8	7.8	7.7	8	8.1		8.2	7.9	8.27	7.8	7.7	7.9	7.9	7.9	8	8		7.4	7	6.8
Alkalinity (Total)			96	107	109	104	107	102	92	91	105	108		108	117	112	124	116	108	102	103	94	98	18	21	23	62
Chloride	250 (5)		26	27	26	25	27	30	24	22	25	25		25	26	7.4	26	24	24	24	24	26	25	12	11	7.2	6.8
Ammoniacal Nitrogen			0.13	0.02	0.02	0.04	0.06	0.11	0.08	0.18	0.02	0.06		0.02	0.34	0.07	0.02	0.02	0.04	0.04	0.08	0.07	0.05	0.02	0.02	0.02	0.02
Nitrite			0.021	0.0025	0.009	0.008	0.017	0.018	0.017	0.015	0.006	0.014		0.013	0.022	0.014	0.0025	0.0025	0.0025	0.0025	0.026	0.014	0.014	0.0025	0.0025	0.0025	0.0025
Nitrate	50 (5)		3.13	0.03	0.22	0.46	0.82	1.34	1.98	2.36	0.96	2.25		1.7	0.34	0.16	0.03	0.03	0.15	0.54	1.82	1.7	2.41	0.03	0.03	0.03	0.03
Sulphate	250 (5)		37.29	8.03	6.86	8.24	9.14	9.72	10.42	10.99	12.90		10.63	13.22	11.62	9.66	5.91	6.06	7.44	6.76	11.70	12.16	13.96				
Sulphide																											
Calcium			40.60	37.02	36.91	38.10	38.21	38.08	36.03	35.99	40.79		31.95	40.58	40.85	37.30	40.40	38.70	14.71	29.06	39.57	36.61	37.81				
Potassium			7.45	6.89	6.54	7.12	7.34	7.27	6.63	6.51	7.45		5.92	7.35	7.82	7.76	7.13	6.91	2.32	5.41	7.52	6.90	7.11				
Magnesium			7.10	7.14	6.79	6.79	6.76	6.64	6.41	6.25	6.87		5.38	7.05	7.22	7.08	7.32	6.93	2.69	5.32	7.05	6.55	6.53				
Sodium	200(5)		18.10	18.20	17.05	17.29	17.37	16.65	15.52	14.79	16.55		13.10	16.27	17.59	17.95	17.45	17.13	8.31	13.01	16.95	16.58	16.32				
Biochemical Oxygen Demand			1.0	1.0	2.4	1.0	1.0	1.0	2.6	2.7	4.7	2.1		3.3	1.5	4.2	1.5	1.5	2.9	1.5	1.5	1.5	1.5			5.0	11.0
Chemical Oxygen Demand			10	10	10	10	10	12	13	12	19	14		16	19	16	17	16	14	15	14	12	25			56	7.5
Conductivity			336	328	313	309	322	320	303	298	336	344		339	344	324	343	327	307	300	326	311	329			100	241
Total Oxidisable Nitrogen			3.15	0.03	0.23	0.47	0.84	1.36	2	2.37	0.97	2.26		1.71	0.36	0.17	0.03	0.03	0.15	0.54	1.85	1.71	2.42	0.03	0.03	0.03	0.03
Total Phosphorus			0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125			0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	Pond 3b										
HEAVY METALS	µg/l		25/10/2017	09/01/2019	15/01/2019	27/03/2019	28/03/2019	11/04/2019	29/04/2019	04/07/2019	05/07/2019	15/10/2019	22/01/2020
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		1.05	0.47				0.41			0.52	0.49	0.37
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**		0.025	0.025				0.025			0.025	0.025	0.025
Chromium (diss.filt)	**50 (5)**		0.125	0.125			0.250	0.250			0.250	0.250	0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	0.500	1.059				1.110			0.500	0.500	0.802
Iron (diss.)	**1000 (AA) (1&2)**		766	20				20			20	20	20
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025	0.0025				0.0025			0.0025	0.00517	0.0025
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	224	12.5				12.5			123	12.5	12.5
Molybdenum (diss.filt)	**70 (8) ?**												
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.97	1.27				0.97			1.11	0.95	0.90
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.125	0.125				0.125			0.125	0.125	0.125
Antimony (diss.filt)	**5 (5)**												
Selenium (diss.filt)	**10(5)**	**10**	0.20	0.39				0.59			0.51	0.52	0.49
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	0.50	0.50				0.50			0.50	0.50	0.50
Iron (Total)													
Manganese (Total)													
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**						0.25	0.25			0.25	0.25	
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**						0.025	0.025			0.025	0.025	
Aluminium (diss.filt)			50	50				50			50	50	50
Vanadium (diss.filt)			0.125	0.025				0.025				0.025	0.025
Phenols	ug/l												
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**												
Speciated TPH	ug/l												
Aliphatics													
EC C5-C6	**15000 (7)**												
EC>C6-C8	**15000 (7)**												
EC>C8-C10	**300 (7)**												
EC>C10-C12	**300 (7)**												
EC>C12-C16	**300 (7)**												
EC>C16-C21													
EC>C21-C35													
EC>C35-C44													
Aromatics													
EC C5-C7	**10 (7)**												
EC>C7-C8	**700 (7)**												
EC>C8-C10	**300 (7)**												
EC>C10-C12	**90 (7)**												
EC>C12-C16	**90 (7)**												
EC>C16-C21	**90 (7)**												
EC>C21-C35	**90 (7)**												
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**												
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**												
Ethylbenzene	**300 (8)**												
p/m-Xylene													
o-Xylene													
Sum of detected Xylenes	**500 (8)**												
Polyaromatic Hydrocabons	µg/l												
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**												
Acenaphthylene (aq)	**-**												
Acenaphthene (aq)	**-**												
Fluorene (aq)	**-**												
Phenanthrene (aq)	**-**												
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**												
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**												
Pyrene (aq)	**-**												
Benzo(a)anthracene (aq)	**-**												
Chrysene (aq)	**-**												
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**												
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**												
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**												
Indeno(1,2,3-cd)pyrene (aq)	**-**												
Dibenzo(a,h)anthracene (aq)	**-**												
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**												
INORGANICS	mg/l												
Dissolved Organic Carbon			5.5		5.4	4.8			5.4	6.6		6.1	5
pH	**6 - 9 (2&4)**		7.6		7.9	8			8.4	8		6.6	8.1
Alkalinity (Total)			58		97	95			98	95		98	102
Chloride	**250 (5)**		14		24	25			27	26		26	26
Ammoniacal Nitrogen			0.09		0.07	0.02			0.02	0.06		0.05	0.14
Nitrite			0.0025		0.014	0.008			0.018	0.006		0.005	0.018
Nitrate	**50 (5)**		0.03		0.93	1.87			1.62	0.25		0.64	1.78
Sulphate	**250 (5)**		20.10	11.60				16.20			13.70	9.33	11.10
Sulphide							0.005						
Calcium			22.20	36.00				39.00			36.10	35.70	38.21
Potassium			2.72	6.78				7.55			6.87	6.69	7.71
Magnesium			4.11	6.12				6.56			6.93	6.55	6.84
Sodium	**200(5)**		7.31	15.80				17.10			17.70	16.90	17.34
Biochemical Oxygen Demand			1.5		2.4	3.0			3.3	1.0		1.5	1.5
Chemical Oxygen Demand			20		10	15			23	10		10	10
Conductivity			233		308	319			330	314		324	326
Total Oxidisable Nitrogen			0.03		0.94	1.88			1.64	0.26		0.64	1.8
Total Phosphorus			0.125		0.125	0.125			0.125	0.125		0.125	0.125

Sample Point / Determinands	Pond 4													
HEAVY METALS	09/01/2019	15/01/2019	11/04/2019	29/04/2019	04/07/2019	05/07/2019	15/10/2019	22/01/2020	07/09/2020	01/12/2020	09/03/2021	23/06/2021	23/09/2021	14/12/2021
Arsenic (diss.filt)	0.55		0.62			0.85	0.70	0.45	0.76	0.44	0.33	0.77	1.32	0.66
Cadmium (diss.filt)	0.025		0.025			0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Chromium (diss.filt)	0.125		0.250			0.250	0.250	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Copper (diss.filt)	0.500		1.190			1.630	1.240	0.875	0.592	0.626	0.585	0.724	0.593	0.754
Iron (diss.)	20		62			20	20	20	20	20	20	52	20	20
Mercury (diss.filt)	0.0025		0.0025			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	12.5		45			12.5	58	12.5	35.94809711	48.2638333	12.5	66.45434206	85.30927219	12.5
Molybdenum (diss.filt)														
Nickel (diss.filt)	1.71		1.84			1.96	1.47	1.37	1.06	1.08	0.91	1.29	1.09	1.22
Lead (diss.filt)	0.125		0.125			0.125	0.125	0.125	0.025	0.025	0.025	0.025	0.025	0.025
Antimony (diss.filt)														
Selenium (diss.filt)	0.30		0.48			0.40	0.46	0.44	0.10	0.10	0.10	0.10	0.10	0.10
Zinc (diss.filt)	0.50		0.50			0.50	0.50	0.50	1.19	0.25	0.25	0.81	0.25	0.25
Iron (Total)														
Manganese (Total)														
Chromium III (diss.filt)			0.25			0.25	0.25		0.13	0.13	0.13	0.13	0.13	0.13
Chromium VI (diss.filt)			0.025			0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025
Aluminium (diss.filt)	50		50			50	50	50	50	50	50	50	50	50
Vanadium (diss.filt)	0.025		0.025				0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Phenols														
Phenols, Total														
Speciated TPH														
Aliphatics														
EC C5-C6														
EC>C6-C8														
EC>C8-C10														
EC>C10-C12														
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Aromatics														
EC C5-C7														
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Benzene														
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Sum of detected Xylenes														
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Naphthalene (aq)														
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Indeno(1,2,3-cd)pyrene (aq)														
Dibenzo(a,h)anthracene (aq)														
Benzo(g,h,i)perylene (aq)														
INORGANICS														
Dissolved Organic Carbon		4.5		7.2	6.9		4.7	4.2	5.8	3.8	4.5	6.4	4.8	4.7
pH		7.9		8.4	8.1		7.8	7.3	7.9	7.5	8	7.8	7.8	7.8
Alkalinity (Total)		84		89	88		90	84	80	72	70	83	91	79
Chloride		21		23	22		23	24	25	29	21	21	21	21
Ammoniacal Nitrogen		0.02		0.02	0.02		0.18	0.4	0.04	0.12	0.02	0.06	0.02	0.06
Nitrite		0.006		0.006	0.0025		0.011	0.012	0.006	0.023	0.005	0.0025	0.0025	0.0025
Nitrate		0.67		0.34	0.03		0.38	1.1	0.3	1.39	0.5	0.09	2.83	0.29
Sulphate	16.70		17.00			16.20	15.60	18.30	10.95	12.88	13.67	11.94	8.36	8.80
Sulphide														
Calcium	30.30		29.90			31.80	32.40	32.23	28.92	28.99	27.47	28.99	29.34	21.46
Potassium	6.51		6.18			6.51	6.39	6.56	5.56	6.44	5.71	6.25	6.21	5.22
Magnesium	6.92		6.62			7.57	7.27	7.05	6.55	6.31	5.99	6.66	6.91	5.00
Sodium	13.80		14.20			15.70	15.00	15.31	13.99	13.90	12.93	13.69	13.54	10.21
Biochemical Oxygen Demand		3.5		4.0	2.7		1.5	5.2	2.7	1.0	3.3	2.8	2.5	2.9
Chemical Oxygen Demand		10		22	10		10	10	20	5	13	19	18	15
Conductivity		282		291	286		304	300	273	267	250	271	275	266
Total Oxidisable Nitrogen		0.68		0.35	0.03		0.39	1.11	0.31	1.41	0.5	0.09	2.83	0.29
Total Phosphorus		0.125		0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)		Pond 5																							
HEAVY METALS	µg/l		24/01/2022	20/07/2016	09/08/2016	09/01/2019	15/01/2019	11/04/2019	29/04/2019	04/07/2019	05/07/2019	15/10/2019	22/01/2020	07/09/2020	01/12/2020	09/03/2021	23/06/2021	14/12/2021	24/01/2022	20/07/2016	09/08/2016	27/09/2016	09/01/2017	11/01/2017	06/03/2017	18/07/2017	15/08/2017
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.54			1.12		1.22			2.27	0.83	0.72	0.76	0.51	0.48	1.30	0.95	0.64				12.50		12.50	0.23	
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l**		0.025			0.025		0.025			0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025				5.000		5.000	0.025	
Chromium (diss.filt)	**50 (5)**		0.125			0.125		0.250			0.250	0.250	0.125	0.125	0.125	0.125	0.125	0.125	0.125				12.500		12.500	0.125	0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	0.843			0.500		0.596			0.500	0.500	0.708	0.250	0.250	0.250	0.250	0.506	0.728				10.000		10.000	1.130	
Iron (diss.)	**1000 (AA) (1&2)**		20			20		150			966	171	81	158	47	42	707	305	93				50		50	50	
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025			0.0025		0.0025			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025				0.0025		0.0025	0.0025	
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	12.5			25		239			195	81	12.5	43.55648841	12.5	40.60607289	163.0142415	60.6709529	12.5				62		113	59	
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.17			3.16		2.42			2.35	3.36	1.92	1.43	1.32	1.07	0.92	2.38	2.02				12.50		12.50	1.15	
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.025			0.125		0.125			0.125	0.125	0.125	0.025	0.025	0.025	0.025	0.025	0.025				12.5		12.5	0.125	
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**	0.10			0.30		0.49			0.39	0.37	0.33	0.10	0.10	0.10	0.10	0.10	0.10							0.49	0.10
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	0.25			0.50		0.50			0.50	0.50	0.50	0.25	0.25	0.25	0.25	0.81	0.25				10.00		10.00	1.32	
Iron (Total)																								555	3400	310	
Manganese (Total)																								75	197	76	
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.13					0.25			0.25	0.25		0.13	0.13	0.13	0.13	0.13	0.13							0.25	
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.025					0.025			0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.070							0.025	0.025
Aluminium (diss.filt)			50			50		50			50	50	50	50	50	50	50	50	50				50		50	50	
Vanadium (diss.filt)			0.025			0.025		0.025				0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025							0.051	
Phenols	ug/l																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																										
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	**15000 (7)**																										10
EC>C6-C8	**15000 (7)**																										12.5
EC>C8-C10	**300 (7)**																										7.5
EC>C10-C12	**300 (7)**																						3.5				
EC>C12-C16	**300 (7)**																						5		5		
EC>C16-C21																							2.5		2.5		
EC>C21-C35																							10		10		
EC>C35-C44																							2.5		2.5		
Aromatics																											
EC C5-C7	**10 (7)**																										1
EC>C7-C8	**700 (7)**																										2.5
EC>C8-C10	**300 (7)**																										25
EC>C10-C12	**90 (7)**																						3.5				
EC>C12-C16	**90 (7)**																						3		3		
EC>C16-C21	**90 (7)**																						15		15		
EC>C21-C35	**90 (7)**																						15		15		
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																										0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																										0.50
Ethylbenzene	**300 (8)**																										0.50
p/m-Xylene																											1.00
o-Xylene																											0.50
Sum of detected Xylenes	**500 (8)**																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																										
Acenaphthylene (aq)	-																										
Acenaphthene (aq)	-																										
Fluorene (aq)	-																										
Phenanthrene (aq)	-																										
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																										
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																										
Pyrene (aq)	-																										
Benzo(a)anthracene (aq)	-																										
Chrysene (aq)	-																										
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																										
Indeno(1,2,3-cd)pyrene (aq)	-																										
Dibenzo(a,h)anthracene (aq)	-																										
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																										
INORGANICS	mg/l																										
Dissolved Organic Carbon			5.5	19	22		5.9		12.3	10.8		11.6	5	7.4	5.7	5.1	7.3	6.8	6.8	12	9.4	6.1	3.5		3.9	3.3	
pH	**6 - 9 (2&4)**		8	7.5	7.9		7.5		7.5	7.4		6.6	7.3	7.2	7.04	7.1	7	7.2	7.2	7.9	7.9	7.4			7.1	7	
Alkalinity (Total)			77	140	210		116		109	119		140	97	99	92	79	103	104	104	74	77	100	75		69	76	
Chloride	**250 (5)**		21	34	38		27		26	24		28	24	25	27	21	22	26	25	26	28	28	22		23	23	
Ammoniacal Nitrogen			0.02	0.068	0.33		0.78		0.02	0.32		3.97	0.41	0.79	0.65	0.13	0.27	1.29	1.21	0.047	0.005	0.005	0.12		0.12	0.02	
Nitrite			0.01	0.039	0.01		0.017		0.0025	0.0025		0.01	0.009	0.0025	0.007	0.007	0.0025	0.01	0.016	0.3	0.078	0.1	0.031		0.007	0.012	
Nitrate	**50 (5)**		0.46	0.25	0.25		0.94		0.03	0.03		0.14	0.86	0.03	0.52	0.62	0.03	0.23	0.9	15	30	20	3.46		4.02	3.01	
Sulphate	**250 (5)**		13.80			21.50		12.60			4.26	7.95	16.10	4.92	9.17	11.45	3.03	14.81	17.00				12.50			18.30	
Sulphide																											
Calcium			28.61			38.90		33.50			36.10	37.90	33.64	29.39	29.98	28.23	31.66	27.63	35.38				30.80			36.80	
Potassium			6.77			9.61		7.89			6.08	6.58	7.53	4.86	6.68	6.18	6.15	6.47	8.77							4.36	
Magnesium			6.46			9.29		7.64			8.58	10.20	8.09	7.51	7.48	6.38	6.80	6.78	8.73				3.81		4.72	4.45	
Sodium	**200(5)**		13.81			19.00		16.50			18.40	23.00	17.28	17.12	15.79	13.28	14.62	12.96	17.20				13.30		12.70	14.10	
Biochemical Oxygen Demand			1.5				2.1		10.0	4.4		11.0	2.5	2.7	1.0	1.5	1.5	1.5	1.5								
Chemical Oxygen Demand			14				10		44	31		33	23	21	14	13	41	19	18								
Conductivity			263				376		337	323		386	318	288	290	261	287	334	338							307	
Total Oxidisable Nitrogen			0.47				0.96		0.03	0.03		0.15	0.87	0.03	0.53	0.63	0.03	0.24	0.92				3.49		4.02	3.02	
Total Phosphorus			0.125				0.125		0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125								

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW1																									
HEAVY METALS	**µg/l**		29/08/2017	30/08/2017	31/08/2017	05/09/2017	07/09/2017	12/09/2017	14/09/2017	15/09/2017	18/09/2017	21/09/2017	22/09/2017	25/10/2017	30/11/2017	04/12/2017	12/01/2018	18/01/2018	17/04/2018	18/04/2018	26/06/2018	27/06/2018	03/10/2018	04/10/2018	09/01/2019	14/01/2019	11/04/2019	29/04/2019
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.34		0.36	0.37	0.40	0.40	0.50		0.34	0.33		0.26	0.24	0.23	0.40		0.19			0.18	0.25		0.19		0.20	
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**		0.025		0.025	0.025	0.025	0.064	0.059		0.062	0.065		0.025	0.067	0.066	0.025		0.051			0.025	0.057		0.025		0.025	
Chromium (diss.filt)	**50 (5)**		0.125		0.125	0.125	0.125	0.125	0.125		0.125	0.125		0.125	0.125	0.125	0.125		0.125			0.125	0.125		0.125		0.250	
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	3.440		3.160	2.960	2.610	4.830	5.350		3.520	4.400		3.240	3.250	3.140	3.860		2.340			1.100	2.680		2.630		1.510	
Iron (diss.)	**1000 (AA) (1&2)**		50		50	135	208	179	50		246	145		77	47	20	73		89			20	44		20		20	
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025		0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025		0.0025		0.0025	0.0025		0.0025			0.0025	0.0025		0.0025		0.0025	
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	75		86	109	138	89	70		82	78		51	53.7	67.9	31		69			15	191		88		78	
Molybdenum (diss.filt)	**70 (8) ?**																											
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.84		1.88	2.00	2.12	2.38	2.34		2.14	2.30		2.01	2.14	2.31	1.60		1.62			1.37	1.67		1.51		1.48	
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.125		0.125	0.125	0.125	0.125	0.125		0.125	0.125		0.125	0.125	0.125	0.125		0.125			0.125	0.125		0.125		0.125	
Antimony (diss.filt)	**5 (5)**																											
Selenium (diss.filt)	**10(5)**	**10**	0.94		0.10	0.90	0.98	0.93	0.97		0.97	0.97		0.98	0.81	0.93			0.70			0.75	0.98		0.88		0.78	
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	1.51		0.50	1.60	4.68	2.76	4.50		2.43	2.54		1.35	2.14	3.42	2.94		1.90			1.70	2.23		1.64		2.49	
Iron (Total)														582				569.5127446		246								
Manganese (Total)														80				39.73653546		67								
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**																										0.25	
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**				0.025																						0.064	
Aluminium (diss.filt)			50		50	50	50	50	50		50	50		50	5	50	50		50			20	50		50		50	
Vanadium (diss.filt)			0.192		0.191	0.125	0.124	0.149	0.227		0.123	0.133		0.125	0.089	0.075	0.206		0.054			0.025	0.090		0.025		0.057	
Phenols	**ug/l**																											
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**			22.50						22.50			22.50							22.50	22.50			22.50				
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	**15000 (7)**				10													10		10	10			10				
EC>C6-C8	**15000 (7)**				12.5													12.5		12.5	12.5			12.5				
EC>C8-C10	**300 (7)**				7.5													7.5		7.5	7.5			7.5				
EC>C10-C12	**300 (7)**																	5		5	5							
EC>C12-C16	**300 (7)**																	5		5	5							
EC>C16-C21																		5		5	5							
EC>C21-C35																		5		5	5							
EC>C35-C44																		5		5	5							
Aromatics																												
EC C5-C7	**10 (7)**				1													1		1	1			1				
EC>C7-C8	**700 (7)**				2.5													2.5		2.5	2.5			2.5				
EC>C8-C10	**300 (7)**				25													25		25	25			25				
EC>C10-C12	**90 (7)**																	5		5	5							
EC>C12-C16	**90 (7)**																	5		5	5							
EC>C16-C21	**90 (7)**																	5		5	5							
EC>C21-C35	**90 (7)**																	5		5	5							
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**			0.50	0.50					0.50			0.50							0.50	0.50			0.50				
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**			0.50	0.50					0.50			0.50							0.50	0.50			0.50				
Ethylbenzene	**300 (8)**			0.50	0.50					0.50			0.50							0.50	0.50			0.50				
p/m-Xylene				1.00	1.00					1.00			1.00							1.00	1.00			1.00				
o-Xylene				0.50	0.50					0.50			0.50							0.50	0.50			0.50				
Sum of detected Xylenes	**500 (8)**																											
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																			0.003	0.003			0.003				
Acenaphthylene (aq)	**-**																			0.001	0.001			0.001				
Acenaphthene (aq)	**-**																			0.001	0.001			0.019				
Fluorene (aq)	**-**																			0.001	0.001			0.008				
Phenanthrene (aq)	**-**																			0.002	0.002			0.006				
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																			0.001	0.001			0.001				
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																			0.003	0.001			0.004				
Pyrene (aq)	**-**																			0.004	0.001			0.001				
Benzo(a)anthracene (aq)	**-**																			0.001	0.001			0.001				
Chrysene (aq)	**-**																			0.001	0.001			0.001				
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																			0.001	0.001			0.001				
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																			0.001	0.001			0.001				
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																			0.001	0.001			0.001				
Indeno(1,2,3-cd)pyrene (aq)	**-**																			0.001	0.002			0.001				
Dibenzo(a,h)anthracene (aq)	**-**																			0.002	0.003			0.002				
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																			0.002	0.002			0.002				
INORGANICS	**mg/l**																											
Dissolved Organic Carbon			3.1		3.1	3.4	3.3	4.6	5.6		3.6	3.8		3	2.7	2.9		2.83		2	2.8		2.9			2.8		2.4
pH	**6 - 9 (2&4)**		7.1		8	7.1	7.2	7.3	7.3		7.1	7		7.2	7.7	7.7		7.1		7.1	7.1		6.7			7.1		7.1
Alkalinity (Total)			72		71	70	73	71	71		74	73		73	74	72		51		69	68		72			65		63
Chloride	**250 (5)**		25.3		23	23	23	22	21		22	22		21	22	22		19		21	24		23			25		23
Ammoniacal Nitrogen			0.06		0.07	0.06	0.06	0.14	0.11			0.1		0.08	0.07	0.07		0.05		0.09	0.14		0.07			0.04		0.02
Nitrite			0.006		0.008	0.008	0.009	0.009	0.009			0.008		0.01	0.006	0.008		0.0025		0.013	0.018		0.025			0.019		0.009
Nitrate	**50 (5)**		3.63		3.53	3.42	3.46	3.42	3.38			3.5		3.9	4.22	4.18		2.49		4.11	3.51		3.59			5.78		5.31
Sulphate	**250 (5)**		16.50		13.90	17.70	17.50	15.00	15.00		16.80	14.50		13.10	16.60	16.80	9.66		16.70			18.80	21.50		19.50		20.60	
Sulphide																												
Calcium			35.10		34.80	36.20	36.60	34.00	33.30		36.40	34.50		29.30	37.60	38.80	25.50		34.90			35.10	36.30		38.10		36.80	
Potassium			5.07		4.70	4.72	4.96	5.63	6.17		4.67	4.53		4.00	4.73	4.79	4.31		3.60			3.23	4.57		4.29		3.61	
Magnesium			4.79		3.29	4.80	5.17	3.93	4.53		4.98	4.23		3.80	4.83	0.07	3.06		4.82			5.34	5.35		5.16		5.13	
Sodium	**200(5)**		13.70		13.70	13.70	13.80	12.40	11.60		13.10	12.10		10.90	13.20	13.30	10.30		12.90			13.90	13.90		13.40		13.50	
Biochemical Oxygen Demand			1.5		1.5	1.0	1.0	1.5	1.5			1.5		1.5	1.5	1.0		1.5		1.5	2.6		3.9			2.1		1.5
Chemical Oxygen Demand			7.5		17	22	7.5	15				7.5		20	10	5		10		10	10		10			10		10
Conductivity			297		299	293	301	294	288		296	292		299	311	305		222		296	286		307			324		301
Total Oxidisable Nitrogen			3.64		3.54	3.43	3.47	3.43	3.39			3.51		3.91	4.23	4.19		2.49		4.12	3.53		3.61			5.8		5.32
Total Phosphorus			0.125		0.125	0.125	0.125	0.125	0.125			0.125		0.125	0.125	0.125		0.125		0.125	0.125		0.125			0.125		0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:
Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)											SW10														
HEAVY METALS	**µg/l**		04/07/2019	05/07/2019	15/10/2019	22/01/2020	01/12/2020	09/03/2021	23/06/2021	23/09/2021	08/12/2021	24/01/2022	09/01/2019	14/01/2019	27/03/2019	28/03/2019	11/04/2019	29/04/2019	06/01/2020	07/01/2020	22/01/2020	01/12/2020	11/01/2021	03/02/2021	09/03/2021	20/04/2021	21/04/2021
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**			0.25	0.28	0.20	0.23	0.18	0.17	0.28	0.59	0.23	0.40			0.37	0.51		0.27		0.30	0.34	0.35	0.40	0.31		0.38
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**			0.025	0.065	0.054	0.060	0.025	0.025	0.025	0.025	0.053	0.025			0.025	0.025		0.025		0.025	0.025	0.025	0.025	0.025		0.025
Chromium (diss.filt)	**50 (5)**			0.250	0.250	0.125	0.125	0.125	0.125	0.125	0.254	0.125	0.125			0.250	0.250		0.250		0.125	0.125	0.125	0.255	0.125		0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{(see\ Note\ 1)}$ (1) $^{(see\ Note\ 4)}$ (2)**	**34.94**		2.110	14.800	2.362	2.377	1.571	0.886	2.199	5.502	2.523	0.500			1.106	1.180		0.901		0.870	0.779	2.297	1.699	0.719		0.824
Iron (diss.)	**1000 (AA) (1&2)**			20	20	20	43	20	20	101	89	55	187			60	61		74		20	42	410	485	20		20
Mercury (diss.filt)	**0.07 MAC (1&2)**			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025			0.0025	0.0025		0.0025		0.0025	0.0025	0.0025	0.0025	0.0025		0.0025
Manganese (diss.filt)	**123 (AA) ($^{see\ note\ 1}$)**	**276.92**		53	57	39.54138832	38.99980352	42.64127978	12.5	71.17139446	12.5	38.10245583	**904**			187.1400753	**337**		46.51554867		43.46959949	73.01486015	63.96563659	46.70387695	100.5685134		165
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{(see\ note\ 5)}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**		1.43	2.46	1.60	1.57	1.42	1.25	1.35	1.78	1.56	1.13			0.87	1.14		0.67		0.80	0.91	1.36	1.23	0.94		1.10
Lead (diss.filt)	**1.2$^{(see\ note\ 5)}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**		0.125	0.125	0.125	0.025	0.025	0.025	0.025	0.126682095	0.025	0.125			0.125	0.125		0.125		0.125	0.025	0.109800408	0.240452201	0.025		0.025
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**		0.78	1.13	0.93	0.99	0.44	0.29	0.43	0.63	0.57	0.51			0.55	0.59		0.48		0.55	0.10	0.10	0.10	0.10		0.10
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{(see\ Note\ 2)}$**	**37.15**		1.93	7.95	1.68	3.57	2.15	1.63	1.74	4.66	2.49	0.50			0.50	0.50		0.70		0.50	0.80	2.76	3.77	1.22		0.69
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**			0.25	0.25		0.13	0.13	0.13	0.13	0.13	0.13				0.25	0.25		0.25			0.13	0.13	0.25	0.13		0.13
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**			0.025	0.025		0.148	0.075	0.069	0.025	0.059	0.025				0.025	0.025		0.053			0.055	0.125	0.025	0.025		0.055
Aluminium (diss.filt)				50	50	50	50	50	50	50	50	50	50			50	50		50		50	50	50	50	50		50
Vanadium (diss.filt)					0.131	0.061	0.085	0.051	0.025	0.086	0.272	0.086	0.025			0.025	0.025		0.025		0.025	0.025	0.151	0.243	0.025		0.025
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																										
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**																										
EC>C6-C8	**15000 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**300 (7)**																										
EC>C12-C16	**300 (7)**																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	**10 (7)**																										
EC>C7-C8	**700 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**90 (7)**																										
EC>C12-C16	**90 (7)**																										
EC>C16-C21	**90 (7)**																										
EC>C21-C35	**90 (7)**																										
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																										
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																										
Ethylbenzene	**300 (8)**																										
p/m-Xylene																											
o-Xylene																											
Sum of detected Xylenes	**500 (8)**																										
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																										
Acenaphthylene (aq)	**-**																										
Acenaphthene (aq)	**-**																										
Fluorene (aq)	**-**																										
Phenanthrene (aq)	**-**																										
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																										
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																										
Pyrene (aq)	**-**																										
Benzo(a)anthracene (aq)	**-**																										
Chrysene (aq)	**-**																										
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																										
Indeno(1,2,3-cd)pyrene (aq)	**-**																										
Dibenzo(a,h)anthracene (aq)	**-**																										
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																										
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			2.7		3	2.3	2.6	2.1	2.4	2.4	5.9	3.5		5.8	4.4			6.5		3.3	3.9	3.9	8.5	13.1	4.3	8.7	
pH	**6 - 9 (2&4)**		7		7.1	7.3	6.7	6.8	6.6	7	6.9	6.7		7.3	7.3			7.7		7.4	7.8	7.1	7.5	7.3	7.2	7.6	
Alkalinity (Total)			70		77	70	67	63	66	77	63	71		102	87			106		83	86	87	46	30	90	111	
Chloride	**250 (5)**		23		21	23	26	23	23	23	20	22		26	27			27		28	27	27	20	13	24	24	
Ammoniacal Nitrogen			0.07		0.02	0.04	0.02	0.02	0.02	0.1	0.04	0.05		0.06	0.02			0.02		0.02	0.02	0.06	0.07	0.07	0.08	0.09	
Nitrite			0.032		0.0025	0.005	0.008	0.0025	0.009	0.008	0.0025	0.007		0.021	0.009			0.009		0.02	0.019	0.03	0.012	0.01	0.02	0.021	
Nitrate	**50 (5)**		5.09		5.12	5.31	5.9	3.74	4.12	2.7	4.7	5.51		2.17	3.9			0.68		6.48	5.84	4.08	1.04	0.65	5.56	1.92	
Sulphate	**250 (5)**			18.60	18.80	18.10	17.73	18.79	18.61	20.18	14.35	19.42	18.60			18.30	15.30		15.63		15.30	14.11	7.65	5.18	15.68		11.05
Sulphide																0.005			0.027								
Calcium				38.50	40.20	39.20	39.73	37.73	36.06	37.90	33.96	40.20	43.90			40.11	40.80		33.63		41.53	38.82	20.28	13.34	40.56		32.83
Potassium				4.17	4.84	4.26	4.29	3.95	2.85	4.41	6.76	4.20	8.23			8.58	7.50		4.41		9.04	8.40	2.00	1.97	8.05		6.09
Magnesium				5.56	5.31	5.37	5.22	5.27	5.37	5.55	4.02	5.39	5.33			5.48	6.24		4.39		6.16	5.70	3.46	2.25	5.94		5.11
Sodium	**200(5)**			14.00	13.90	13.70	13.37	13.71	13.43	14.33	10.95	13.30	16.10			16.00	16.90		11.26		16.79	15.91	12.54	8.79	15.31		12.60
Biochemical Oxygen Demand			2.1		1.5	1.0		1.5	1.5	3.6	1.5	1.5		2.4	3.5			4.7		1.0	1.0		1.0	2.4	1.5	3.0	
Chemical Oxygen Demand			10		10	10	5	5	5	5	20	5		10	13			22		10	10	5	16	26	13	16	
Conductivity			310		312	317	313	294	297	345	268	304		358	337			341		357	352	324	189	127	334	347	
Total Oxidisable Nitrogen			5.12		5.12	5.31	5.91	3.74	4.13	2.71	4.7	5.52		2.19	3.91			0.69		6.5	5.86	4.11	1.05	0.66	5.58	1.94	
Total Phosphorus			0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125			0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	

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3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
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7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)				SW11																					
HEAVY METALS	µg/l		11/05/2021	24/01/2022	22/03/2022	28/03/2019	09/01/2019	14/01/2019	07/02/2019	11/02/2019	27/03/2019	28/03/2019	11/04/2019	29/04/2019	21/05/2019	22/05/2019	19/06/2019	20/06/2019	04/07/2019	05/07/2019	07/08/2019	08/08/2019	10/09/2019	11/09/2019	15/10/2019	06/11/2019	06/01/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.47	0.36	0.37	0.37	0.28			0.35		0.27	0.29			0.29		0.30		0.31		0.35		0.35	0.30	0.31	0.29
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025	0.025	0.025	0.025	0.057			0.070		0.063	0.062			0.025		0.025		0.025		0.025		0.063	0.066	0.073	0.060
Chromium (diss.filt)	50 (5)		0.125	0.125	0.125		0.125			0.784		0.250	0.250			0.250		0.250		0.250		0.250		0.250	0.250	0.250	0.250
Copper (diss.filt)	1 (AA) bioavailable $^{(see\ Note\ 1)}$ (1) $^{(see\ Note\ 4)}$ (2)	34.94	0.954	1.019	0.834	1.059	3.897			5.401		3.470	2.920			2.304		4.520		3.290		4.054		4.545	4.520	4.828	4.010
Iron (diss.)	1000 (AA) (1&2)		89	20	59	20	20			20		68	46			53		20		52		20		20	20	70	499
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025	0.0025	0.0025	0.0025			0.0025		0.0025	0.0025			0.0025		0.0025		0.0025		0.0025		0.0025	0.00666	0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{see\ note\ 1}$)	276.92	462.5127432	110.4786489	141.5291752	12.5	47			12.5		41.7600235	118			107.5021834		30.14793751		59		42.57309535		12.5	45	56.32873264	51.35564181
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{(see\ note\ 5)}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	1.42	0.91	0.88	0.99	1.67			1.90		1.58	1.80			1.53		1.72		1.81		1.78		1.64	1.93	2.01	1.84
Lead (diss.filt)	1.2$^{(see\ note\ 5)}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.025	0.025	0.025	0.125	0.125			0.125		0.125	0.125			0.125		0.125		0.125		0.125		0.125	0.125	0.125	0.125
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10	0.10	0.10	0.10	0.49	1.08			0.93		0.85	0.88			0.75		1.00		0.92		1.30		1.15	1.17	1.15	1.01
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{(see\ Note\ 2)}$	37.15	0.67	0.75	0.25	0.50	2.27			3.05		3.45	4.60			3.35		2.38		2.56		2.15		3.83	3.35	4.24	3.32
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.13	0.13	0.13					0.71		0.25	0.25			0.25		0.25		0.25		0.25		0.25	0.25	0.25	0.25
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025	0.025	0.025					0.078		0.025	0.025			0.025		0.250		0.025		0.062		0.120	0.077	0.025	0.025
Aluminium (diss.filt)			50	50	50	50	50			50		50	50			50		50		50		50		50	50	50	50
Vanadium (diss.filt)			0.025	0.025	0.025	0.025	0.108			0.134		0.115	0.076			0.058		0.104				0.126		0.150	0.119	0.113	0.100
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																										
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)																										
EC>C6-C8	15000 (7)																										
EC>C8-C10	300 (7)																										
EC>C10-C12	300 (7)																										
EC>C12-C16	300 (7)																										
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EC C5-C7	10 (7)																										
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EC>C21-C35	90 (7)																										
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)																										
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)																										
Ethylbenzene	300 (8)																										
p/m-Xylene																											
o-Xylene																											
Sum of detected Xylenes	500 (8)																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)																										
Acenaphthylene (aq)	-																										
Acenaphthene (aq)	-																										
Fluorene (aq)	-																										
Phenanthrene (aq)	-																										
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)																										
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)																										
Pyrene (aq)	-																										
Benzo(a)anthracene (aq)	-																										
Chrysene (aq)	-																										
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))																										
Indeno(1,2,3-cd)pyrene (aq)	-																										
Dibenzo(a,h)anthracene (aq)	-																										
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																										
INORGANICS	mg/l																										
Dissolved Organic Carbon			7.2	5.6	4.23			2.7	3.2		2.7			3	3.2		2.8		3.3		1.9		3.5		2.9	3	
pH	6 - 9 (2&4)		7.8	7.2	7.2			7.2	7.3		7.2			7.3	7.2		7.4		7		7.3		7.1		7.1	7	
Alkalinity (Total)			121	95	91			66	66		64			70	74		75		75		79		75		81	83	
Chloride	250 (5)		24	22	22			25	33		25			26	25		24		24		23		20		21	21	
Ammoniacal Nitrogen			0.11	0.04	0.02			0.02	0.02		0.02			0.04	0.06		0.04		0.07		0.05		0.02		0.02	0.05	
Nitrite			0.01	0.017	0.012			0.0025	0.0025		0.0025			0.009	0.012		0.01		0.016		0.01		0.01		0.0025	0.006	
Nitrate	50 (5)		0.23	3.71	3.77			6.54	9.01		7.71			5.79	4.94		5.9		5.24		7.5		7.27		5.38	5.26	
Sulphate	250 (5)		11.23	16.14	15.99	15.79	19.50			17.87		17.61	22.40			22.92		19.32		19.60		22.32		18.31	18.90	19.64	6.40
Sulphide										0.005		0.005				0.005		0.005				0.005		0.005		0.005	0.027
Calcium			43.72	41.37	38.39	37.44	40.30			43.24		39.44	41.50			40.22		40.08		41.60		41.80		40.12	42.20	42.55	17.44
Potassium			7.37	8.43	7.96	7.23	4.87			5.56		5.14	5.11			4.99		5.10		5.21		5.47		5.32	5.47	5.76	1.62
Magnesium			6.87	5.98	5.69	6.24	5.22			5.46		4.99	5.56			5.87		5.29		5.71		5.41		5.01	5.37	5.45	3.07
Sodium	200(5)		15.81	15.67	15.17	16.89	13.70			13.47		13.79	14.20			14.44		14.25		14.50		14.17		13.48	14.20	13.88	8.73
Biochemical Oxygen Demand			2.7	1.5	1.5			1.0	1.5		1.5			1.5	1.0		1.0		1.0		1.0		1.0		1.5	1.0	
Chemical Oxygen Demand			21	12	25			10	10		5			10	10		10		10		11		10		10	10	
Conductivity			349	330	331			335	343		320			326	324		325		323		333		311		316	324	
Total Oxidisable Nitrogen			0.24	3.73	3.78			6.54	9.01		7.71			5.8	4.95		5.91		5.26		7.51		7.28		5.38	5.27	
Total Phosphorus			0.125	0.125	0.125			0.125	0.125		0.125			0.125	0.3		0.125		0.125		0.125		0.125		0.125	0.125	

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7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW12																								
HEAVY METALS	µg/l		07/01/2020	22/01/2020	26/02/2020	18/03/2020	10/08/2020	07/09/2020	13/10/2020	10/11/2020	01/12/2020	11/01/2021	03/02/2021	09/03/2021	20/04/2021	21/04/2021	11/05/2021	23/06/2021	21/07/2021	05/08/2021	23/09/2021	20/10/2021	24/11/2021	08/12/2021	24/01/2022	22/02/2022	22/03/2022
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			0.31	0.37	0.32	0.33	0.45	0.38	0.35	0.32	0.30	0.44	0.29		0.29	0.27	0.30	0.46	0.41	0.50	0.50	0.41	0.56	0.35	0.41	0.34
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l			0.067	0.054	0.059	0.025	0.055	0.065	0.067	0.072	0.067	0.056	0.061		0.025	0.025	0.025	0.025	0.025	0.025	0.067	0.060	0.053	0.061	0.050	0.061
Chromium (diss.filt)	50 (5)			0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.274	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Copper (diss.filt)	1 (AA) bioavailable $^{(see\ Note\ 1)}$ (1) $^{(see\ Note\ 4)}$ (2)	34.94		4.034	5.000	4.060	4.450	5.462	5.300	4.427	4.647	3.936	5.151	3.347		2.728	2.810	2.439	2.249	2.576	3.760	6.482	5.178	5.669	4.080	4.871	3.736
Iron (diss.)	1000 (AA) (1&2)			114	43	95	20	55	20	60	66	118	80	177		72	120	56	45	79	96	20	20	46	140	49	198
Mercury (diss.filt)	0.07 MAC (1&2)			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{see\ note\ 1}$)	276.92		40.11120259	29	45	12.5	32.18435077	12.5	34.02126925	35.1370702	48.08128558	33.4305245	57.68180965		74.4	78.75065505	248.9263645	**825.5441911**	92.92661473	46.8183643	12.5	12.5	12.5	36.43666142	12.5	44.33007162
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	$4^{(see\ note\ 5)}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		1.83	1.62	1.62	1.50	1.80	1.94	1.74	1.90	2.48	1.81	1.74		1.54	1.67	1.92	3.20	1.43	1.25	1.90	1.66	1.63	1.75	1.52	1.71
Lead (diss.filt)	$1.2^{(see\ note\ 5)}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		0.125	0.125	0.055	0.025	0.074341658	0.025	0.025	0.025	0.025	0.079672698	0.025		0.087060891	0.025	0.025	0.025	0.025	0.065	0.090507705	0.070653765	0.116935013	0.025	0.107126439	0.025
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10		1.05	0.83	0.85	0.93	0.71	0.79	0.69	0.68	0.65	0.71	0.52		0.62	0.52	0.24	0.10	0.26	0.68	1.26	0.90	0.77	0.77	0.65	0.73
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{(see\ Note\ 2)}$	37.15		2.56	6.07	2.65	1.40	1.61	4.83	1.91	2.13	2.84	2.40	2.25		1.53	1.90	2.47	2.89	3.88	0.25	3.91	2.02	2.97	3.79	2.52	2.18
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)						0.13	0.13	0.14	0.13	0.13	0.13	0.13	0.13		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)						0.109	0.084	0.062	0.025	0.025	0.125	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.105	0.025	0.066	0.108	0.066	0.025
Aluminium (diss.filt)				50	50	50	50	50	50	50	50	50	50	50		50	50	50	50	50	50	50	50	50	50	50	50
Vanadium (diss.filt)				0.115	0.151	0.136	0.138	0.203	0.152	0.129	0.125	0.105	0.165	0.089		0.095	0.025	0.065	0.025	0.097	0.212	0.201	0.162	0.225	0.124	0.167	0.115
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																										
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)																										
EC>C6-C8	15000 (7)																										
EC>C8-C10	300 (7)																										
EC>C10-C12	300 (7)																										
EC>C12-C16	300 (7)																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	10 (7)																										
EC>C7-C8	700 (7)																										
EC>C8-C10	300 (7)																										
EC>C10-C12	90 (7)																										
EC>C12-C16	90 (7)																										
EC>C16-C21	90 (7)																										
EC>C21-C35	90 (7)																										
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)																										
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)																										
Ethylbenzene	300 (8)																										
p/m-Xylene																											
o-Xylene																											
Sum of detected Xylenes	500 (8)																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)																										
Acenaphthylene (aq)	-																										
Acenaphthene (aq)	-																										
Fluorene (aq)	-																										
Phenanthrene (aq)	-																										
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)																										
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)																										
Pyrene (aq)	-																										
Benzo(a)anthracene (aq)	-																										
Chrysene (aq)	-																										
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																										
Indeno(1,2,3-cd)pyrene (aq)	-																										
Dibenzo(a,h)anthracene (aq)	-																										
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																										
INORGANICS	mg/l																										
Dissolved Organic Carbon			2.9	2.8	3.5	3.4	2.2	4.8	4.1	3.5	3	4.9	7.2	3.7	5.6		2.9	4			3.8	3.7	4.8	5.6	4.6	3.8	2.97
pH	6 - 9 (2&4)		7.5	7.3	7.1	6.9	7.3	7.4	7.2	6.9	7	7.1	6.9	7	7.2		7.4	7.2	7.1	7.3	7.7	7.2	7.4	7	7	7	6.9
Alkalinity (Total)			80	77	68	72	69	73	78	75	76	76	71	78	85		86	95	107	89	97	88	83	73	79	71	78
Chloride	250 (5)		24	22	23	23	22	22	24	28	29	25	19	22	20		21	27	22	25	22	19	20	20	22	28	23
Ammoniacal Nitrogen			0.06	0.08	0.1	0.08	0.02	0.07	0.02	0.02	0.04	0.02	0.05	0.07	0.11		0.05	0.1	0.15	0.58	0.06	0.02	0.04	0.04	0.06	0.09	0.05
Nitrite			0.009	0.008	0.005	0.0025	0.007	0.013	0.007	0.009	0.009	0.0025	0.006	0.0025	0.016		0.005	0.037	0.008	0.116	0.008	0.015	0.01	0.0025	0.009	0.005	0.009
Nitrate	50 (5)		5.29	5.41	3.51	3.63	3.64	4.19	5.13	6.02	6.32	5.5	4.09	2.74	3.8		3.06	2.23	0.6	3.44	1.85	0.6	5.31	5.92	6.18	4.65	5.44
Sulphate	250 (5)			18.30	14.85	16.46	17.30	16.18	18.16	18.02	16.73	16.64	13.23	16.74		13.90	17.89	18.86	15.91	15.44	22.88	21.03	20.86	12.51	18.90	14.92	18.00
Sulphide																											
Calcium				40.82	36.50	38.00	36.39	36.63	42.27	45.34	43.92	41.43	36.27	39.94		30.96	39.76	42.07	41.20	31.30	42.82	44.18	45.01	31.85	44.08	39.74	40.81
Potassium				5.34	5.32	5.73	5.14	6.32	5.85	6.08	5.70	5.34	5.36	5.24		4.00	4.45	5.62	6.37	7.91	6.51	6.50	6.61	5.82	5.33	6.08	5.01
Magnesium				5.30	4.40	4.84	4.67	4.65	5.28	5.60	5.39	5.30	4.41	5.10		3.92	5.26	5.72	5.92	4.77	5.76	5.19	5.29	3.69	5.55	4.77	5.07
Sodium	200(5)			13.65	12.00	13.00	12.70	12.02	12.83	14.20	13.59	13.17	11.42	13.47		10.20	12.99	14.46	14.60	11.44	15.44	13.17	13.35	9.35	13.63	14.22	12.62
Biochemical Oxygen Demand			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.0		3.2	1.5	3.6	2.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5
Chemical Oxygen Demand			10	10	10	10	10	10	10	10	5	5	5	5	5		5	5	25	13	10	11	5	15	11	5	25
Conductivity			326	315	288	294	294	290	320	325	334	322	276	301	312		311	326	323	332	338	335	314	300	327	312	323
Total Oxidisable Nitrogen			5.3	5.42	3.51	3.63	3.65	4.2	5.14	6.03	6.33	5.5	4.1	2.74	3.82		3.06	2.27	0.61	3.56	1.85	0.61	5.32	5.92	6.19	4.65	5.45
Total Phosphorus			0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.28		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW13																									
HEAVY METALS	µg/l		09/01/2019	14/01/2019	07/02/2019	11/02/2019	27/03/2019	28/03/2019	11/04/2019	29/04/2019	21/05/2019	22/05/2019	19/06/2019	20/06/2019	04/07/2019	05/07/2019	10/09/2019	11/09/2019	15/10/2019	06/11/2019	06/01/2020	07/01/2020	22/01/2020	09/01/2019	15/01/2019	07/02/2019	11/02/2019	27/03/2019
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.40			0.44		0.26	0.37			0.34		0.47		0.39		0.57	0.54	0.48	0.37		0.34	0.37			0.44	
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025			0.025		0.025	0.025			0.025		0.025		0.025		0.025	0.025	0.025	0.025		0.025	0.025			0.025	
Chromium (diss.filt)	50 (5)		0.125			0.250		0.250	0.250			0.250		0.250		0.250		0.250	0.250	0.250	0.250		0.125	0.125			0.250	
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	1.506			2.996		1.239	1.840			0.911		1.923		1.050		7.480	2.550	2.186	1.739		1.313	1.499			2.523	
Iron (diss.)	1000 (AA) (1&2)		617			404		223	397			104		645		211		870	720	835	499		448	607			401	
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025			0.0025		0.0025	0.0025			0.0025		0.0025		0.0025		0.0025	0.0025	0.0025	0.0025		0.0025	0.0025			0.0025	
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	55			42.48329548		61.5665007	37			48.20306999		38.51152633		56		65.64872632	62	57.4342759	61.09027831		59.57615369	79			40.77022205	
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	1.19			1.25		1.04	1.13			0.85		1.31		1.03		1.69	1.71	1.54	1.25		1.30	1.23			1.18	
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.125			0.33314555		0.125	0.125			0.125		0.125		0.125		0.125	0.125	0.125	0.125		0.125	0.125			0.295561103	
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10	0.26			0.20		0.35	0.42			0.31		0.30		0.39		0.45	0.44	0.37	0.30		0.40	0.29			0.10	
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	3.01			4.89		1.94	3.87			0.50		2.28		0.50		5.15	2.85	3.19	2.73		1.72	3.69			4.20	
Iron (Total)																												
Manganese (Total)																												
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)					0.25		0.25	0.25			0.25		0.25		0.25		0.25	0.25	0.25	0.25						0.25	
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)					0.025		0.025	0.025			0.025		0.025		0.025		0.025	0.025	0.025	0.025						0.025	
Aluminium (diss.filt)			50			102.5554659		50	50			50		50		50		50	50	50	50		50	50			102.049306	
Vanadium (diss.filt)			0.165			0.346		0.098	0.129			0.059		0.205				0.242	0.220	0.187	0.158		0.122	0.152			0.338	
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																											
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)																											
EC>C6-C8	15000 (7)																											
EC>C8-C10	300 (7)																											
EC>C10-C12	300 (7)																											
EC>C12-C16	300 (7)																											
EC>C16-C21																												
EC>C21-C35																												
EC>C35-C44																												
Aromatics																												
EC C5-C7	10 (7)																											
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EC>C8-C10	300 (7)																											
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Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)																											
Acenaphthylene (aq)	-																											
Acenaphthene (aq)	-																											
Fluorene (aq)	-																											
Phenanthrene (aq)	-																											
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)																											
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)																											
Pyrene (aq)	-																											
Benzo(a)anthracene (aq)	-																											
Chrysene (aq)	-																											
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																											
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)																											
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																											
Indeno(1,2,3-cd)pyrene (aq)	-																											
Dibenzo(a,h)anthracene (aq)	-																											
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																											
INORGANICS	mg/l																											
Dissolved Organic Carbon				8.7	10.7		4.3			7.5	4.4		10.6		4.7		11.7		9.6	9.2		7.2	5.3		7.6	10.6		4.3
pH	6 - 9 (2&4)			7.4	7.4		7.4			7.6	7.7		7.6		7.7		7.5		7.7	7.5		7.6	7.7		7.6	7.4		7.4
Alkalinity (Total)				57	25		62			54	86		56		86		55		61	61		51	63		63	27		64
Chloride	250 (5)			17	15		20			18	19		16		20		15		17	17		16	18		18	14		20
Ammoniacal Nitrogen				0.02	0.06		0.02			0.02	0.02		0.05		0.02		0.02		0.15	0.04		0.05	0.05		0.06	0.06		0.07
Nitrite				0.009	0.007		0.006			0.005	0.008		0.009		0.007		0.008		0.011	0.007		0.01	0.008		0.007	0.007		0.005
Nitrate	50 (5)			1.08	0.84		1.84			0.83	1.03		0.87		1.04		1.31		1.19	1.08		1.09	1.58		1.14	0.83		1.57
Sulphate	250 (5)		9.73			5.63		10.66	8.77			10.80		9.13		11.10		9.37	9.56	9.16	6.35		10.20	10.10			5.68	
Sulphide						0.005		0.005				0.005		0.005				0.005		0.005	0.034						0.005	
Calcium			24.30			12.01		27.29	23.10			32.64		22.76		34.90		23.44	25.50	24.83	17.42		27.07	25.70			11.98	
Potassium			1.92			2.21		2.11	1.78			2.21		1.64		2.41		1.96	3.04	2.27	1.64		2.44	2.00			2.25	
Magnesium			4.40			2.17		4.57	4.29			5.95		4.26		6.36		4.02	4.42	4.37	3.08		4.56	4.65			2.17	
Sodium	200(5)		11.20			9.65		12.94	11.60			13.01		10.84		13.50		10.76	11.60	11.18	8.78		12.29	11.50			9.61	
Biochemical Oxygen Demand				1.0	2.5		1.5			1.5	1.0		1.0		1.0		1.0		1.5	1.0		1.0	1.0		1.5	2.2		1.5
Chemical Oxygen Demand				22	36		10			22	10		28		10		33		29	25		10	10		20	35		10
Conductivity				213	128		229			200	264		193		272		193		323	207		187	225		223	127		231
Total Oxidisable Nitrogen				1.09	0.85		1.85			0.83	1.04		0.88		1.05		1.32		1.2	1.09		1.1	1.59		1.15	0.84		1.57
Total Phosphorus				0.125	0.125		0.125			0.125	0.125		0.125		0.125		0.125		0.125	0.125		0.125	0.125		0.125	0.125		0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW14																								
HEAVY METALS	µg/l		28/03/2019	11/04/2019	29/04/2019	21/05/2019	22/05/2019	19/06/2019	20/06/2019	04/07/2019	05/07/2019	07/08/2019	08/08/2019	10/09/2019	11/09/2019	15/10/2019	06/11/2019	06/01/2020	07/01/2020	22/01/2020	26/02/2020	18/03/2020	10/08/2020	07/09/2020	13/10/2020	10/11/2020	01/12/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.28	0.35			0.32		0.46		0.40		0.56		0.57	0.53	0.46	0.37		0.33	0.37	0.34	0.56	0.55	0.58	0.45	0.42
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**		0.025	0.025			0.025		0.025		0.025		0.025		0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Chromium (diss.filt)	50 (5)		0.250	0.250			0.250		0.250		0.250		0.250		0.250	0.250	1.200	0.250		0.125	0.125	0.125	0.252	0.320	0.361	0.125	0.125
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	**34.94**	1.297	2.650			1.010		11.653		1.230		2.360		2.067	2.450	0.250	1.496		1.302	1.850	1.590	1.910	1.929	2.410	1.634	1.553
Iron (diss.)	1000 (AA) (1&2)		275	382			110		656		228		834		910	740	20	499		446	279	416	899	729	765	566	622
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025			0.0025		0.0025		0.0025		0.0025		0.0025	0.0112	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	**276.92**	90.23725254	55			86.79994784		68.69417832		110		61.10081185		89.07583368	80	12.5	61.09027831		80.90689267	77	52	82	49.01545585	52.90672926	84.93694948	85.15405081
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	**14.98**	1.11	1.11			0.94		1.37		1.13		1.66		1.73	1.68	0.93	1.24		1.36	1.37	1.10	1.72	1.63	1.74	1.49	1.53
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	**9.64**	0.125	0.125			0.125		0.125		0.125		0.125		0.125	0.125	0.125	0.125		0.125	0.125	0.206	0.177	0.246259469	0.317	0.128245815	0.127463591
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	**10**	0.33	0.40			0.29		0.31		0.35		0.47		0.42	0.43	0.48	0.30		0.39	0.32	0.10	0.10	0.10	0.10	0.10	0.10
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	**37.15**	2.07	2.64			0.50		5.81		1.04		2.08		2.79	2.95	0.50	3.08		1.64	4.84	3.53	2.28	2.48	3.16	2.60	2.76
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.25	0.25			0.25		0.25		0.25		0.25		0.25	0.25	0.60	0.25					0.25	0.26	0.35	0.13	0.13
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025	0.025			0.025		0.025		0.025		0.025		0.025	0.025	0.025	0.025					0.025	0.064	0.025	0.025	0.025
Aluminium (diss.filt)			50	50			50		50		50		50		50	50	50	50		50	50	50	50	50	106.7743716	50	50
Vanadium (diss.filt)			0.101	0.124			0.058		0.202				0.243		0.246	0.210	0.025	0.155		0.117	0.207	0.204	0.221	0.265	0.294	0.186	0.176
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																										
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)																										
EC>C6-C8	15000 (7)																										
EC>C8-C10	300 (7)																										
EC>C10-C12	300 (7)																										
EC>C12-C16	300 (7)																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	10 (7)																										
EC>C7-C8	700 (7)																										
EC>C8-C10	300 (7)																										
EC>C10-C12	90 (7)																										
EC>C12-C16	90 (7)																										
EC>C16-C21	90 (7)																										
EC>C21-C35	90 (7)																										
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)																										
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)																										
Ethylbenzene	300 (8)																										
p/m-Xylene																											
o-Xylene																											
Sum of detected Xylenes	500 (8)																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)																										
Acenaphthylene (aq)	-																										
Acenaphthene (aq)	-																										
Fluorene (aq)	-																										
Phenanthrene (aq)	-																										
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)																										
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)																										
Pyrene (aq)	-																										
Benzo(a)anthracene (aq)	-																										
Chrysene (aq)	-																										
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)																										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																										
Indeno(1,2,3-cd)pyrene (aq)	-																										
Dibenzo(a,h)anthracene (aq)	-																										
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																										
INORGANICS	mg/l																										
Dissolved Organic Carbon					9.3	4.5		10.7		4.5		7.7		11.9		9.6	5.6		7.2	5.1	5.9	8.4	8.3	10.3	12.9	8.1	7.3
pH	6 - 9 (2&4)				7.6	7.7		7.7		7.7		7.7		7.5		7.6	7.9		7.6	7.8	7.4	7.4	7.8	7.7	7.4	7.3	7.4
Alkalinity (Total)					55	87		57		88		66		55		61	101		52	63	37	31	63	56	44	56	57
Chloride	250 (5)				19	19		16		20		17		16		18	26		16	18	27	16	17	15	14	20	21
Ammoniacal Nitrogen					0.08	0.09		0.11		0.12		0.08		0.06		0.17	0.02		0.06	0.09	0.13	0.07	0.09	0.07	0.05	0.07	0.07
Nitrite					0.005	0.008		0.009		0.008		0.01		0.008		0.01	0.006		0.01	0.008	0.007	0.005	0.007	0.008	0.008	0.009	0.009
Nitrate	50 (5)				0.79	1		0.8		1.02		1.14		1.2		1.11	0.87		1.04	1.52	1.1	0.62	0.96	0.88	0.75	1.15	1.3
Sulphate	250 (5)		10.54	8.08			10.63		9.22		11.10		8.65		9.45	9.33	9.49	6.35		10.20	7.37	5.32	9.94	8.30	7.33	8.95	9.04
Sulphide			0.005				0.005		0.005				0.005		0.005		0.005	0.046									
Calcium			27.02	21.40			32.79		22.78		34.70		24.98		23.72	25.40	36.27	17.42		27.00	17.80	13.30	26.36	22.06	19.01	23.61	24.60
Potassium			2.14	1.64			2.22		1.66		2.45		2.25		2.06	2.89	7.24	1.64		2.54	2.43	1.77	2.26	2.17	2.38	2.44	2.45
Magnesium			4.56	3.98			6.03		4.30		6.42		4.71		4.08	4.41	6.53	3.08		4.60	2.95	2.46	4.57	3.69	3.20	3.96	4.05
Sodium	200(5)		12.89	10.80			13.07		10.91		13.60		11.06		10.72	11.60	16.82	8.78		12.46	15.90	10.00	11.90	9.68	9.47	11.24	11.52
Biochemical Oxygen Demand					1.5	1.0		1.0		1.0		1.0		1.0		1.5	1.0		1.0	1.0	1.0	1.0	1.0	2.3	1.0	1.0	1.0
Chemical Oxygen Demand					20	10		30		10		34		33		28	10		10	10	10	26	27	24	33	21	19
Conductivity					201	265		199		274		209		193		211	311		188	227	200	136	221	186	158	203	206
Total Oxidisable Nitrogen					0.79	1.01		0.81		1.03		1.15		1.21		1.12	0.88		1.05	1.53	1.11	0.62	0.97	0.89	0.76	1.16	1.31
Total Phosphorus					0.125	0.125		0.125		0.125		0.125		0.125		0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																								
HEAVY METALS	**µg/l**		**11/01/2021**	**03/02/2021**	**09/03/2021**	**20/04/2021**	**21/04/2021**	**11/05/2021**	**23/06/2021**	**21/07/2021**	**05/08/2021**	**23/09/2021**	**20/10/2021**	**24/11/2021**	**08/12/2021**	**24/01/2022**	**22/02/2022**	**22/03/2022**	**20/07/2016**	**09/08/2016**	**27/09/2016**	**09/01/2017**	**11/01/2017**	**06/03/2017**	**18/07/2017**	**20/07/2017**	**15/08/2017**
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.34	0.41	0.26		0.35	0.35	0.33	0.37	0.60	0.53	0.65	0.51	0.51	0.32	0.39	0.29				12.50		12.50	0.17		
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**		0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025				**5.000**		**5.000**	0.025		
Chromium (diss.filt)	**50 (5)**		0.125	0.260	0.125		0.125	0.125	0.125	0.125	0.290	0.125	0.364	0.125	0.285	0.125	0.125	0.125				12.500		12.500	0.125		0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	1.294	1.716	0.995		1.100	1.370	0.818	0.759	2.529	1.210	2.673	1.566	2.353	1.180	1.828	1.071				10.000		10.000	0.500		
Iron (diss.)	**1000 (AA) (1&2)**		410	502	243		408	440	191	92	589	859	**1068**	**1074**	314	398	234	265				50		**1160**	50		
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.006827251	0.0025	0.0025	0.0025	0.0025	0.0025				0.0025		0.0025	0.0025		
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	69.0180815	49.77411735	86.29435147		60.7	38.58542251	95.74745248	135.3483959	32.84833166	54.41150155	42.3062017	42.78164051	32.71093773	77.99004995	40.02301697	65.69236908				84		**570**	59		
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.30	1.24	1.16		1.25	0.97	1.02	1.01	1.59	1.34	1.85	1.48	1.25	1.21	1.13	1.09				12.50		12.50	1.05		
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.10839978	0.240707933	0.025		0.06296318	0.125038712	0.052340584	0.025	0.289448754	0.084	0.438838256	0.130349992	0.311115147	0.025	0.233387981	0.025				**12.5**		**12.5**	0.125		
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**	0.10	0.10	0.10		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10							0.44		0.10
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	2.71	3.66	1.90		1.80	1.63	1.04	0.25	1.74	0.90	3.77	2.64	4.12	1.72	3.37	1.56				10.00		10.00	1.18		
Iron (Total)																							165	11700	50		
Manganese (Total)																							108	633	82		
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.13	0.26	0.13		0.13	0.13	0.13	0.13	0.29	0.13	0.36	0.13	0.28	0.13	0.13	0.13							0.25		
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.125	0.025	0.025		0.058	0.025	0.025	0.088	0.025	0.025	0.025	0.025	0.025	0.096	0.025	0.111							0.025		0.025
Aluminium (diss.filt)			50	50	50		50	50	50	50	50	50	160.2610212	161.3917764	50	50	50	50				50		50	50		
Vanadium (diss.filt)			0.153	0.245	0.083		0.097	0.176	0.058	0.025	0.267	0.177	0.356	0.198	0.345	0.103	0.236	0.097							0.025		
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																					**8.90**		1.25		1.25	
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**																					25		25			10
EC>C6-C8	**15000 (7)**																					30		30			12.5
EC>C8-C10	**300 (7)**																					0.05		0.05			7.5
EC>C10-C12	**300 (7)**																					3.5					11
EC>C12-C16	**300 (7)**																					5		5			5
EC>C16-C21																						2.5		2.5			20
EC>C21-C35																						10		10			5
EC>C35-C44																						2.5		2.5			5
Aromatics																											
EC C5-C7	**10 (7)**																					0.025		0.025			1
EC>C7-C8	**700 (7)**																					0.025		0.025			2.5
EC>C8-C10	**300 (7)**																					0.025					25
EC>C10-C12	**90 (7)**																					3.5					11
EC>C12-C16	**90 (7)**																					3		3			12
EC>C16-C21	**90 (7)**																					15		15			5
EC>C21-C35	**90 (7)**																					15		15			5
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																										0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																										0.50
Ethylbenzene	**300 (8)**																										0.50
p/m-Xylene																											1.00
o-Xylene																											0.50
Sum of detected Xylenes	**500 (8)**																										
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																										
Acenaphthylene (aq)	**-**																										
Acenaphthene (aq)	**-**																										
Fluorene (aq)	**-**																										
Phenanthrene (aq)	**-**																										
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																										
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																										
Pyrene (aq)	**-**																										
Benzo(a)anthracene (aq)	**-**																										
Chrysene (aq)	**-**																										
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																										
Indeno(1,2,3-cd)pyrene (aq)	**-**																										
Dibenzo(a,h)anthracene (aq)	**-**																										
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																										
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			8.2	12.5	4.7	9.5		8.5	5.7			8.9	22.7	10	10.4	6.5	7.1	4.24	11	9.3	8.1	2.6		3.2	2.2		
pH	**6 - 9 (2&4)**		7.5	7.3	7.6	7.7		7.7	7.6	7.7	7.6	7.8	7.3	7.5	7.3	7.5	7.4	7.5	7.7	7.8	7.3			6.8	7.9		
Alkalinity (Total)			46	31	72	66		44	86	100	47	74	32	64	23	67	29	68	80	77	99	68		67	68		
Chloride	**250 (5)**		20	13	19	18		13	18	20	14	17	12	19	16	19	31	20	27	32	28	23		24	24		
Ammoniacal Nitrogen			0.07	0.07	0.06	0.07		0.02	0.11	0.13	0.06	0.06	0.02	0.06	0.05	0.1	0.05	0.07	0.033	0.005	0.005	0.09		0.34	0.1		
Nitrite			0.01	0.009	0.009	0.005		0.006	0.006	0.011	0.017	0.005	0.01	0.006	0.0025	0.012	0.005	0.007	0.67	0.075	0.11	0.022		0.01	0.028		
Nitrate	**50 (5)**		1.03	0.67	0.79	0.95		0.45	0.91	0.86	0.63	0.56	5.51	1.08	0.78	1.69	0.98	1.6	9.1	30	20	4.52		4.72	4.06		
Sulphate	**250 (5)**		7.69	5.30	10.35		7.26	5.84	10.09	11.31	8.47	9.55	7.62	7.56	4.46	10.50	7.30	10.25				13.70			18.10		
Sulphide																											
Calcium			20.44	13.73	29.47		20.36	17.31	32.43	36.70	15.59	28.13	15.02	15.22	9.26	29.03	16.02	28.34				32.20		35.60	36.20		
Potassium			2.01	1.99	2.25		1.51	1.48	2.15	2.52	1.93	2.11	2.19	2.24	2.19	2.37	2.73	2.07							3.66		
Magnesium			3.54	2.30	4.98		3.59	3.29	5.97	6.69	3.10	5.27	2.71	2.71	1.72	5.09	3.26	4.86				3.99		5.52	4.37		
Sodium	**200(5)**		12.63	8.85	12.78		9.41	8.46	12.92	14.39	8.02	11.80	8.60	8.68	7.15	12.51	15.76	12.39				13.50		13.70	13.50		
Biochemical Oxygen Demand			1.0	2.4	1.5	1.0		1.5	1.5	2.9	2.5	2.3	1.5	1.5	1.5	1.5	1.5	1.5									
Chemical Oxygen Demand			16	25	11	18		26	15	11	51	26	69	20	36	15	21	25									
Conductivity			189	131	243	222		154	262	289	169	234	131	221	123	238	192	244							309		
Total Oxidisable Nitrogen			1.04	0.68	0.8	0.95		0.46	0.92	0.87	0.65	0.56	5.52	1.09	0.78	1.7	0.98	1.61				4.54		4.73	4.09		
Total Phosphorus			0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125									

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8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																										
HEAVY METALS	µg/l		29/08/2017	30/08/2017	31/08/2017	05/09/2017	07/09/2017	12/09/2017	14/09/2017	18/09/2017	21/09/2017	22/09/2017	25/10/2017	30/11/2017	04/12/2017	12/01/2018	18/01/2018	17/04/2018	18/04/2018	26/06/2018	27/06/2018	03/10/2018	04/10/2018	09/01/2019	14/01/2019	07/02/2019	11/02/2019	27/03/2019
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.26		0.27	0.31	0.32	0.36	0.43	0.28	0.35		0.22	0.22	0.20	0.35		0.20			0.17	0.17		0.16			0.28	
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025		0.025	0.050	0.051	0.025	0.051	0.054	0.053		0.025	0.055	0.025	0.025		0.025			0.025	0.025		0.025			0.025	
Chromium (diss.filt)	50 (5)		0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125		0.125			0.125	0.125		0.125			0.250	
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	2.250		1.870	1.840	1.490	3.160	3.930	2.300	3.270		2.030	2.360	2.010	3.280		1.190			0.500	0.500		1.262			3.582	
Iron (diss.)	1000 (AA) (1&2)		116		50	109	149	132	50	143	116		49	20	20	56		40			20	20		20			20	
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025		0.0025	0.0025		0.0025			0.0025	0.0025		0.0025			0.0025	
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	179		197	222	265	135	92	131	128		78	86.8	81.9	44		98			128	97		77			38.3424324	
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	1.65		1.60	1.82	1.73	1.94	2.04	1.69	2.10		1.52	1.84	1.83	1.47		1.42			1.25	1.32		1.18			1.63	
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125		0.125			0.125	0.125		0.125			0.125	
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10	0.70		0.10	0.74	0.72	0.72	0.78	0.78	0.78		0.78	0.75	0.73	0.45		0.59			0.71	0.70		0.68			0.76	
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	3.30		1.25	1.83	3.72	2.81	2.23	1.95	2.74		1.15	1.94	1.80	2.70		1.50			1.02	2.65		1.41			3.21	
Iron (Total)													220				442.6013091		217									
Manganese (Total)													82				50.42586821		97									
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)																										0.25	
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)				0.025																						0.087	
Aluminium (diss.filt)			50		50	50	50	50	50	50	50		50	5	50	50		50			20	50		50			50	
Vanadium (diss.filt)			0.101		0.095	0.077	0.078	0.100	0.184	0.082	0.115		0.125	0.077	0.062	0.188		0.054			0.025	0.080		0.025			0.136	
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)			22.50								22.50					22.50		22.50	22.50			22.50					
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)				10												10		10	10			10					
EC>C6-C8	15000 (7)				12.5												12.5		12.5	12.5			12.5					
EC>C8-C10	300 (7)				7.5												7.5		7.5	7.5			7.5					
EC>C10-C12	300 (7)				11												5		5	5			5					
EC>C12-C16	300 (7)				5												5		5	5			5					
EC>C16-C21					20												5		5	5			5					
EC>C21-C35					5												5		5	5			5					
EC>C35-C44					5												5		5	5			5					
Aromatics																												
EC C5-C7	10 (7)				1												1		1	1			1					
EC>C7-C8	700 (7)				2.5												2.5		2.5	2.5			2.5					
EC>C8-C10	300 (7)				25												25		25	25			25					
EC>C10-C12	90 (7)				11												5		5	5			5					
EC>C12-C16	90 (7)				12												5		5	5			5					
EC>C16-C21	90 (7)				5												5		5	5			5					
EC>C21-C35	90 (7)				5												5		5	5			5					
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)			0.50	0.50							0.50							0.50									
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)			0.50	0.50							0.50							0.50									
Ethylbenzene	300 (8)			0.50	0.50							0.50							0.50									
p/m-Xylene				1.00	1.00							1.00							1.00									
o-Xylene				0.50	0.50							0.50							0.50									
Sum of detected Xylenes	500 (8)																											
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)																0.003		0.003	0.003			0.003					
Acenaphthylene (aq)	-																0.001		0.001	0.001			0.001					
Acenaphthene (aq)	-																0.001		0.001	0.001			0.001					
Fluorene (aq)	-																0.001		0.001	0.001			0.001					
Phenanthrene (aq)	-																0.002		0.002	0.002			0.002					
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)																0.001		0.001	0.001			0.001					
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)																0.001		0.003	0.001			0.001					
Pyrene (aq)	-																0.001		0.001	0.001			0.001					
Benzo(a)anthracene (aq)	-																0.001		0.001	0.001			0.001					
Chrysene (aq)	-																0.001		0.001	0.001			0.001					
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																0.001		0.001	0.001			0.001					
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)																0.001		0.001	0.001			0.001					
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																0.001		0.001	0.001			0.001					
Indeno(1,2,3-cd)pyrene (aq)	-																0.001		0.001	0.001			0.001					
Dibenzo(a,h)anthracene (aq)	-																0.002		0.002	0.002			0.002					
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																0.002		0.002	0.002			0.002					
INORGANICS	mg/l																											
Dissolved Organic Carbon			3.1		2.7	2.5	2.4	4	5.5	2.9	5.9		2.4	2.4	2.5		3.36		2.1	1.6		1.8			1.7	3.5		2.3
pH	6 - 9 (2&4)		6.6		7.5	6.6	6.8	6.7	7	7.3	6.6		6.8	6.9	6.9		7.1		7	6.9		6.6			6.7	6.8		6.5
Alkalinity (Total)			81		79	74	76	75	78	76	76		74	77	75		50		72	68		66			67	64		68
Chloride	250 (5)		25		23	23	24	23	21	23	22		23	24	23		19		22	24		24			23	27		23
Ammoniacal Nitrogen			0.76		0.59	0.29	0.31	0.27	0.19		0.21		0.17	0.18	0.19		0.1		0.18	0.33		0.05			0.06	0.07		0.08
Nitrite			0.012		0.013	0.016	0.017	0.018	0.013		0.016		0.022	0.016	0.02		0.006		0.015	0.044		0.032			0.022	0.018		0.024
Nitrate	50 (5)		4.38		4.37	4.34	4.37	4.12	4.01		3.96		4.58	4.9	4.78		2.63		5.23	5.21		4.7			4.88	7.1		5.97
Sulphate	250 (5)		18.60		15.80	19.30	18.90	16.40	15.90	17.40	16.10		17.80	17.70	18.40	10.10		19.50			20.80	20.60		19.90			18.93	
Sulphide																											0.005	
Calcium			39.00		38.20	38.70	39.30	37.20	36.80	38.10	36.70		39.60	40.50	39.10	25.40		38.90			38.50	36.30		37.70			39.02	
Potassium			4.78		4.47	3.93	4.25	5.16	5.60	3.92	4.50		4.57	4.53	5.12	3.92		3.44			3.34	3.43		3.51			4.51	
Magnesium			5.30		3.81	5.11	5.60	4.29	4.93	5.14	4.59		5.07	4.98	0.09	3.14		5.30			5.70	5.45		5.27			4.99	
Sodium	200(5)		14.00		13.70	13.60	14.00	12.70	11.80	13.20	12.40		14.50	13.90	14.10	10.70		13.60			14.20	13.90		13.70			12.86	
Biochemical Oxygen Demand			1.5		1.5	1.0	1.0	1.5	1.5		1.5		1.5	1.5	1.0		1.5		1.5	1.5		3.3			1.0	1.5		1.5
Chemical Oxygen Demand			7.5		7.5	7.5	16	16			7.5		20	10	5		10		10	10		10			10	10		5
Conductivity			336		338	314	319	313	307	336	305		315	321	320		227		314	309		302			317	315		307
Total Oxidisable Nitrogen			4.39		4.38	4.34	4.39	4.14	4.02		3.98		4.6	4.92	4.8		2.64		5.24	5.25		4.73			4.9	7.12		5.99
Total Phosphorus			0.125		0.125	0.125	0.125	0.125	0.125		0.125		0.125	0.125	0.125		0.125		0.125	0.125		0.125			0.125	0.125		0.125

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Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW2																								
HEAVY METALS	**µg/l**		28/03/2019	11/04/2019	29/04/2019	21/05/2019	22/05/2019	19/06/2019	20/06/2019	04/07/2019	05/07/2019	07/08/2019	08/08/2019	10/09/2019	11/09/2019	15/10/2019	06/11/2019	06/01/2020	07/01/2020	22/01/2020	26/02/2020	18/03/2020	10/08/2020	07/09/2020	13/10/2020	10/11/2020	01/12/2020
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.16	0.16			0.19		0.19		0.19		0.23		0.26	0.22	0.21	0.18		0.19	0.28	0.24	0.23	0.26	0.29	0.22	0.21
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**		0.025	0.025			0.025		0.025		0.025		0.025		0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.051	0.051	0.053
Chromium (diss.filt)	**50 (5)**		0.250	0.250			0.250		0.250		0.250		0.250		0.250	0.250	0.250	0.250		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	1.300	0.798			0.610		1.205		0.500		1.089		2.944	2.160	1.870	1.517		6.204	2.743	1.799	1.893	2.430	3.300	1.886	1.732
Iron (diss.)	**1000 (AA) (1&2)**		20	20			20		20		20		51		20	20	45	20		20	41	20	20	20	20	20	20
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025	0.0025			0.0025		0.0025		0.0025		0.0025		0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	43.94443277	80			94.1477055		59.06830019		71		89.44973363		36.88464272	77	63.83462516	49.17352011		47.69727505	61.20970173	55.4852916	42.5914354	61.56399394	37.99301083	52.47360785	48.08210074
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.14	1.18			1.15		1.12		1.10		1.17		1.33	1.51	1.48	1.28		1.35	1.55	1.47	1.23	1.41	1.73	1.37	1.39
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.125	0.125			0.125		0.125		0.125		0.125		0.125	0.125	0.125	0.125		0.125	0.125	0.025	0.025	0.025	0.077	0.025	0.025
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**	0.69	0.73			0.68		0.76		0.64		0.61		0.98	0.90	0.88	0.71		0.81	0.69	0.68	0.62	0.52	0.59	0.49	0.53
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	1.93	1.67			1.40		1.04		1.45		1.57		2.63	3.34	2.53	2.12		4.83	2.16	2.31	1.44	1.71	7.09	2.55	2.31
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.25	0.25			0.25		0.25		0.25		0.25		0.25	0.25	0.25	0.25					0.13	0.13	0.13	0.13	0.13
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.108	0.097			0.068		0.059		0.051		0.025		0.025	0.025	0.058	0.050					0.065	0.133	0.108	0.101	0.150
Aluminium (diss.filt)			50	50			50		50		50		50		50	50	102.2297108	50		50	50	50	50	50	50	50	50
Vanadium (diss.filt)			0.060	0.025			0.025		0.025				0.066		0.108	0.145	0.068	0.059		0.058	0.128	0.105	0.068	0.101	0.094	0.067	0.064
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																										
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**																										
EC>C6-C8	**15000 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**300 (7)**																										
EC>C12-C16	**300 (7)**																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	**10 (7)**																										
EC>C7-C8	**700 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**90 (7)**																										
EC>C12-C16	**90 (7)**																										
EC>C16-C21	**90 (7)**																										
EC>C21-C35	**90 (7)**																										
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																										
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																										
Ethylbenzene	**300 (8)**																										
p/m-Xylene																											
o-Xylene																											
Sum of detected Xylenes	**500 (8)**																										
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																										
Acenaphthylene (aq)	**-**																										
Acenaphthene (aq)	**-**																										
Fluorene (aq)	**-**																										
Phenanthrene (aq)	**-**																										
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																										
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																										
Pyrene (aq)	**-**																										
Benzo(a)anthracene (aq)	**-**																										
Chrysene (aq)	**-**																										
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																										
Indeno(1,2,3-cd)pyrene (aq)	**-**																										
Dibenzo(a,h)anthracene (aq)	**-**																										
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																										
INORGANICS	**mg/l**																										
Dissolved Organic Carbon					1.9	1.7		1.9		1.8		1.8		2.4		2.4	2.3		2	2	2.5	3.5	1.3	3.2	3.8	3.5	2.2
pH	**6 - 9 (2&4)**				6.7	7.1		6.7		6.6		6.5		6.8		6.7	6.9		7.1	7	6.9	6.6	6.7	7.3	6.7	6.5	6.7
Alkalinity (Total)					67	66		70		67		73		72		75	75		70	71	66	67	69	70	75	72	71
Chloride	**250 (5)**				23	22		23		22		21		21		22	22		22	22	22	23	23	22	24	27	26
Ammoniacal Nitrogen					0.02	0.04		0.05		0.06		0.15		0.09		0.14	0.16		0.17	0.15	0.16	0.19	0.09	0.13	0.09	0.11	0.14
Nitrite					0.013	0.015		0.012		0.013		0.05		0.008		0.007	0.012		0.012	0.01	0.006	0.011	0.029	0.019	0.018	0.021	0.019
Nitrate	**50 (5)**				5.18	5.12		5.38		5.19		6.2		6.59		5.05	5.37		5.09	5.29	4.34	5.18	4.52	4.71	5.1	5.58	5.54
Sulphate	**250 (5)**		19.28	20.90			19.76		19.35		19.00		19.50		18.74	19.40	19.77	17.24		19.10	17.06	18.36	18.29	17.58	18.36	18.16	18.10
Sulphide			0.005				0.005		0.005				0.005		0.005		0.005	0.01									
Calcium			38.58	38.20			36.32		37.81		37.50		37.20		39.17	40.60	39.71	32.90		39.72	38.28	37.75	37.70	37.02	40.78	39.93	39.76
Potassium			3.66	3.35			3.01		3.58		3.43		3.48		4.47	4.16	4.32	3.16		4.03	4.29	4.52	4.21	4.50	4.90	4.32	4.14
Magnesium			5.18	5.43			5.36		5.29		5.52		5.14		5.15	5.49	5.45	4.54		5.42	4.90	5.13	5.11	4.94	5.25	5.34	5.26
Sodium	**200(5)**		13.79	14.00			13.65		13.94		13.90		13.45		13.71	14.30	13.99	11.80		14.12	12.80	13.43	13.49	12.70	13.12	13.81	13.53
Biochemical Oxygen Demand					1.5	1.0		1.0		1.0		3.3		1.0		1.5	1.0		1.0	1.0	1.0	1.0	1.0	2.1	1.0	1.0	1.0
Chemical Oxygen Demand					10	10		10		10		38		10		10	10		10	10	10	10	10	10	10	10	23
Conductivity					302	298		323		300		304		305		310	315		351	325	286	306	303	301	310	317	268
Total Oxidisable Nitrogen					5.19	5.13		5.39		5.2		6.25		6.6		5.06	5.38		5.1	5.3	4.35	5.19	4.55	4.73	5.12	5.6	5.56
Total Phosphorus					0.125	0.125		0.125		0.125		0.125		0.125		0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																								
HEAVY METALS	**µg/l**		**11/01/2021**	**03/02/2021**	**09/03/2021**	**20/04/2021**	**21/04/2021**	**11/05/2021**	**23/06/2021**	**21/07/2021**	**05/08/2021**	**23/09/2021**	**20/10/2021**	**24/11/2021**	**08/12/2021**	**24/01/2022**	**22/02/2022**	**22/03/2022**	**20/07/2016**	**09/08/2016**	**27/09/2016**	**09/01/2017**	**11/01/2017**	**06/03/2017**	**18/07/2017**	**20/07/2017**	**15/08/2017**
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.22	0.31	0.17		0.17	0.16	0.17	0.15	0.15	0.20	0.37	0.21	0.49	0.17	0.33	0.17				12.50		12.50	0.35		
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**		0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025				**5.000**		**5.000**	0.025		
Chromium (diss.filt)	**50 (5)**		0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125				12.500		12.500	0.125		0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	1.429	2.631	1.099		0.904	0.899	0.504	0.250	0.250	0.560	3.957	1.722	4.569	1.288	3.156	1.102				10.000		10.000	0.500		
Iron (diss.)	**1000 (AA) (1&2)**		20	56	20		20	20	50	20	20	20	20	20	62	20	44	20				50		144	50		
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025				0.0025		0.0025	0.0025		
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	47.7507737	46.35084505	48.55393932		49.25986718	62.33119407	59.89238438	52.88263933	12.5	48.68855327	12.5	12.5	12.5	38.33249921	39.029063	35.33111448				**277**		**301**	**486**		
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.34	1.56	1.18		1.21	1.25	1.09	1.06	0.98	1.03	1.60	1.22	1.72	1.18	1.29	1.16				12.50		12.50	1.67		
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.07265348	0.025	0.025	0.025				**12.5**		**12.5**	0.125		
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**	0.46	0.56	0.36		0.42	0.30	0.21	0.23	0.25	0.24	0.89	0.46	0.54	0.40	0.35	0.44							0.41		0.10
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	2.21	2.33	2.42		1.64	1.38	1.20	2.12	2.73	2.44	2.12	2.65	3.33	2.83	2.78	1.15				10.00		10.00	4.69		
Iron (Total)																							894	697	402		
Manganese (Total)																							320	356	575		
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.13	0.13	0.13		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13							0.25		
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.109	0.083	0.110		0.091	0.168	0.025	0.162	0.115	0.071	0.081	0.025	0.064	0.097	0.088	0.129							0.025		0.025
Aluminium (diss.filt)			50	50	50		50	50	50	50	50	50	50	50	50	50	50	50				50		50	50		
Vanadium (diss.filt)			0.059	0.114	0.052		0.025	0.025	0.025	0.025	0.025	0.025	0.150	0.079	0.212	0.059	0.164	0.056							0.025		
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																									1.25	
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**																					25		25			10
EC>C6-C8	**15000 (7)**																					30		30			12.5
EC>C8-C10	**300 (7)**																					0.05		0.05			7.5
EC>C10-C12	**300 (7)**																					3.5					5
EC>C12-C16	**300 (7)**																					5		5			5
EC>C16-C21																						2.5		2.5			5
EC>C21-C35																						10		10			5
EC>C35-C44																						2.5		2.5			5
Aromatics																											
EC C5-C7	**10 (7)**																					0.025		0.025			1
EC>C7-C8	**700 (7)**																					0.025		0.025			2.5
EC>C8-C10	**300 (7)**																					0.025					25
EC>C10-C12	**90 (7)**																					3.5					5
EC>C12-C16	**90 (7)**																					3		3			5
EC>C16-C21	**90 (7)**																					15		15			5
EC>C21-C35	**90 (7)**																					15		15			5
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																										0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																										0.50
Ethylbenzene	**300 (8)**																										0.50
p/m-Xylene																											1.00
o-Xylene																											0.50
Sum of detected Xylenes	**500 (8)**																										
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																										
Acenaphthylene (aq)	**-**																										
Acenaphthene (aq)	**-**																										
Fluorene (aq)	**-**																										
Phenanthrene (aq)	**-**																										
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																										
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																										
Pyrene (aq)	**-**																										
Benzo(a)anthracene (aq)	**-**																										
Chrysene (aq)	**-**																										
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																										
Indeno(1,2,3-cd)pyrene (aq)	**-**																										
Dibenzo(a,h)anthracene (aq)	**-**																										
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																										
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			2.7	5.2	2.2	6.2		1.4	1.7			1.6	3.8	2.5	7.1	2.6	3.6	1.6	14	9.5	8.5	2.4		3	2.7		
pH	**6 - 9 (2&4)**		6.6	6.6	6.6	6.5		6.4	6.3	6.4	6.5	6.6	6.8	6.6	6.8	6.4	6.7	6.4	7.4	8.1	7.2			6.9	6.6		
Alkalinity (Total)			68	66	66	67		66	63	62	62	66	82	72	66	69	57	68	27	94	120	78		83	83		
Chloride	**250 (5)**		24	20	23	22		23	24	23	23	24	19	22	20	22	34	22	3.4	28	31	25		24	25		
Ammoniacal Nitrogen			0.15	0.15	1	0.17		0.24	0.15	0.12	0.1	0.05	0.02	0.08	0.04	0.12	0.1	0.06	0.005	0.017	0.005	0.14		0.25	0.15		
Nitrite			0.021	0.009	0.006	0.006		0.013	0.028	0.028	0.032	0.021	0.025	0.052	0.007	0.03	0.01	0.017	0.01	0.17	0.2	0.026		0.011	0.036		
Nitrate	**50 (5)**		5.56	4.51	2.74	5.24		5.13	5.07	5.61	5.44	3.07	5.31	5.4	5.27	5.49	3.8	4.9	0.25	21	21	5.17		4.99	4.67		
Sulphate	**250 (5)**		18.50	15.99	18.45		14.88	19.08	19.48	19.08	14.86	19.26	21.75	21.84	15.86	19.67	14.84	18.78				15.60		21.80	22.10		
Sulphide																											
Calcium			38.35	35.88	36.80		28.57	36.55	36.20	35.50	28.22	36.50	42.85	43.23	36.13	39.51	33.72	36.87				33.80		40.20	42.30		
Potassium			3.83	4.10	3.46		2.71	3.11	3.01	3.02	2.48	3.18	5.61	5.71	5.84	3.80	5.41	3.38							4.15		
Magnesium			5.34	4.71	5.16		4.06	5.43	5.43	5.35	4.37	5.50	5.12	5.23	4.33	5.49	4.56	5.06				4.59		6.50	5.46		
Sodium	**200(5)**		13.23	12.31	13.02		10.20	12.95	13.39	13.58	10.60	13.72	13.27	13.42	11.58	13.61	17.30	12.63				14.70		14.30	15.10		
Biochemical Oxygen Demand			1.0	1.0	1.5	1.0		1.5	1.5	2.8	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5									
Chemical Oxygen Demand			18	5	5	5		5	5	5	10	5	35	16	17	11	12	5									
Conductivity			309	280	297	301		303	297	292	293	301	335	302	282	307	300	302							344		
Total Oxidisable Nitrogen			5.58	4.52	2.75	5.25		5.14	5.1	5.64	5.47	3.09	5.33	5.45	5.28	5.52	3.81	4.92				5.2		5	4.71		
Total Phosphorus			0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125									

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW3																							
HEAVY METALS	µg/l		31/08/2017	26/06/2018	03/10/2018	04/10/2018	09/01/2019	14/01/2019	07/02/2019	11/02/2019	27/03/2019	28/03/2019	11/04/2019	29/04/2019	21/05/2019	22/05/2019	19/06/2019	20/06/2019	04/07/2019	05/07/2019	07/08/2019	08/08/2019	10/09/2019	11/09/2019	15/10/2019	06/11/2019	06/01/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)				0.25		0.16			0.25		0.23	0.27			0.28		0.33		0.30		0.29		0.25	0.32	0.23	0.19
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l				0.057		0.025			0.025		0.053	0.052			0.025		0.025		0.052		0.025		0.025	0.059	0.055	0.059
Chromium (diss.filt)	50 (5)		0.125		0.125		0.125			0.250		0.250	0.250			0.250		0.250		0.250		0.250		0.250	0.250	0.250	0.250
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94			0.500		1.072			2.252		1.116	0.745			0.513		1.217		0.500		1.207		2.000	1.980	1.652	1.255
Iron (diss.)	1000 (AA) (1&2)				69		20			20		43	45			64		49		20		74		56	136	68	52
Mercury (diss.filt)	0.07 MAC (1&2)				0.0025		0.0025			0.0025		0.0025	0.0025			0.0025		0.0025		0.0025		0.0025		0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92			227		105			145.9884189		236.3663624	238			259.087927		**315.8226994**		**296**		235.3931587		143.5749823	243	136.9883159	122.2170805
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98			1.62		1.32			1.57		1.45	1.53			1.48		1.75		1.63		1.51		1.43	1.73	1.73	1.55
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64			0.125		0.125			0.125		0.125	0.125			0.125		0.125		0.125		0.125		0.125	0.125	0.125	0.125
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10	0.10		0.61		0.74			0.63		0.67	0.66			0.56		0.64		0.61		0.62		0.90	0.84	0.82	0.67
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15			2.56		1.52			2.56		2.20	2.36			1.29		4.41		1.74		1.36		1.36	2.54	2.03	2.38
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)									0.25		0.25	0.25			0.25		0.25		0.25		0.25		0.25	0.25	0.25	0.25
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025							0.025		0.025	0.025			0.025		0.025		0.025		0.025		0.025	0.025	0.025	0.025
Aluminium (diss.filt)					50		50			50		50	50			50		50		50		50		50	50	50	50
Vanadium (diss.filt)					0.025		0.025			0.053		0.025	0.025			0.025		0.025				0.052		0.088	0.059	0.066	0.072
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)					22.50																					
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)		10			10																					
EC>C6-C8	15000 (7)		12.5			12.5																					
EC>C8-C10	300 (7)		7.5			7.5																					
EC>C10-C12	300 (7)		5			5																					
EC>C12-C16	300 (7)		5			5																					
EC>C16-C21			5			5																					
EC>C21-C35			5			5																					
EC>C35-C44			5			5																					
Aromatics																											
EC C5-C7	10 (7)		1			1																					
EC>C7-C8	700 (7)		2.5			2.5																					
EC>C8-C10	300 (7)		25			25																					
EC>C10-C12	90 (7)		5			5																					
EC>C12-C16	90 (7)		5			5																					
EC>C16-C21	90 (7)		5			5																					
EC>C21-C35	90 (7)		5			5																					
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		0.50																								
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50																								
Ethylbenzene	300 (8)		0.50																								
p/m-Xylene			1.00																								
o-Xylene			0.50																								
Sum of detected Xylenes	500 (8)																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)					0.003																					
Acenaphthylene (aq)	-					0.001																					
Acenaphthene (aq)	-					0.002																					
Fluorene (aq)	-					0.001																					
Phenanthrene (aq)	-					0.002																					
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)					0.001																					
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)					0.004																					
Pyrene (aq)	-					0.001																					
Benzo(a)anthracene (aq)	-					0.001																					
Chrysene (aq)	-					0.001																					
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)					0.001																					
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)					0.001																					
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**					0.001																					
Indeno(1,2,3-cd)pyrene (aq)	-					0.001																					
Dibenzo(a,h)anthracene (aq)	-					0.002																					
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)					0.002																					
INORGANICS	mg/l																										
Dissolved Organic Carbon				2.2	1.8			2.7	2.5		2.3			2	1.6		2		2		1.3		3		2.3	2.4	
pH	6 - 9 (2&4)			6.8	6.4			7	7.7		6.5			6.7	6.8		7.6		6.6		6.4		6.7		6.7	6.5	
Alkalinity (Total)				91	79			70	66		76			79	80		79		77		75		76		80	78	
Chloride	250 (5)			25	24			24	2		24			25	23		24		23		22		21		23	22	
Ammoniacal Nitrogen				0.5	0.12			0.07	0.09		0.1			0.08	0.1		0.12		0.1		0.27		0.19		0.25	0.21	
Nitrite				0.063	0.024			0.016	0.017		0.012			0.012	0.012		0.022		0.022		0.03		0.013		0.01	0.015	
Nitrate	50 (5)			4.51	4.96			5.5	5.9		3			5.35	5.35		5.27		5.18		6.3		6.37		5.39	4.85	
Sulphate	250 (5)				24.80		21.20			17.05		25.45	24.10			24.09		22.51		22.70		20.49		19.85	21.70	20.51	17.65
Sulphide										0.005		0.005				0.005		0.005				0.005		0.005		0.005	0.01
Calcium					41.40		39.30			31.98		48.87	41.70			41.87		40.74		41.60		37.87		41.06	42.60	39.70	32.82
Potassium					3.68		3.69			3.56		4.57	3.69			3.52		3.80		3.69		3.69		4.48	4.29	4.23	3.09
Magnesium					6.42		5.68			4.51		6.98	6.37			6.52		6.04		6.44		5.51		5.42	6.02	5.57	4.77
Sodium	200(5)				14.80		14.30			11.24		17.31	14.80			14.70		14.80		14.80		13.84		14.22	15.10	14.18	11.61
Biochemical Oxygen Demand				1.5	3.0			1.0	1.5		3.5			1.5	1.5		1.0		1.0		1.0		1.5		1.5	1.0	
Chemical Oxygen Demand				10	10			10	10		11			10	10		10		10		20		10		10	10	
Conductivity				356	340			335	307		328			333	335		345		329		316		312		312	319	
Total Oxidisable Nitrogen				4.57	4.98			5.52	5.92		3.01			5.36	5.36		5.29		5.2		6.33		6.38		5.4	4.86	
Total Phosphorus				0.125	0.125			0.125	0.125		0.125			0.125	0.125		0.125		0.125		0.125		0.125		0.125	0.29	

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																								
HEAVY METALS	**µg/l**		07/01/2020	22/01/2020	26/02/2020	18/03/2020	10/08/2020	07/09/2020	13/10/2020	10/11/2020	01/12/2020	11/01/2021	03/02/2021	09/03/2021	20/04/2021	21/04/2021	11/05/2021	23/06/2021	21/07/2021	05/08/2021	23/09/2021	20/10/2021	24/11/2021	08/12/2021	24/01/2022	22/02/2022	22/03/2022
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**			0.26	0.29	0.27	0.22	0.24	0.48	0.22	0.22	0.28	0.31	0.24		0.17	0.25	0.18	0.23	0.17	0.19	0.37	0.11	0.43	0.17	0.32	0.18
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**			0.058	0.025	0.051	0.025	0.025	0.025	0.059	0.060	0.059	0.051	0.025		0.025	0.061	0.025	0.054	0.025	0.025	0.025	0.053	0.025	0.025	0.025	0.025
Chromium (diss.filt)	**50 (5)**			0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{(see\ Note\ 1)}$ (1) $^{(see\ Note\ 4)}$ (2)**	**34.94**		1.028	3.956	1.530	1.788	1.879	4.170	1.654	1.698	1.428	2.398	0.837		0.879	0.608	0.514	0.250	0.250	0.585	3.935	0.250	4.446	1.239	3.248	1.492
Iron (diss.)	**1000 (AA) (1&2)**			136	40	75	20	20	132	20	20	64	64	20		20	92	60	20	20	20	20	20	49	20	20	20
Mercury (diss.filt)	**0.07 MAC (1&2)**			0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0101	0.0025
Manganese (diss.filt)	**123 (AA) ($^{see\ note\ 1}$)**	**276.92**		263.5924053	76.54032613	166.5597275	79.74532556	95.6418156	54.87949575	104.9263297	111.6178905	170.8615819	122.0081136	211.7744321		95.12823505	268.3888125	167.2304379	213.4792258	63.09954994	57.51002522	12.5	12.5	29.24948851	59.36610047	45.20729463	56.32909589
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{(see\ note\ 5)}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**		1.50	1.56	1.63	1.40	1.52	2.17	1.56	1.57	1.71	1.74	1.42		1.41	1.62	1.30	1.45	1.03	1.09	1.83	0.88	1.96	1.26	1.25	1.45
Lead (diss.filt)	**1.2$^{(see\ note\ 5)}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**		0.125	0.125	0.025	0.091150081	0.025	0.025	0.025	0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.052930169	0.025	0.025	0.025
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**		0.72	0.68	0.65	0.45	0.39	0.28	0.41	0.45	0.39	0.48	0.26		0.37	0.21	0.23	0.10	0.22	0.24	0.80	0.10	0.63	0.44	0.31	0.39
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{(see\ Note\ 2)}$**	**37.15**		1.32	3.07	2.28	2.18	5.54	2.60	2.44	2.71	2.72	2.46	1.74		1.58	1.81	1.12	2.22	1.21	1.78	3.15	3.64	5.27	1.62	7.77	7.88
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**						0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**						0.025	0.103	0.025	0.093	0.114	0.125	0.066	0.071		0.071	0.025	0.025	0.084	0.055	0.058	0.052	0.025	0.051	0.101	0.131	0.110
Aluminium (diss.filt)				50	50	50	50	50	50	50	50	50	50	50		50	50	50	50	50	50	50	50	50	50	50	50
Vanadium (diss.filt)				0.025	0.131	0.088	0.025	0.072	0.200	0.054	0.055	0.025	0.089	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.133	0.025	0.188	0.025	0.167	0.053
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																										
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**																										
EC>C6-C8	**15000 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**300 (7)**																										
EC>C12-C16	**300 (7)**																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	**10 (7)**																										
EC>C7-C8	**700 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**90 (7)**																										
EC>C12-C16	**90 (7)**																										
EC>C16-C21	**90 (7)**																										
EC>C21-C35	**90 (7)**																										
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																										
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																										
Ethylbenzene	**300 (8)**																										
p/m-Xylene																											
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Sum of detected Xylenes	**500 (8)**																										
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Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																										
Acenaphthylene (aq)	-																										
Acenaphthene (aq)	-																										
Fluorene (aq)	-																										
Phenanthrene (aq)	-																										
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																										
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																										
Pyrene (aq)	-																										
Benzo(a)anthracene (aq)	-																										
Chrysene (aq)	-																										
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																										
Indeno(1,2,3-cd)pyrene (aq)	-																										
Dibenzo(a,h)anthracene (aq)	-																										
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																										
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			1.8	2	2.9	2.2	1.3	3.1	6.2	2.5	2.4	3	4.9	2.9	4.1		1.7	1.7			1.9	5	1.7	6	2.2	4.3	2.26
pH	**6 - 9 (2&4)**		7.6	6.7	6.9	6.5	6.9	6.8	6.9	6.5	6.5	7	6.5	6.5	6.5		6.9	6.3	6.4	6.6	7.1	6.7	7	6.8	6.5	6.7	6.4
Alkalinity (Total)			75	81	67	74	72	73	94	75	74	73	70	72	69		74	67	71	67	72	80	83	75	71	55	70
Chloride	**250 (5)**		23	23	22	24	23	23	24	27	28	24	21	22	22		24	23	23	22	23	20	24	20	23	37	22
Ammoniacal Nitrogen			0.23	0.19	0.24	0.27	0.08	0.09	0.35	0.13	0.14	0.17	0.17	0.09	0.19		0.24	0.17	0.15	0.1	0.05	0.05	0.04	0.1	0.09	0.14	0.02
Nitrite			0.014	0.008	0.008	0.011	0.04	0.033	0.095	0.035	0.036	0.03	0.017	0.015	0.008		0.012	0.029	0.028	0.03	0.034	0.032	0.0025	0.014	0.03	0.015	0.014
Nitrate	**50 (5)**		5.09	5.37	4.3	5.13	4.54	4.9	6.38	5.6	5.63	5.63	4.4	3.66	5.13		5.19	4.92	5.31	5.1	4.2	5.12	4.98	5.85	5.14	3.46	4.98
Sulphate	**250 (5)**			23.70	17.52	21.67	18.79	18.84	19.88	19.91	19.75	20.12	17.91	20.77		15.00	22.68	19.72	22.66	14.81	19.35	23.18	23.19	19.43	19.94	15.30	18.92
Sulphide																											
Calcium				43.07	36.69	40.53	38.71	38.51	46.99	41.55	42.28	39.83	37.30	38.61		29.10	39.80	37.44	38.70	28.73	37.17	42.33	42.94	41.84	40.14	32.36	37.12
Potassium				3.94	4.12	4.49	4.20	4.35	6.33	4.36	4.37	3.89	4.13	3.66		2.75	3.40	3.12	3.52	2.50	3.46	5.58	5.67	5.85	3.86	5.36	3.53
Magnesium				6.49	4.72	5.97	5.38	5.28	7.05	5.69	5.63	5.74	5.09	5.63		4.13	6.17	5.55	5.88	4.33	5.53	5.25	5.35	5.01	5.61	4.60	5.08
Sodium	**200(5)**			15.05	12.23	14.28	13.78	13.12	14.17	14.12	14.27	13.59	12.58	13.60		10.40	13.69	13.69	14.24	10.42	13.84	13.69	13.87	12.33	13.75	18.79	12.80
Biochemical Oxygen Demand			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.5	1.0		1.5	1.5	2.8	2.5	4.3	1.5	1.5	1.5	1.5	1.5	3.8
Chemical Oxygen Demand			10	10	10	10	10	10	10	10	5	5	5	5	5		5	5	5	5	24	37	16	14	18	16	5
Conductivity			334	339	289	319	313	305	362	321	320	323	290	314	304		333	301	311	291	319	328	335	307	308	300	304
Total Oxidisable Nitrogen			5.1	5.38	4.31	5.14	4.58	4.93	6.47	5.63	5.67	5.66	4.42	3.67	5.14		5.2	4.95	5.34	5.13	4.23	5.15	4.98	5.86	5.17	3.47	4.99
Total Phosphorus			0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.57

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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

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Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW4																								
HEAVY METALS	µg/l		09/08/2016	26/06/2018	03/10/2018	09/01/2019	14/01/2019	07/02/2019	11/02/2019	27/03/2019	28/03/2019	11/04/2019	29/04/2019	21/05/2019	22/05/2019	19/06/2019	20/06/2019	04/07/2019	05/07/2019	07/08/2019	08/08/2019	10/09/2019	11/09/2019	15/10/2019	06/11/2019	06/01/2020	07/01/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)					0.23			0.25		0.26	0.27			0.22		0.31		0.29		0.49		0.42	0.42	0.36	0.27	
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l					0.025			0.025		0.025	0.025			0.025		0.025		0.025		0.025		0.025	0.025	0.025	0.025	
Chromium (diss.filt)	50 (5)					0.125			0.250		0.250	0.250			0.250		0.250		0.250		0.250		0.250	0.250	0.250	0.250	
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94				1.455			2.156		1.761	1.520			0.821		2.718		1.640		1.954		2.384	2.540	2.451	1.837	
Iron (diss.)	1000 (AA) (1&2)					20			20		20	20			20		20		20		80		126	136	176	109	
Mercury (diss.filt)	0.07 MAC (1&2)					0.0025			0.0025		0.0025	0.0025			0.0025		0.0025		0.0025		0.0025		0.0025	0.0025	0.0025	0.0025	
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92				66			134.1375431		52.17728313	79			133.578304		81.32326706		180		225.6522222		216.5113541	273	249.0195373	201.6652244	
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98				1.47			1.44		1.35	1.30			1.18		1.39		1.31		1.66		1.95	2.25	1.97	1.78	
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64				0.125			0.125		0.125	0.125			0.125		0.125		0.125		0.125		0.125	0.125	0.125	0.125	
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10				0.55			0.74		0.60	0.60			0.47		0.58		0.55		0.50		0.77	0.78	0.69	0.64	
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15				2.28			2.25		3.18	2.22			2.08		6.11		2.75		2.44		2.50	3.71	2.79	2.62	
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)								0.25		0.25	0.25			0.25		0.25		0.25		0.25		0.25	0.25	0.25	0.25	
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)								0.055		0.025	0.025			0.025		0.025		0.025		0.025		0.025	0.025	0.025	0.025	
Aluminium (diss.filt)						50			50		50	50			50		50		50		50		50	50	50	50	
Vanadium (diss.filt)						0.057			0.061		0.089	0.061			0.025		0.060				0.148		0.138	0.176	0.097	0.075	
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																										
Speciated TPH	ug/l																										
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Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																										
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Indeno(1,2,3-cd)pyrene (aq)	-																										
Dibenzo(a,h)anthracene (aq)	-																										
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																										
INORGANICS	mg/l																										
Dissolved Organic Carbon			12	5.4	2.4		2.9	2.6		3.1			3.1	3.3		3.8		2.8		2.5		4.4		7.1	4.2		3
pH	6 - 9 (2&4)		7.8	7.8	6.6		6.9	6.9		6.9			6.9	6.8		7.4		6.7		6.8		7.3		7	6.9		7.6
Alkalinity (Total)			95	84	88		96	73		94			95	89		102		103		101		102		109	105		104
Chloride	250 (5)		28	19	24		24	2		25			22	22		24		24		22		23		24	22		23
Ammoniacal Nitrogen			0.005	0.02	0.07		0.02	0.05		0.02			0.02	0.05		0.07		0.13		0.18		0.21		0.37	0.22		0.19
Nitrite			0.18	0.008	0.043		0.02	0.019		0.033			0.013	0.016		0.038		0.062		0.06		0.157		0.175	0.032		0.048
Nitrate	50 (5)		22	0.92	4.3		4.81	6.85		7.43			3.76	3.63		4.85		3.55		4.41		7.17		5.26	5.39		5.05
Sulphate	250 (5)					27.30			22.83		24.39	27.10			23.15		24.52		23.90		23.40		21.90	22.30	22.79	19.46	
Sulphide									0.005		0.005				0.005		0.005				0.005		0.005		0.005	0.01	
Calcium						45.20			44.38		48.11	44.90			39.78		46.95		46.70		43.05		49.38	51.60	48.37	39.94	
Potassium						4.45			4.76		4.54	4.33			4.24		4.37		4.79		5.11		5.46	6.83	5.09	3.81	
Magnesium						8.10			6.23		8.04	8.12			7.58		8.31		8.96		7.74		8.02	8.29	8.04	6.88	
Sodium	200(5)					14.90			14.91		15.46	15.00			14.03		15.09		15.50		14.19		15.47	16.20	15.12	12.47	
Biochemical Oxygen Demand				1.5	3.2		1.0	1.5		1.5			2.9	1.5		2.4		3.4		1.0		1.0		6.8	1.0		1.0
Chemical Oxygen Demand				10	10		10	10		5			10	10		10		39		16		10		10	10		10
Conductivity				257	350		382	342		408			354	328		379		364		350		378		392	371		385
Total Oxidisable Nitrogen				0.93	4.34		4.83	6.87		7.46			3.77	3.65		4.89		3.61		4.47		7.33		5.43	5.42		5.1
Total Phosphorus				0.125	0.125		0.125	0.125		0.125			0.125	0.125		0.125		0.125		0.125		0.125		0.125	0.125		0.125

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																								
HEAVY METALS	**µg/l**		**22/01/2020**	**26/02/2020**	**18/03/2020**	**07/09/2020**	**13/10/2020**	**10/11/2020**	**01/12/2020**	**11/01/2021**	**03/02/2021**	**09/03/2021**	**20/04/2021**	**21/04/2021**	**11/05/2021**	**23/06/2021**	**21/07/2021**	**05/08/2021**	**23/09/2021**	**20/10/2021**	**24/11/2021**	**08/12/2021**	**24/01/2022**	**22/02/2022**	**22/03/2022**	**20/07/2016**	**09/08/2016**
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.30	0.54	0.80	0.43	0.27	0.33	0.30	0.29	0.52	0.60		0.31	0.32	0.26	0.23	0.27	0.20	0.91	0.25	0.51	0.26	0.35	0.25		
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l**		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025		
Chromium (diss.filt)	**50 (5)**		0.125	0.125	0.254	0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125		
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	1.998	3.273	5.078	2.746	2.810	2.733	2.582	2.219	4.074	0.978		1.577	1.262	0.718	0.250	0.705	0.993	5.966	1.787	3.935	1.695	2.463	1.512		
Iron (diss.)	**1000 (AA) (1&2)**		197	107	178	155	20	106	144	221	214	**1912**		102	66	20	20	41	20	471	425	97	75	162	67		
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	238.8014182	71.12176305	139.3123098	110.942873	69.75620495	171.3799092	150.6219244	170.789453	83.63131655	**1130.50878**		202.2320967	**279.1496821**	69.29900827	26.56350837	12.5	33.29543671	109.627864	99.37340369	36.24189063	198.3346691	189.0001497	198.3387363		
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.87	1.75	2.26	1.75	1.77	1.86	1.84	1.79	1.82	2.61		1.59	1.49	0.95	0.61	0.74	0.78	2.65	1.39	1.56	1.55	1.40	1.41		
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.125	0.125	0.103	0.025	0.025	0.025	0.025	0.025	0.065242616	0.060465932		0.025	0.025	0.025	0.025	0.025	0.025	0.091443459	0.025	0.062094935	0.025	0.061521929	0.025		
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**	0.73	0.52	0.60	0.22	0.45	0.28	0.25	0.27	0.30	0.22		0.28	0.10	0.10	0.10	0.10	0.10	0.44	0.25	0.45	0.10	0.31	0.23		
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	2.03	4.75	7.02	4.25	2.47	3.15	2.90	2.68	3.10	3.52		2.32	2.14	1.09	0.73	0.63	1.96	3.71	2.96	3.25	3.17	3.86	3.39		
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**					0.13	0.13	0.13	0.13	0.13	0.13	0.13		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13		
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**					0.025	0.075	0.025	0.025	0.125	0.025	0.025		0.059	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.063	0.025		
Aluminium (diss.filt)			50	50	50	50	50	50	50	50	50	50		50	50	50	50	50	50	50	50	50	50	50	50		
Vanadium (diss.filt)			0.105	0.323	0.371	0.129	0.081	0.095	0.086	0.095	0.277	0.025		0.061	0.025	0.025	0.025	0.025	0.025	0.272	0.069	0.207	0.076	0.145	0.057		
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																										
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**																										
EC>C6-C8	**15000 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**300 (7)**																										
EC>C12-C16	**300 (7)**																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	**10 (7)**																										
EC>C7-C8	**700 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**90 (7)**																										
EC>C12-C16	**90 (7)**																										
EC>C16-C21	**90 (7)**																										
EC>C21-C35	**90 (7)**																										
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																										
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																										
Ethylbenzene	**300 (8)**																										
p/m-Xylene																											
o-Xylene																											
Sum of detected Xylenes	**500 (8)**																										
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																										
Acenaphthylene (aq)	**-**																										
Acenaphthene (aq)	**-**																										
Fluorene (aq)	**-**																										
Phenanthrene (aq)	**-**																										
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																										
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																										
Pyrene (aq)	**-**																										
Benzo(a)anthracene (aq)	**-**																										
Chrysene (aq)	**-**																										
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																										
Indeno(1,2,3-cd)pyrene (aq)	**-**																										
Dibenzo(a,h)anthracene (aq)	**-**																										
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																										
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			3.5	5.5	12.2	4.8	4.2	4.3	3.6	4.5	9.3	4.6	5.9		3.2	2.4			2.4	13.1	3.9	7	3.6	4.2	3.07	15	7.9
pH	**6 - 9 (2&4)**		7.3	7.3	7.1	7.1	6.7	6.7	6.8	6.8	6.9	7.2	6.9		7.2	6.8	7	7	6.9	6.8	6.8	6.8	6.8	6.8	6.7	7.7	7.7
Alkalinity (Total)			103	69	87	92	78	95	96	97	70	102	103		100	88	83	71	90	87	96	68	95	63	97	98	97
Chloride	**250 (5)**		23	23	27	22	23	27	25	24	16	23	23		23	23	23	19	24	24	23	20	24	28	24	30	28
Ammoniacal Nitrogen			0.18	0.52	0.58	0.06	0.1	0.07	0.08	0.13	0.18	0.56	0.16		0.17	0.07	0.05	0.02	0.07	0.09	0.02	0.1	0.12	0.17	0.08	0.027	0.005
Nitrite			0.034	0.048	0.031	0.039	0.028	0.028	0.03	0.041	0.031	0.022	0.017		0.02	0.024	0.027	0.021	0.02	0.06	0.01	0.032	0.047	0.021	0.028	0.34	0.18
Nitrate	**50 (5)**		5.93	2.41	3.25	4.44	5.19	5.78	5.34	5.35	2.81	2.66	4.09		3.47	2.98	2.5	1.83	3.58	4.5	4.47	4.65	5.45	3.9	4.74	17	22
Sulphate	**250 (5)**		22.30	13.80	15.82	19.23	18.72	20.65	20.76	21.42	13.78	23.12		17.90	21.87	22.51	23.97	14.39	22.58	28.41	25.83	15.95	24.39	15.76	22.92		
Sulphide																											
Calcium			49.57	31.63	35.95	42.98	41.35	47.08	47.28	46.22	32.27	45.20		34.93	43.56	39.32	37.00	24.59	39.03	47.35	42.84	35.58	47.25	34.16	45.46		
Potassium			4.83	5.45	15.59	4.76	4.74	4.95	4.75	4.95	5.18	4.59		3.58	4.43	4.56	3.91	2.93	5.40	11.45	10.40	6.31	5.01	4.39	4.44		
Magnesium			8.22	4.73	6.40	6.75	5.38	7.44	7.39	7.49	4.83	7.73		6.17	8.10	7.43	7.06	4.65	7.23	7.48	6.73	4.66	8.11	5.18	7.78		
Sodium	**200(5)**		15.40	12.39	15.23	13.10	13.34	14.98	14.72	14.48	10.63	14.70		11.30	14.24	14.67	15.25	9.10	14.53	15.48	14.01	11.65	15.20	15.79	14.52		
Biochemical Oxygen Demand			1.0	2.5	12.0	1.0	1.0	1.0		1.0	3.6	1.5	1.0		1.5	1.5	2.7	3.5	5.7	3.2	1.5	1.5	1.5	1.5	2.7		
Chemical Oxygen Demand			10	20	83	30	10	10	5	5	25	13	5		5	5	5	18	33	38	5	21	24	12	25		
Conductivity			379	273	336	333	314	365	359	361	256	373	370		358	332	317	257	332	353	350	277	366	290	365		
Total Oxidisable Nitrogen			5.96	2.46	3.28	4.48	5.22	5.81	5.64	5.39	2.84	2.68	4.11		3.49	3	2.53	1.85	3.6	4.56	4.48	4.68	5.5	3.92	4.77		
Total Phosphorus			0.125	0.125	0.94	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125		

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																										
HEAVY METALS	µg/l		27/09/2016	09/01/2017	11/01/2017	06/03/2017	18/07/2017	20/07/2017	15/08/2017	29/08/2017	30/08/2017	31/08/2017	05/09/2017	07/09/2017	12/09/2017	14/09/2017	15/09/2017	18/09/2017	21/09/2017	22/09/2017	25/10/2017	30/11/2017	04/12/2017	12/01/2018	18/01/2018	17/04/2018	18/04/2018	26/06/2018
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			12.50		12.50	0.31			0.64		0.77	0.86	0.72	0.78	1.03		0.57	0.76		0.39	0.30	0.33	0.39		0.34		
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l			**5.000**		**5.000**	0.025			0.061		0.062	0.056	0.025	0.025	0.025		0.025	0.025		0.025	0.025	0.025	0.025		0.025		
Chromium (diss.filt)	50 (5)			12.500		12.500	0.125		0.125	0.125		0.125	0.125	0.125	0.252	0.252		0.125	0.292		0.125	0.125	0.125	0.125		0.125		
Copper (diss.filt)	1 (AA) bioavailable $^{(see\ Note\ 1)}$ (1) $^{(see\ Note\ 4)}$ (2)	34.94		10.000		10.000	0.500			2.430		2.420	2.060	1.420	4.010	5.910		2.140	5.050		1.970	2.220	2.190	2.890		1.520		
Iron (diss.)	1000 (AA) (1&2)			50		175	50			248		373	472	433	656	484		510	425		178	109	20	132		148		
Mercury (diss.filt)	0.07 MAC (1&2)			0.0025		0.0025	0.0025			0.0025		0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025		0.0025		0.0025	0.0025		0.0025		
Manganese (diss.filt)	123 (AA) ($^{see\ note\ 1}$)	276.92		**304**		261	**313**			**934**		**1147**	**1407**	**1160**	**515**	**645**		**722**	**369**		**281**	**307**	**296**	108		**384**		
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{(see\ note\ 5)}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		12.50		12.50	1.52			2.32		2.41	2.59	2.24	2.42	2.92		2.08	2.49		1.81	1.89	2.01	1.57		1.70		
Lead (diss.filt)	1.2$^{(see\ note\ 5)}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		**12.5**		**12.5**	0.125			0.125		0.125	0.125	0.125	0.125	0.266		0.125	0.125		0.125	0.125	0.125	0.125		0.125		
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10					0.38		0.10	0.56		0.10	0.59	0.70	0.50	0.57		0.69	0.69		0.73	0.73	0.66	0.46		0.51		
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{(see\ Note\ 2)}$	37.15		10.00		10.00	3.99			3.62		3.35	2.64	3.38	3.52	3.06		2.64	3.81		1.96	2.53	2.49	4.61		1.93		
Iron (Total)					230	800	179														563				809.233079		599	
Manganese (Total)					322	293	359														365				127.0462543		368	
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)						0.25																					
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)						0.025		0.025			0.025																
Aluminium (diss.filt)				50		50	50			50		50	50	50	50	50		50	50		50	5	50	50		50		
Vanadium (diss.filt)							0.025			0.085		0.108	0.071	0.061	0.270	0.401		0.070	0.292		0.125	0.061	0.025	0.172		0.051		
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)			1.25		1.25		7.10			22.50						22.50			22.50					22.50		22.50	22.50
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)			25		25			10			10													10		10	10
EC>C6-C8	15000 (7)			30		30			12.5			12.5													12.5		12.5	12.5
EC>C8-C10	300 (7)			0.05		0.05			7.5			7.5													7.5		7.5	7.5
EC>C10-C12	300 (7)			3.5					5			5													5		5	5
EC>C12-C16	300 (7)			5		5			5			5													5		5	5
EC>C16-C21				2.5		2.5			18			18													5		5	5
EC>C21-C35				10		10			5			5													5		5	5
EC>C35-C44				2.5		2.5			5			5													5		5	5
Aromatics																												
EC C5-C7	10 (7)			0.025		0.025			1			1													1		1	1
EC>C7-C8	700 (7)			0.025		0.025			2.5			2.5													2.5		2.5	2.5
EC>C8-C10	300 (7)			0.025					25			25													25		25	25
EC>C10-C12	90 (7)			3.5					5			5													5		5	5
EC>C12-C16	90 (7)			3		3			9			9													5		5	5
EC>C16-C21	90 (7)			15		15			5			5													5		5	5
EC>C21-C35	90 (7)			15		15			5			5													5		5	5
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)			0.50		0.50		0.50	0.50		0.50	0.50					0.50			0.50					0.50		0.50	0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)			0.50		0.50		0.50	0.50		0.50	0.50					0.50			0.50					0.50		0.50	0.50
Ethylbenzene	300 (8)			0.50		0.50		0.50	0.50		0.50	0.50					0.50			0.50					0.50		0.50	0.50
p/m-Xylene				0.50		0.50		0.50	1.00		1.00	1.00					1.00			1.00					1.00		1.00	1.00
o-Xylene				0.50		0.50		0.50	0.50		0.50	0.50					0.50			0.50					0.50		0.50	0.50
Sum of detected Xylenes	500 (8)																											
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)			0.005		0.005		0.500	0.003			0.003													0.003		0.003	0.003
Acenaphthylene (aq)	-			0.005		0.005			0.001			0.001													0.001		0.001	0.001
Acenaphthene (aq)	-			0.005		0.005			0.001			0.001													0.001		0.001	0.003
Fluorene (aq)	-			0.005		0.005			0.001			0.001													0.001		0.001	0.001
Phenanthrene (aq)	-			0.005		0.005			0.002			0.002													0.002		0.002	0.002
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)			0.005		0.005			0.001			0.001													0.001		0.001	0.001
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)			0.005		0.005			0.001			0.001													0.001		0.001	0.001
Pyrene (aq)	-			0.005		0.005			0.001			0.001													0.001		0.001	0.001
Benzo(a)anthracene (aq)	-			0.005		0.005			0.001			0.001													0.001		0.001	0.001
Chrysene (aq)	-			0.005		0.005			0.001			0.001													0.001		0.001	0.001
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)			0.005		0.005			0.001			0.001													0.001		0.001	0.001
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)			0.005		0.005			0.001			0.001													0.001		0.001	0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**			**0.005**		**0.005**			0.001			0.001													0.001		0.001	0.001
Indeno(1,2,3-cd)pyrene (aq)	-			0.005		0.005			0.001			0.001													0.001		0.001	0.001
Dibenzo(a,h)anthracene (aq)	-			0.005		0.005			0.002			0.002													0.002		0.002	0.002
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)			0.005		0.005			0.002			0.002													0.002		0.002	0.002
INORGANICS	mg/l																											
Dissolved Organic Carbon			12	2.6		3.3	3			5.1		4.4	4.8	3.8	11.2	14.8		4.2	10.7		3.4	3	3.3		4.38		3.3	4.9
pH	6 - 9 (2&4)		7.1			7	6.8			6.7		6.9	6.8	6.8	7.1	7.2		7.6	7.8		7.8	6.9	7.2		7		7.1	7.7
Alkalinity (Total)			120	83		88	90			96		97	101	102	72	81		97	79		92	95	94		54		88	84
Chloride	250 (5)		30	24		23	26			22.5		23	24	25	19	18		23	20		23	23	23		21		23	19
Ammoniacal Nitrogen			0.005	0.15		0.22	0.16			0.62		0.62	0.55	0.6	0.23	0.27			0.22		0.32	0.3	0.28		0.16		0.32	0.02
Nitrite			0.2	0.03		0.011	0.04			0.024		0.029	0.04	0.04	0.022	0.031			0.037		0.037	0.03	0.036		0.012		0.03	0.01
Nitrate	50 (5)		20	5.01		4.89	4.25			3.776		3.85	3.76	4.12	2.56	2.52			2.77		4.44	4.71	4.47		2.33		4.2	0.98
Sulphate	250 (5)			15.90		22.00	22.50			21.80		19.20	24.00	23.90	14.00	12.00		21.90	13.60		15.70	20.00	20.30	10.40		21.10		
Sulphide																												
Calcium				36.00		41.60	43.50			42.00		41.40	45.70	45.80	31.50	32.70		45.90	33.90		34.40	43.70	43.80	25.20		41.20		
Potassium							4.83			5.33		5.38	5.60	5.44	5.00	8.10		4.59	6.59		4.02	5.02	6.47	4.09		4.13		
Magnesium				5.03		7.02	6.45			6.82		5.43	7.35	7.60	4.42	5.06		7.42	4.86		5.20	6.51	0.32	3.39		6.57		
Sodium	200(5)			14.60		14.10	14.60			14.30		14.00	15.00	15.20	11.10	9.89		14.60	10.80		11.90	14.90	14.70	12.40		14.00		
Biochemical Oxygen Demand										1.5		1.5	1.0	1.0	1.5	1.5			3.3		1.5	1.5	1.0		1.5		1.5	1.5
Chemical Oxygen Demand										21		7.5	21	20	34				34		20	10	10		10		10	10
Conductivity							358			353		360	367	378	273	279		358	302		353	358	359		231		339	259
Total Oxidisable Nitrogen				5.04		4.9	4.29			3.8		3.88	3.8	4.16	2.58	2.55			2.81		4.48	4.74	4.51		2.34		4.23	0.99
Total Phosphorus										0.125		0.125	0.125	0.125	0.125	0.125			0.125		0.125	0.125	0.125		0.125		0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW5																								
HEAVY METALS	µg/l		27/06/2018	03/10/2018	04/10/2018	09/01/2019	14/01/2019	27/03/2019	28/03/2019	11/04/2019	29/04/2019	21/05/2019	22/05/2019	19/06/2019	20/06/2019	07/08/2019	08/08/2019	10/09/2019	11/09/2019	15/10/2019	06/11/2019	06/01/2020	07/01/2020	22/01/2020	26/02/2020	18/03/2020	10/08/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.31	0.23		0.23			0.25	0.25			0.26		0.29		0.45		0.40	0.43	0.38	0.39		0.38	0.40	0.55	0.30
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l		0.025	0.025		0.025			0.025	0.025			0.025		0.025		0.025		0.025	0.054	0.025	0.051		0.053	0.025	0.025	0.025
Chromium (diss.filt)	50 (5)		0.125	0.125		0.125			0.250	0.250			0.250		0.250		0.250		0.250	0.250	0.250	0.250		0.125	0.125	0.125	0.125
Copper (diss.filt)	1 (AA) bioavailable $^{(see Note 1)}$ (1) $^{(see Note 4)}$ (2)	34.94	0.500	0.500		1.129			1.292	0.914			0.641		1.274		1.583		2.664	1.990	1.773	1.328		2.670	2.768	2.930	1.715
Iron (diss.)	1000 (AA) (1&2)		20	20		20			78	20			56		55		243		223	220	323	294		403	207	208	47
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025		0.0025			0.0025	0.0025			0.0025		0.0025		0.0025		0.0025		0.0025	0.0025			0.0025	0.0025	0.0025
Manganese (diss.filt)	123 (AA) $^{(see note 1)}$	276.92	515	380		333			311.2997559	246			322.8109176		422.6606029		521.6546436		441.7555713	599	525.2549196	402.669334		472.9506797	239.7590229	248.4805324	157.7211087
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{(see note 5)}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	1.85	1.49		1.60			1.45	1.49			1.47		1.55		1.73		1.73	2.00	1.88	1.75		1.81	1.67	1.87	1.41
Lead (diss.filt)	1.2$^{(see note 5)}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.125	0.125		0.125			0.125	0.125			0.125		0.125		0.125		0.125	0.125	0.125	0.125		0.125	0.125	0.0706	0.025
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10	0.68	0.55		0.53			0.65	0.68			0.52		0.61		0.54		0.82	0.82	0.78	0.67		0.58	0.58	0.59	0.28
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{(see Note 2)}$	37.15	1.38	2.33		1.52			2.49	1.47			1.42		1.79		2.26		2.56	3.82	4.30	3.52		2.84	5.66	4.99	2.01
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)								0.25	0.25			0.25		0.25		0.25		0.25	0.25	0.25	0.25					0.13
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)								0.025	0.025			0.025		0.025		0.025		0.025	0.025	0.025	0.025					0.025
Aluminium (diss.filt)			20	50		50			50	50			50		50		50		50	50	50	50		50	50	50	50
Vanadium (diss.filt)			0.025	0.025		0.025			0.025	0.025			0.025		0.025		0.076		0.069	0.088	0.060	0.053		0.061	0.176	0.213	0.051
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)				22.50																						
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)				10																						
EC>C6-C8	15000 (7)				12.5																						
EC>C8-C10	300 (7)				7.5																						
EC>C10-C12	300 (7)				5																						
EC>C12-C16	300 (7)				5																						
EC>C16-C21					5																						
EC>C21-C35					5																						
EC>C35-C44					5																						
Aromatics																											
EC C5-C7	10 (7)				1																						
EC>C7-C8	700 (7)				2.5																						
EC>C8-C10	300 (7)				25																						
EC>C10-C12	90 (7)				5																						
EC>C12-C16	90 (7)				5																						
EC>C16-C21	90 (7)				5																						
EC>C21-C35	90 (7)				5																						
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)				0.50																						
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)				0.50																						
Ethylbenzene	300 (8)				0.50																						
p/m-Xylene					1.00																						
o-Xylene					0.50																						
Sum of detected Xylenes	500 (8)																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)				0.003																						
Acenaphthylene (aq)	-				0.001																						
Acenaphthene (aq)	-				0.001																						
Fluorene (aq)	-				0.001																						
Phenanthrene (aq)	-				0.002																						
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)				0.001																						
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)				0.001																						
Pyrene (aq)	-				0.001																						
Benzo(a)anthracene (aq)	-				0.001																						
Chrysene (aq)	-				0.001																						
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)				0.001																						
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)				0.001																						
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))				0.001																						
Indeno(1,2,3-cd)pyrene (aq)	-				0.001																						
Dibenzo(a,h)anthracene (aq)	-				0.002																						
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)				0.002																						
INORGANICS	mg/l																										
Dissolved Organic Carbon				7.1			2.5	2.5			3.4	2.1		2.6		3.1		3.8		4.4	3.1		2.6	2.8	4.3	9.4	1.6
pH	6 - 9 (2&4)			7.4			6.7	7			6.8	6.7		6.9		6.7		6.8		6.8	6.9		7.1	7.4	6.9	6.7	7
Alkalinity (Total)				74			89	88			88	87		93		90		95		99	96		94	93	69	77	87
Chloride	250 (5)			18			25	24			24	24		24		23		23		24	22		24	23	23	25	22
Ammoniacal Nitrogen				0.02			0.05	0.14			0.05	0.06		0.11		0.31		0.31		0.99	0.34		0.34	0.32	0.4	0.51	0.06
Nitrite				0.0025			0.028	0.031			0.02	0.018		0.034		0.04		0.08		0.083	0.027		0.033	0.023	0.026	0.027	0.035
Nitrate	50 (5)			0.68			5.22	6.14			4.86	4.81		5.08		4.79		6.52		4.76	4.74		5.17	5.51	3.06	3.51	4.38
Sulphate	250 (5)		24.20	24.30		25.30			24.18	24.00			24.04		24.16		22.01		22.39	23.70	23.61	18.92		22.80	16.41	17.95	21.58
Sulphide									0.005				0.005		0.005		0.005		0.005		0.005	0.024					
Calcium			43.90	42.10		44.50			46.26	42.00			42.58		44.93		40.64		46.19	48.00	46.13	36.58		45.95	34.58	36.68	43.11
Potassium			4.52	4.50		4.29			4.50	4.02			4.11		4.38		4.31		5.03	5.61	4.94	3.59		4.66	4.78	9.08	4.59
Magnesium			7.37	7.09		7.14			7.00	6.78			7.05		7.32		6.77		7.07	7.53	7.23	5.78		7.12	4.92	5.88	6.75
Sodium	200(5)		15.40	15.00		15.10			15.71	14.50			14.86		15.35		14.26		15.11	16.20	15.28	12.23		15.27	13.06	14.53	14.53
Biochemical Oxygen Demand				3.6			1.0	1.5			1.5	1.5		1.0		1.0		1.0		2.9	1.0		1.0	1.0	1.0	4.8	1.0
Chemical Oxygen Demand				21			10	5			10	10		10		11		10		10	10		10	10	10	39	10
Conductivity				238			368	355			347	342		359		336		357		362	358		363	359	282	313	346
Total Oxidisable Nitrogen				0.68			5.25	6.17			4.88	4.83		5.11		4.83		6.6		4.84	4.77		5.2	5.53	3.09	3.54	4.41
Total Phosphorus				0.125			0.125	0.125			0.125	0.125		0.125		0.125		0.125		0.125	0.125		0.125	0.125	0.125	0.44	0.125

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Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																									
HEAVY METALS	µg/l		07/09/2020	13/10/2020	10/11/2020	01/12/2020	11/01/2021	03/02/2021	09/03/2021	20/04/2021	21/04/2021	11/05/2021	23/06/2021	05/08/2021	23/09/2021	20/10/2021	24/11/2021	24/01/2022	22/03/2022	20/07/2016	09/08/2016	27/09/2016	09/01/2017	11/01/2017	06/03/2017	07/03/2017	19/07/2017
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.36	0.38	0.34	0.33	0.31	0.38	0.47		0.38	0.37	0.36	0.43	0.27	0.68	0.28	0.35	0.33				12.50			12.50	0.44
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025	0.025	0.025	0.025	0.025	0.025	0.025		0.025	0.056	0.025	0.025	0.025	0.025	0.025	0.025	0.025				5.000			5.000	0.025
Chromium (diss.filt)	50 (5)		0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125				12.500			12.500	0.125
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	2.098	3.090	1.969	1.831	1.572	2.990	0.757		0.994	0.939	0.593	1.349	0.504	5.063	1.496	1.164	1.086				10.000			10.000	0.500
Iron (diss.)	1000 (AA) (1&2)		138	130	127	143	146	148	1117		260	340	186	298	40	196	204	159	213				590			548	568
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025				0.0025			0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	132.6803136	204.9895366	366.8185499	370.7850659	332.8521603	170.3329404	878.0605253		396.3379161	546.8262571	501.5282915	260.4515314	490.0479822	117.9300991	124.3678289	460.9092828	421.2079325				18			42	34
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	1.57	1.95	1.80	1.81	1.80	1.76	1.98		1.76	1.75	1.50	1.46	1.36	2.28	1.54	1.63	1.56				12.50			12.50	1.09
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.025	0.025	0.025	0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.095837082	0.025	0.060579634	0.025	0.025	0.025				12.5			12.5	0.125
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10	0.27	0.35	0.30	0.31	0.28	0.36	0.25		0.28	0.10	0.10	0.10	0.10	0.52	0.28	0.25	0.24								0.21
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	2.46	2.15	2.62	2.23	2.52	2.80	2.02		2.06	2.14	1.32	2.50	5.41	2.88	3.37	4.39	2.14				10.00			10.00	0.50
Iron (Total)																								2280		919	808
Manganese (Total)																								157		64	51
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.13	0.13	0.13	0.13	0.13	0.13	0.13		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13								0.25
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025	0.025	0.025	0.025	0.125	0.025	0.025		0.050	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025								0.025
Aluminium (diss.filt)			50	50	50	50	50	50	50		50	50	50	50	50	50	50	50	50				50			50	50
Vanadium (diss.filt)			0.097	0.106	0.055	0.025	0.025	0.141	0.025		0.025	0.025	0.025	0.112	0.025	0.184	0.025	0.025	0.025								0.126
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)																						1.25		1.25		
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)																						25		25		
EC>C6-C8	15000 (7)																						30		30		
EC>C8-C10	300 (7)																						0.05		0.05		
EC>C10-C12	300 (7)																						3.5				
EC>C12-C16	300 (7)																						5		5		
EC>C16-C21																							2.5		2.5		
EC>C21-C35																							10		10		
EC>C35-C44																							2.5		2.5		
Aromatics																											
EC C5-C7	10 (7)																						0.025		0.025		
EC>C7-C8	700 (7)																						0.025		0.025		
EC>C8-C10	300 (7)																						0.025				
EC>C10-C12	90 (7)																						3.5				
EC>C12-C16	90 (7)																						3		3		
EC>C16-C21	90 (7)																						15		15		
EC>C21-C35	90 (7)																						15		15		
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)																						0.50		0.50		
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)																						0.50		0.50		
Ethylbenzene	300 (8)																						0.50		0.50		
p/m-Xylene																							0.50		0.50		
o-Xylene																							0.50		0.50		
Sum of detected Xylenes	500 (8)																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)																						0.005		0.005		
Acenaphthylene (aq)	-																						0.005		0.005		
Acenaphthene (aq)	-																						0.005		0.005		
Fluorene (aq)	-																						0.005		0.005		
Phenanthrene (aq)	-																						0.005		0.005		
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)																						0.005		0.005		
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)																						0.005		0.005		
Pyrene (aq)	-																						0.005		0.005		
Benzo(a)anthracene (aq)	-																						0.005		0.005		
Chrysene (aq)	-																						0.005		0.005		
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)																						0.005		0.005		
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)																						0.005		0.005		
Benzo(a)pyrene (aq)	0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))																						0.005		0.005		
Indeno(1,2,3-cd)pyrene (aq)	-																						0.005		0.005		
Dibenzo(a,h)anthracene (aq)	-																						0.005		0.005		
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)																						0.005		0.005		
INORGANICS	mg/l																										
Dissolved Organic Carbon			5.4	5.6	3.2	3.3	4.6	6.6	3.3	4		2.6	2.1		2	10.2	3.5	4	2.51	20	15	14	8			7	8.5
pH	6 - 9 (2&4)		7.2	6.8	6.6	6.6	6.7	6.7	6.7	6.8		7.1	6.5	6.8	6.8	6.7	6.7	6.6	6.5	8.1	8	7.8				7.5	7.8
Alkalinity (Total)			83	88	89	89	87	72	87	91		93	86	68	86	86	91	88	88	82	67	84	53			50	60
Chloride	250 (5)		21	24	27	28	24	19	23	23		24	24	19	24	23	23	24	23	21	18	20	17			19	17
Ammoniacal Nitrogen			0.05	0.19	0.15	0.16	0.18	0.18	0.58	0.38		0.4	0.32	0.2	0.15	0.02	0.13	0.21	0.22	0.073	0.011	0.041	0.05			0.02	0.02
Nitrite			0.032	0.071	0.044	0.042	0.038	0.029	0.03	0.013		0.018	0.027	0.029	0.028	0.005	0.036	0.042	0.025	0.08	0.026	0.027	0.012			0.01	0.01
Nitrate	50 (5)		4.12	5.54	5.6	5.54	5.35	3.66	5.03	4.67		4.4	4.26	2.88	2.73	0.03	4.68	5.06	4.76	3.9	3.5	3.5	0.83			0.92	0.84
Sulphate	250 (5)		18.60	20.11	21.41	21.40	21.95	16.49	21.34		17.87	22.85	23.91	13.76	23.11	24.78	25.86	23.98	22.49				3.78			9.93	7.10
Sulphide																											
Calcium			39.59	44.66	45.23	45.60	44.34	35.79	41.48		33.51	43.53	42.42	25.09	41.64	42.05	44.13	45.85	42.98				18.90			20.60	29.00
Potassium			4.42	5.60	4.79	4.66	4.53	4.76	4.13		3.38	4.21	4.27	2.84	4.69	8.15	8.56	4.69	4.13								2.26
Magnesium			6.11	6.50	6.76	6.67	6.80	5.17	6.38		5.32	7.24	6.98	4.40	6.89	6.16	6.47	7.22	6.70				2.95			4.36	4.53
Sodium	200(5)		13.22	14.00	14.80	14.76	14.51	11.97	14.23		11.30	14.45	14.96	9.84	14.85	13.79	14.42	15.12	14.11				10.90			11.70	11.60
Biochemical Oxygen Demand			1.0	1.0	1.0		1.0	2.2	1.5	1.0		1.5	1.5	1.0	1.5	1.5	1.5	1.5	1.5								
Chemical Oxygen Demand			10	10	10	5	5	13	5	5		5	5	25	5	30	5	15	25								
Conductivity			312	341	356	350	347	282	335	359		355	343	265	347	349	346	354	348								248
Total Oxidisable Nitrogen			4.15	5.61	5.64	5.58	5.39	3.69	5.06	4.68		4.42	4.29	2.91	2.76	0.03	4.72	5.1	4.78				0.84			0.93	0.85
Total Phosphorus			0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125								

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																										
HEAVY METALS	**µg/l**		**20/07/2017**	**15/08/2017**	**29/08/2017**	**30/08/2017**	**31/08/2017**	**05/09/2017**	**07/09/2017**	**12/09/2017**	**14/09/2017**	**15/09/2017**	**18/09/2017**	**21/09/2017**	**22/09/2017**	**25/10/2017**	**30/11/2017**	**04/12/2017**	**12/01/2018**	**18/01/2018**	**17/04/2018**	**18/04/2018**	**26/06/2018**	**27/06/2018**	**03/10/2018**	**04/10/2018**	**09/01/2019**	**14/01/2019**
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**				0.54		0.49	0.59	0.54	0.70	0.76		0.58	0.64		0.53	0.41	0.42	0.42		0.42			0.35	0.38		0.41	
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l**				0.537		0.025	0.025	0.025	0.025	0.025		0.025	0.025		0.025	0.025	0.025	0.025		0.025			0.025	0.025		0.025	
Chromium (diss.filt)	**50 (5)**			0.125	0.125		0.125	0.125	0.125	0.125	0.125		0.277	0.438		0.262	0.125	0.125	0.250		0.252			0.125	0.125		0.125	
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**			2.800		2.440	2.930	2.330	3.570	3.470		2.440	3.310		2.040	1.760	1.810	1.870		2.350			1.070	6.220		1.530	
Iron (diss.)	**1000 (AA) (1&2)**				616		450	635	644	857	764		795	769		797	444	473	341		556			225	616		620	
Mercury (diss.filt)	**0.07 MAC (1&2)**				0.0025		0.0025	0.0025	0.0025	0.0055	0.006		0.0025	0.0059		0.0025	0.0025	0.0025	0.0025		0.0025			0.0025	0.0025		0.0025	
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**			110		93	72	82	99	69		114	71		76	96.4	72	62		38			44	38		460	
Molybdenum (diss.filt)	**70 (8) ?**																											
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**			1.74		1.62	1.66	1.53	1.83	1.96		1.73	1.73		1.59	1.48	1.51	1.20		1.11			0.87	1.13		1.20	
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**			0.125		0.125	0.125	0.125	0.451	0.552		0.125	0.469		0.125	0.125	0.125	0.125		0.125			0.125	0.28		0.125	
Antimony (diss.filt)	**5 (5)**																											
Selenium (diss.filt)	**10(5)**	**10**		0.10	0.10		0.10	0.10	0.10	0.10	0.10		0.31	0.31		0.34	0.31	0.25	0.24		0.10			0.47	0.31		0.24	
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**			3.08		1.70	1.72	1.73	4.13	4.65		3.11	4.17		2.50	3.51	2.80	4.91		3.19			1.44	4.38		2.20	
Iron (Total)																1190				2093.852991		1490						
Manganese (Total)																96				124.800928		77						
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**																											
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**			0.025	0.025		0.025	0.025	0.025	0.025	0.025		0.025	0.025														
Aluminium (diss.filt)					50		50	50	50	50	50		50	50		50	5	50	50		50			20	50		50	
Vanadium (diss.filt)					0.281		0.237	0.320	0.257	0.426	0.459		0.276	0.438		0.125	0.195	0.197	0.235		0.251			0.092	0.132		0.168	
Phenols	**ug/l**																											
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		5.90			22.50						22.50			22.50					22.50		22.50	22.50			22.50		
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	**15000 (7)**			10	10		10	10	10	10	10		10	10						10		10	10			10		
EC>C6-C8	**15000 (7)**			12.5	12.5		12.5	12.5	12.5	12.5	12.5		12.5	12.5						12.5		12.5	12.5			12.5		
EC>C8-C10	**300 (7)**			7.5	7.5		7.5	7.5	7.5	7.5	7.5		7.5	7.5						7.5		7.5	7.5			7.5		
EC>C10-C12	**300 (7)**			5	5		5	5	5	5	5		5	5						5		5	5			5		
EC>C12-C16	**300 (7)**			5	5		5	5	5	5	5		5	5						5		5	5			5		
EC>C16-C21				5	5		5	5	5	5	5		23	5						5		5	5			5		
EC>C21-C35				5	5		5	5	5	5	5		5	5						5		5	5			40		
EC>C35-C44				5	5		5	5	5	5	5		5	5						5		5	5			5		
Aromatics																												
EC C5-C7	**10 (7)**			1	1		1	1	1	1	1		1	1						1		1	1			1		
EC>C7-C8	**700 (7)**			2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5						2.5		2.5	2.5			2.5		
EC>C8-C10	**300 (7)**			25	25		25	25	25	25	25		25	25						25		25	25			25		
EC>C10-C12	**90 (7)**			5	5		5	5	5	5	5		5	5						5		5	5			5		
EC>C12-C16	**90 (7)**			5	5		5	5	5	5	5		5	5						5		5	5			5		
EC>C16-C21	**90 (7)**			5	5		5	5	5	5	5		5	5						5		5	5			5		
EC>C21-C35	**90 (7)**			5	5		5	5	5	5	5		5	5						5		5	5			5		
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50					0.50		0.50	0.50			0.50		
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50					0.50		0.50	0.50			0.50		
Ethylbenzene	**300 (8)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50					0.50		0.50	0.50			0.50		
p/m-Xylene			0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00					1.00		1.00	1.00			1.00		
o-Xylene			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50					0.50		0.50	0.50			0.50		
Sum of detected Xylenes	**500 (8)**																											
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.500	0.003	0.003		0.003	0.003	0.003	0.003	0.003		0.003	0.003						0.003		0.008	0.003			0.003		
Acenaphthylene (aq)	**-**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.001	0.001			0.001		
Acenaphthene (aq)	**-**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.002	0.003			0.001		
Fluorene (aq)	**-**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.001	0.002			0.001		
Phenanthrene (aq)	**-**			0.002	0.002		0.002	0.002	0.002	0.002	0.002		0.002	0.002						0.002		0.002	0.002			0.002		
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.001	0.001			0.001		
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.004	0.001			0.001		
Pyrene (aq)	**-**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.004	0.001			0.001		
Benzo(a)anthracene (aq)	**-**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.001	0.001			0.001		
Chrysene (aq)	**-**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.001	0.001			0.001		
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.001	0.001			0.001		
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.001	0.001			0.001		
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.001	0.001			0.001		
Indeno(1,2,3-cd)pyrene (aq)	**-**			0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001						0.001		0.001	0.001			0.002		
Dibenzo(a,h)anthracene (aq)	**-**			0.002	0.002		0.002	0.002	0.002	0.002	0.002		0.002	0.002						0.002		0.002	0.002			0.003		
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**			0.001	0.002		0.002	0.002	0.002	0.002	0.002		0.002	0.002						0.002		0.002	0.002			0.003		
INORGANICS	**mg/l**																											
Dissolved Organic Carbon					9.4		7.6	10.7	8.2	17.5	19.9		12.3	16.8		9.7	7.7	9.1		4.56		11.1	5.1		6.9			8.9
pH	**6 - 9 (2&4)**				7.4		7.7	7.7	7.8	7.2	7.4		7.5	7.3		7.6	7.4	7.5		7.3		7.5	7.7		7.5			7.5
Alkalinity (Total)					65		69	55	71	34	33		52	28		49	48	45		28		33	85		75			57
Chloride	**250 (5)**				16.6		17	14	17	13	12		15	12		15	20	16		28		12	19		18			16
Ammoniacal Nitrogen					0.02		0.02	0.02	0.02	0.08	0.02			0.04		0.02	0.07	0.05		0.08		0.05	0.05		0.02			0.02
Nitrite					0.006		0.006	0.008	0.007	0.01	0.009			0.011		0.008	0.007	0.008		0.006		0.013	0.011		0.005			0.008
Nitrate	**50 (5)**				1.004		1.05	0.76	0.93	0.6	0.38			0.4		0.74	0.86	0.78		0.55		0.61	0.94		0.75			1.01
Sulphate	**250 (5)**				9.35		6.45	8.38	8.85	4.50	4.05		7.77	3.05		6.63	7.31	6.37	5.40		4.58			9.70	10.70		9.41	
Sulphide																												
Calcium					25.70		26.20	22.50	27.30	14.70	13.10		21.60	11.60		20.50	19.70	18.70	13.40		13.70			32.10	28.10		23.80	
Potassium					2.81		2.37	2.27	2.57	2.83	2.74		2.01	2.31		2.72	2.57	3.03	2.71		1.64			2.14	1.93		1.84	
Magnesium					4.60		3.34	4.00	5.07	2.05	2.52		3.83	1.95		3.54	3.22	0.09	2.21		2.54			5.93	5.38		4.31	
Sodium	**200(5)**				11.00		11.00	10.00	11.40	7.59	7.14		9.74	6.65		10.40	12.70	10.10	17.20		8.53			13.00	12.10		11.20	
Biochemical Oxygen Demand					1.5		1.5	1.0	1.0	1.5	1.5			1.5		1.5	1.0	1.0		1.5		1.5	1.5		2.8			1.0
Chemical Oxygen Demand					31		25	32	24	49				50		20	21	25		22		36	10		10			23
Conductivity					219		228	188	229	138	124		184	119		179	192	173		180		132	262		242			209
Total Oxidisable Nitrogen					1.01		1.06	0.77	0.94	0.61	0.39			0.41		0.75	0.87	0.79		0.56		0.62	0.95		0.75			1.02
Total Phosphorus					0.125		0.125	0.125	0.125	0.125	0.125			0.125		0.125	0.125	0.125		0.125		0.125	0.125		0.125			0.125

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2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																										
HEAVY METALS	**µg/l**		07/02/2019	11/02/2019	27/03/2019	28/03/2019	11/04/2019	29/04/2019	21/05/2019	22/05/2019	19/06/2019	20/06/2019	04/07/2019	05/07/2019	07/08/2019	08/08/2019	03/09/2019	10/09/2019	11/09/2019	17/09/2019	24/09/2019	02/10/2019	09/10/2019	15/10/2019	06/11/2019	12/11/2019	20/11/2019	26/11/2019
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			0.46		0.27	0.36			0.33		0.47		0.38		0.56			0.59					0.52	0.48			
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l			0.025		0.025	0.025			0.025		0.025		0.025		0.025			0.025					0.025	0.025			
Chromium (diss.filt)	50 (5)			0.250		0.250	0.250			0.250		0.250		0.250		0.250			0.250					0.250	0.250			
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94		2.462		1.260	1.810			0.927		2.011		1.600		2.297			2.201					2.440	1.698			
Iron (diss.)	1000 (AA) (1&2)			398		254	432			99		647		239		814			888					760	868			
Mercury (diss.filt)	0.07 MAC (1&2)			0.0025		0.0025	0.0025			0.0025		0.0025		0.0025		0.0025			0.0025					0.0025	0.0025			
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92		38.64461391		47.75854345	36			35.56090905		29.87483353		42		12.5			50.05117763					50	45.9080274			
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		1.22		1.01	1.06			0.85		1.29		1.02		1.59			1.70					1.72	1.53			
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		0.29633668		0.125	0.125			0.125		0.125		0.125		0.125			0.25307684					0.125	0.125			
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10		0.23		0.35	0.39			0.30		0.33		0.36		0.42			0.42					0.42	0.36			
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15		4.07		2.04	2.10			0.50		2.21		1.11		2.14			3.36					2.91	2.36			
Iron (Total)																												
Manganese (Total)																												
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)			0.25		0.25	0.25			0.25		0.25		0.25		0.25			0.25					0.25	0.25			
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)			0.025		0.025	0.025			0.025		0.025		0.025		0.025			0.025					0.025	0.025			
Aluminium (diss.filt)				50		50	50			50		50		50		50			50					50	50			
Vanadium (diss.filt)				0.327		0.098	0.133			0.063		0.203				0.247			0.252					0.222	0.195			
Phenols	**ug/l**																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)										22.50		22.50				22.50	22.50		22.50	22.50	22.50			22.50	22.50	22.50	22.50
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	15000 (7)												10		10		10	10		10	10				10	10	10	10
EC>C6-C8	15000 (7)												12.5		12.5		12.5	12.5		12.5	12.5				12.5	12.5	12.5	12.5
EC>C8-C10	300 (7)												7.5		7.5		7.5	7.5		7.5	7.5				7.5	7.5	7.5	7.5
EC>C10-C12	300 (7)												5												5	5	5	5
EC>C12-C16	300 (7)												5												5			
EC>C16-C21													5												5	5	5	5
EC>C21-C35													5												5	5	5	5
EC>C35-C44													5												5	5	5	5
Aromatics																												
EC C5-C7	10 (7)												1		1		1	1		1	1				1	1	1	1
EC>C7-C8	700 (7)												2.5		2.5		2.5	2.5		2.5	2.5				2.5	2.5	2.5	2.5
EC>C8-C10	300 (7)																											
EC>C10-C12	90 (7)												5												5	5	5	5
EC>C12-C16	90 (7)												5												5			
EC>C16-C21	90 (7)												5												5	5	5	5
EC>C21-C35	90 (7)												5												5	5	5	5
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)												0.50		0.50		0.50	0.50		0.50	0.50				0.50	0.50	0.50	0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)												0.50		0.50		0.50	0.50		0.50	0.50				0.50	0.50	0.50	0.50
Ethylbenzene	300 (8)												0.50		0.50		0.50	0.50		0.50	0.50				0.50	0.50	0.50	0.50
p/m-Xylene													1.00		1.00		1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
o-Xylene													0.50		0.50		0.50	0.50		0.50	0.50				0.50	0.50	0.50	0.50
Sum of detected Xylenes	500 (8)												1.50		1.50		1.50	1.50		1.50	1.50				1.50	1.50	1.50	1.50
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)										0.003		0.003				0.003	0.003		0.003	0.003	0.003			0.014	0.009	0.038	0.047
Acenaphthylene (aq)	-										0.001		0.001				0.001	0.001		0.001	0.001	0.001			0.002	0.001	0.004	0.008
Acenaphthene (aq)	-										0.002		0.001				0.001	0.001		0.003	0.001	0.001			0.003	0.003	0.007	0.011
Fluorene (aq)	-										0.002		0.001				0.001	0.001		0.002	0.001	0.001			0.002	0.003	0.006	0.021
Phenanthrene (aq)	-										0.002		0.002				0.004	0.004		0.005	0.006	0.006			0.006	0.012	0.016	0.025
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)										0.001		0.001				0.001	0.001		0.001	0.001	0.001			0.001	0.001	0.001	0.001
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)										0.001		0.001				0.004	0.001		0.001	0.001	0.001			0.004	0.010	0.005	0.005
Pyrene (aq)	-										0.001		0.001				0.002	0.001		0.001	0.001	0.001			0.003	0.007	0.004	0.005
Benzo(a)anthracene (aq)	-										0.001		0.001				0.001	0.001		0.001	0.001	0.001			0.001	0.002	0.001	0.001
Chrysene (aq)	-										0.001		0.001				0.001	0.001		0.001	0.001	0.001			0.001	0.003	0.001	0.001
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)										0.002		0.003				0.001	0.001		0.001	0.001	0.001			0.001	0.003	0.001	0.001
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)										0.002		0.003				0.001	0.001		0.001	0.001	0.001			0.001	0.001	0.001	0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**										**0.003**		**0.003**				**0.001**	**0.001**		**0.001**	**0.001**	**0.001**			**0.001**	**0.001**	**0.001**	**0.001**
Indeno(1,2,3-cd)pyrene (aq)	-										0.003		0.002				0.001	0.001		0.001	0.001	0.001			0.001	0.002	0.001	0.001
Dibenzo(a,h)anthracene (aq)	-										0.002		0.005				0.002	0.002		0.002	0.002	0.002			0.002	0.002	0.002	0.002
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)										0.002		0.002				0.002	0.002		0.002	0.002	0.002			0.002	0.002	0.002	0.002
INORGANICS	**mg/l**																											
Dissolved Organic Carbon			10.1		5			8.7	4.4		10.6		4.5		14.8			12.1						10	9.6			
pH	6 - 9 (2&4)		7.2		7.5			7.5	7.6		7.7		7.9		7.7			7.6						7.6	7.5			
Alkalinity (Total)			29		62			54	85		55		86		65			54						60	60			
Chloride	250 (5)		17		20			18	19		15		20		16			15						17	17			
Ammoniacal Nitrogen			0.08		0.02			0.02	0.02		0.05		0.02		0.02			0.02						0.15	0.02			
Nitrite			0.007		0.0025			0.005	0.008		0.008		0.007		0.01			0.006						0.009	0.007			
Nitrate	50 (5)		0.84		1.06			0.76	0.98		0.76		0.98		0.92			1.14						1.17	1.02			
Sulphate	250 (5)			5.97		10.20	9.23			10.40		8.93		10.60		8.56			9.15					9.41	9.03			
Sulphide				0.005		0.005				0.005		0.005				0.005			0.005						0.005			
Calcium				12.82		26.58	23.90			32.30		22.26		34.20		24.81			22.98					25.60	24.58			
Potassium				2.36		2.00	1.81			2.12		1.58		2.31		2.20			2.01					3.01	2.22			
Magnesium				2.36		4.42	4.51			5.93		4.12		6.28		4.75			3.96					4.42	4.28			
Sodium	200(5)			10.31		12.76	12.30			12.90		10.62		13.20		10.96			10.39					11.70	11.19			
Biochemical Oxygen Demand			2.4		1.0			1.0	1.0		1.0		2.2		1.0			1.0						1.0	1.0			
Chemical Oxygen Demand			37		11			22	10		30		10		37			35						29	25			
Conductivity			136		229			195	260		190		268		205			192						206	211			
Total Oxidisable Nitrogen			0.85		1.06			0.76	0.99		0.77		0.99		0.93			1.15						1.18	1.03			
Total Phosphorus			0.125		0.125			0.125	0.125		0.125		0.125		0.125			0.125						0.125	0.125			

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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW6																							
HEAVY METALS	µg/l		03/12/2019	11/12/2019	16/12/2019	30/12/2019	06/01/2020	07/01/2020	15/01/2020	22/01/2020	27/01/2020	05/02/2020	11/02/2020	19/02/2020	26/02/2020	03/03/2020	11/03/2020	18/03/2020	30/06/2020	07/07/2020	15/07/2020	21/07/2020	28/07/2020	04/08/2020	10/08/2020	18/08/2020	24/08/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)						0.38			0.35					0.37			0.33							0.57		
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l						0.025			0.025					0.025			0.025							0.025		
Chromium (diss.filt)	50 (5)						0.250			0.125					0.125			0.125							0.290		
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94					1.826			1.313					2.254			1.558							2.020		
Iron (diss.)	1000 (AA) (1&2)						495			460					343			422							956		
Mercury (diss.filt)	0.07 MAC (1&2)						0.0025			0.0025					0.0025			0.0025							0.0025		
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92					43.09512415			50.34239967					80.74442549			47.00128738							43.39954053		
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98					1.24			1.29					1.35			1.10							1.70		
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64					0.125			0.125					0.125			0.205							0.180939332		
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10					0.30			0.37					0.27			0.10							0.10		
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15					2.72			1.89					4.91			3.85							2.31		
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)						0.25																		0.29		
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)						0.025																		0.025		
Aluminium (diss.filt)							50			50					50			50							50		
Vanadium (diss.filt)							0.162			0.125					0.204			0.202							0.222		
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50	22.50	22.50	22.50		22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50									
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)		10	10	10	10		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
EC>C6-C8	15000 (7)		12.5	12.5	12.5	12.5		12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
EC>C8-C10	300 (7)		7.5	7.5	7.5	7.5		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
EC>C10-C12	300 (7)		5	5	5	5			5	5	5	5	5	5	5	5	5	5									
EC>C12-C16	300 (7)																										
EC>C16-C21			5	5	5	5			5	5	5	5	5	5	5	5	5	5									
EC>C21-C35			5	5	5	5			5	5	5	5	5	5	5	5	5	5									
EC>C35-C44			5	5	5	5			5	5	5	5	5	5	5	5	5	5									
Aromatics																											
EC C5-C7	10 (7)		1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EC>C7-C8	700 (7)		2.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
EC>C8-C10	300 (7)																										
EC>C10-C12	90 (7)		5	5	5	5			5	5	5	5	5	5	5	5	5	5									
EC>C12-C16	90 (7)																										
EC>C16-C21	90 (7)		5	5	5	5			5	5	5	5	5	5	5	5	5	5									
EC>C21-C35	90 (7)		5	5	5	5			5	5	5	5	5	5	5	5	5	5									
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Ethylbenzene	300 (8)		0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
p/m-Xylene			1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
o-Xylene			0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Sum of detected Xylenes	500 (8)		1.50	1.50	1.50	1.50		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.028		0.082			0.019	0.011	0.003	0.006	0.003	0.003	0.003	0.003	0.003	0.003	0.008									
Acenaphthylene (aq)	-		0.001		0.012			0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001									
Acenaphthene (aq)	-		0.008		0.010			0.006	0.004	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.001	0.001									
Fluorene (aq)	-		0.010		0.015			0.004	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001									
Phenanthrene (aq)	-		0.047		0.051			0.013	0.007	0.004	0.007	0.004	0.002	0.002	0.002	0.002	0.002	0.002									
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.002		0.002			0.001	0.001	0.002	0.004	0.001	0.001	0.001	0.001	0.001	0.001	0.001									
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.006		0.013			0.006	0.006	0.001	0.003	0.001	0.001	0.001	0.001	0.002	0.001	0.001									
Pyrene (aq)	-		0.003		0.011			0.006	0.007	0.002	0.003	0.002	0.001	0.001	0.001	0.001	0.001	0.002									
Benzo(a)anthracene (aq)	-		0.001		0.001			0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001									
Chrysene (aq)	-		0.001		0.003			0.003	0.003	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001									
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001		0.003			0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001									
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001		0.001			0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001									
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.002**		0.001			**0.002**	**0.002**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	0.001	0.001	**0.001**									
Indeno(1,2,3-cd)pyrene (aq)	-		0.001		0.004			0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001									
Dibenzo(a,h)anthracene (aq)	-		0.002		0.002			0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002									
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.002		0.003			0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002									
INORGANICS	mg/l																										
Dissolved Organic Carbon								7.1		4.9					5.9			8.5							7.6		
pH	6 - 9 (2&4)							7.6		7.7					7.4			7.3							7.8		
Alkalinity (Total)								50		61					37			28							61		
Chloride	250 (5)							16		19					26			16							17		
Ammoniacal Nitrogen								0.02		0.04					0.12			0.06							0.02		
Nitrite								0.009		0.008					0.007			0.005							0.008		
Nitrate	50 (5)							0.95		1.49					1.05			0.65							0.96		
Sulphate	250 (5)						6.07			9.96					8.90			5.18							10.01		
Sulphide							0.01																				
Calcium							17.03			26.78					20.64			13.25							26.87		
Potassium							1.58			2.38					2.79			1.72							2.27		
Magnesium							3.00			4.57					3.36			2.43							4.70		
Sodium	200(5)						8.61			12.31					17.59			9.97							12.08		
Biochemical Oxygen Demand								1.0		1.0					1.0			1.0							1.0		
Chemical Oxygen Demand								21		10					10			26							27		
Conductivity								184		221					191			131							215		
Total Oxidisable Nitrogen								0.96		1.5					1.06			0.65							0.97		
Total Phosphorus								0.125		0.125					0.125			0.125							0.125		

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																										
HEAVY METALS	**µg/l**		**03/09/2020**	**07/09/2020**	**24/09/2020**	**01/10/2020**	**06/10/2020**	**13/10/2020**	**20/10/2020**	**27/10/2020**	**02/11/2020**	**10/11/2020**	**17/11/2020**	**26/11/2020**	**01/12/2020**	**14/12/2020**	**21/12/2020**	**05/01/2021**	**11/01/2021**	**21/01/2021**	**25/01/2021**	**03/02/2021**	**16/02/2021**	**04/03/2021**	**09/03/2021**	**18/03/2021**	**25/03/2021**	**30/03/2021**
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**			0.57				0.59				0.46			0.44				0.36			0.40			0.28			
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**			0.025				0.025				0.025			0.025				0.025			0.025			0.025			
Chromium (diss.filt)	**50 (5)**			0.337				4.730				0.125			0.283				0.125			0.262			0.125			
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**		1.935				2.950				1.685			1.615				1.288			1.722			1.030			
Iron (diss.)	**1000 (AA) (1&2)**			777				780				567			566				416			503			251			
Mercury (diss.filt)	**0.07 MAC (1&2)**			0.0025				0.0025				0.0025			0.0025				0.0025			0.0025			0.0025			
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**		37.48676381				43.99146741				58.3571059			56.93089252				54.16076255			45.37225647			40.28902063			
Molybdenum (diss.filt)	**70 (8) ?**																											
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**		1.62				2.47				1.48			1.56				1.25			1.25			1.10			
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**		0.252664694				0.322				0.141709521			0.314811383				0.138445283			0.252334423			0.025			
Antimony (diss.filt)	**5 (5)**																											
Selenium (diss.filt)	**10(5)**	**10**		0.10				0.10				0.10			0.10				0.10			0.23			0.10			
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**		2.55				3.33				2.78			2.89				2.81			3.86			2.44			
Iron (Total)																												
Manganese (Total)																												
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**			0.26				4.73				0.13			0.26				0.13			0.26			0.13			
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**			0.073				0.025				0.025			0.025				0.125			0.025			0.025			
Aluminium (diss.filt)				50				108.8482611				50			50				50			50			50			
Vanadium (diss.filt)				0.279				0.323				0.194			0.188				0.157			0.245			0.088			
Phenols	**ug/l**																											
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**				22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	**15000 (7)**		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
EC>C6-C8	**15000 (7)**		12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
EC>C8-C10	**300 (7)**		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
EC>C10-C12	**300 (7)**																											
EC>C12-C16	**300 (7)**																											
EC>C16-C21																												
EC>C21-C35																												
EC>C35-C44																												
Aromatics																												
EC C5-C7	**10 (7)**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EC>C7-C8	**700 (7)**		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
EC>C8-C10	**300 (7)**																											
EC>C10-C12	**90 (7)**																											
EC>C12-C16	**90 (7)**																											
EC>C16-C21	**90 (7)**																											
EC>C21-C35	**90 (7)**																											
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Ethylbenzene	**300 (8)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
p/m-Xylene			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
o-Xylene			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Sum of detected Xylenes	**500 (8)**		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**						0.006	0.003		0.003	0.020	0.006	0.009	0.003	0.065	0.003	0.003	0.010	0.011	0.003	0.026	0.039	0.012	0.048	0.003	0.006	0.081	0.003
Acenaphthylene (aq)	**-**						0.003	0.001		0.001	0.002	0.001	0.001	0.001	0.004	0.001	0.001	0.002	0.002	0.004	0.002	0.002	0.002	0.005	0.001	0.002	0.001	0.001
Acenaphthene (aq)	**-**						0.001	0.002		0.001	0.006	0.002	0.002	0.001	0.008	0.001	0.001	0.003	0.003	0.002	0.003	0.003	0.003	0.011	0.003	0.003	0.005	0.001
Fluorene (aq)	**-**						0.001	0.005		0.001	0.005	0.001	0.002	0.001	0.007	0.001	0.001	0.002	0.003	0.003	0.004	0.003	0.003	0.005	0.002	0.001	0.003	0.001
Phenanthrene (aq)	**-**						0.005	0.005		0.004	0.014	0.004	0.006	0.002	0.015	0.004	0.004	0.002	0.002	0.008	0.007	0.007	0.002	0.002	0.002	0.002	0.002	0.002
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**						0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.019	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**						0.003	0.001		0.001	0.008	0.003	0.003	0.001	0.006	0.001	0.002	0.001	0.001	0.006	0.003	0.004	0.001	0.001	0.003	0.001	0.001	0.001
Pyrene (aq)	**-**						0.004	0.002		0.002	0.007	0.003	0.003	0.001	0.005	0.002	0.003	0.001	0.002	0.006	0.002	0.004	0.001	0.001	0.003	0.001	0.001	0.001
Benzo(a)anthracene (aq)	**-**						0.001	0.001		0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.003	0.001	0.001	0.001	0.001
Chrysene (aq)	**-**						0.003	0.001		0.001	0.004	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.002	0.003	0.001	0.002	0.001	0.001	0.002	0.002	0.001	0.001
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**						0.002	0.001		0.001	0.004	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**						0.001	0.001		0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**						**0.003**	**0.001**		**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	0.001	**0.001**	**0.003**	**0.002**	**0.001**	**0.002**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
Indeno(1,2,3-cd)pyrene (aq)	**-**						0.001	0.001		0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.004	0.001	0.005	0.001	0.001	0.001	0.001	0.001	0.001
Dibenzo(a,h)anthracene (aq)	**-**						0.002	0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**						0.002	0.002		0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.004	0.003	0.002	0.004	0.002	0.002	0.002	0.002	0.002	0.002
INORGANICS	**mg/l**																											
Dissolved Organic Carbon				10.4				13.1				8.2			7.1				8.3			12.5			4.9			
pH	**6 - 9 (2&4)**			7.7				7.5				7.5			7.5				7.5			7.3			7.7			
Alkalinity (Total)				55				43				54			56				45			29			70			
Chloride	**250 (5)**			14				18				20			22				20			12			19			
Ammoniacal Nitrogen				0.02				0.02				0.02			0.02				0.05			0.06			0.02			
Nitrite				0.009				0.008				0.009			0.008				0.011			0.01			0.009			
Nitrate	**50 (5)**			0.87				0.67				1.11			1.22				1.04			0.62			0.74			
Sulphate	**250 (5)**			8.36				7.27				8.66			8.61				7.35			5.09			10.09			
Sulphide																												
Calcium				22.60				18.93				22.91			23.50				19.65			13.25			29.18			
Potassium				2.19				2.34				2.33			2.30				2.02			1.93			2.16			
Magnesium				3.82				3.21				3.82			3.86				3.38			2.20			4.92			
Sodium	**200(5)**			9.85				9.46				10.95			11.08				12.27			8.58			12.53			
Biochemical Oxygen Demand				2.2				1.0				1.0			1.0				1.0			2.5			1.5			
Chemical Oxygen Demand				26				36				21			19				16			26			5			
Conductivity				183				155				196			198				185			128			237			
Total Oxidisable Nitrogen				0.88				0.68				1.12			1.23				1.05			0.63			0.75			
Total Phosphorus				0.125				0.125				0.125			0.125				0.125			0.125			0.125			

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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																									
HEAVY METALS	µg/l		07/04/2021	14/04/2021	20/04/2021	21/04/2021	27/04/2021	04/05/2021	11/05/2021	18/05/2021	26/05/2021	02/06/2021	10/06/2021	15/06/2021	23/06/2021	29/06/2021	05/07/2021	15/07/2021	21/07/2021	29/07/2021	05/08/2021	11/08/2021	17/08/2021	25/08/2021	02/09/2021	08/09/2021	16/09/2021
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)					0.36			0.37						0.32				0.38		0.63						
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l					0.025			0.025						0.025				0.025		0.025						
Chromium (diss.filt)	50 (5)					0.125			0.125						0.125				0.125		0.306						
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94				1.150			1.446						0.818				0.768		2.414						
Iron (diss.)	1000 (AA) (1&2)					404			439						193				80		600						
Mercury (diss.filt)	0.07 MAC (1&2)					0.0025			0.0025						0.0025				0.0025		0.0025						
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92				37.56275792			27.77853043						41.55992811				65.34307399		12.5						
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98				1.26			0.99						0.93				0.91		1.61						
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64				0.068615619			0.133354685						0.025				0.025		0.296160966						
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10				0.10			0.10						0.10				0.10		0.10						
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15				1.93			2.13						1.00				0.25		2.17						
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)					0.13			0.13						0.13				0.13		0.30						
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)					0.128			0.111						0.025				0.025		0.025						
Aluminium (diss.filt)						50			50						50				50		50						
Vanadium (diss.filt)						0.099			0.194						0.062				0.025		0.276						
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50	22.50		22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)		10	10		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
EC>C6-C8	15000 (7)		12.5	12.5		12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
EC>C8-C10	300 (7)		7.5	7.5		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
EC>C10-C12	300 (7)			5																							
EC>C12-C16	300 (7)																										
EC>C16-C21				5																							
EC>C21-C35				5																							
EC>C35-C44				5																							
Aromatics																											
EC C5-C7	10 (7)		1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EC>C7-C8	700 (7)		2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
EC>C8-C10	300 (7)																										
EC>C10-C12	90 (7)			5																							
EC>C12-C16	90 (7)																										
EC>C16-C21	90 (7)			5																							
EC>C21-C35	90 (7)			5																							
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Ethylbenzene	300 (8)		0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
p/m-Xylene			1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
o-Xylene			0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Sum of detected Xylenes	500 (8)		1.50	1.50		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.003	0.020		0.188	0.009	0.133	0.003	0.003	0.084	0.017	0.016	0.003	0.003	0.075		0.003	0.003	0.003	0.003	0.008	0.003	0.003	0.009	0.003	0.003
Acenaphthylene (aq)	-		0.001	0.001			0.001	0.003	0.001	0.001	0.008	0.002	0.002	0.004	0.001	0.003		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001
Acenaphthene (aq)	-		0.001	0.007		0.005	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.005	0.001	0.001	0.001	0.004	0.001	0.002	0.003	0.001
Fluorene (aq)	-		0.001	0.004		0.001	0.002	0.001	0.001	0.001	0.003	0.002	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002
Phenanthrene (aq)	-		0.002	0.005		0.002	0.005	0.002	0.002	0.002	0.010	0.002	0.005	0.002	0.005	0.002		0.005	0.002	0.002	0.002	0.002	0.002	0.002	0.004	0.002	0.002
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.001
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.001	0.001		0.007	0.003	0.003	0.001	0.003	0.007	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.004	0.001	0.001	0.001	0.004	0.001	0.001
Pyrene (aq)	-		0.001	0.001		0.006	0.002	0.002	0.001	0.003	0.005	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.002	0.001	0.001
Benzo(a)anthracene (aq)	-		0.001	0.001		0.002	0.004	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Chrysene (aq)	-		0.001	0.001		0.006	0.006	0.002	0.004	0.002	0.004	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001	0.001		0.003	0.005	0.001	0.004	0.002	0.003	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.002	0.001	0.002	0.001	0.001	0.002	0.001	0.001
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001	0.001		0.002	0.006	0.001	0.005	0.001	0.002	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.003	0.002	0.003	0.001	0.001	0.002	0.001	0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		0.001	0.001		0.002	0.007	0.001	0.007	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.005	0.001	0.005	0.001	0.001	0.001	0.001	0.001
Indeno(1,2,3-cd)pyrene (aq)	-		0.001	0.001		0.001	0.004	0.001	0.006	0.001	0.002	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.003	0.001	0.004	0.001	0.001	0.004	0.001	0.001
Dibenzo(a,h)anthracene (aq)	-		0.002	0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.002	0.002		0.002	0.003	0.002	0.004	0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
INORGANICS	mg/l																										
Dissolved Organic Carbon					10.2				9.2						4.7												
pH	6 - 9 (2&4)				7.7				7.8						7.8				7.9		7.6						
Alkalinity (Total)					65				43						84				97		46						
Chloride	250 (5)				17				12						18				19		14						
Ammoniacal Nitrogen					0.02				0.02						0.02				0.02		0.06						
Nitrite					0.005				0.005						0.006				0.009		0.016						
Nitrate	50 (5)				0.91				0.45						0.89				0.81		0.69						
Sulphate	250 (5)					7.10			6.90						10.57				10.46		8.61						
Sulphide																											
Calcium						20.09			16.41						31.82				35.20		15.63						
Potassium						1.53			1.47						1.94				2.36		1.96						
Magnesium						3.52			3.14						5.78				6.43		3.11						
Sodium	200(5)					9.23			8.80						12.96				13.69		8.06						
Biochemical Oxygen Demand					1.0				1.5						1.5				1.5		2.8						
Chemical Oxygen Demand					15				29						15				12		52						
Conductivity					218				150						257				294		168						
Total Oxidisable Nitrogen					0.91				0.45						0.9				0.82		0.71						
Total Phosphorus					0.125				0.125						0.125				0.125		0.125						

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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

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Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																										
HEAVY METALS	**µg/l**		23/09/2021	30/09/2021	05/10/2021	12/10/2021	20/10/2021	27/10/2021	02/11/2021	09/11/2021	17/11/2021	24/11/2021	29/11/2021	07/12/2021	08/12/2021	14/12/2021	20/12/2021	06/01/2022	10/01/2022	20/01/2022	24/01/2022	02/02/2022	08/02/2022	14/02/2022	21/02/2022	22/02/2022	01/03/2022	08/03/2022
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.55				0.65					0.52			0.49						0.32					0.38		
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**		0.025				0.025					0.025			0.025						0.025					0.025		
Chromium (diss.filt)	**50 (5)**		0.125				0.359					0.251			0.274						0.125					0.125		
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	1.232				3.412					1.597			2.142						1.144					1.803		
Iron (diss.)	**1000 (AA) (1&2)**		878				**1106**					**1082**			398						416					239		
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025				0.006833936					0.0025			0.0025						0.0025					0.0025		
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	28.58910791				39.40485843					38.74661982			39.59551609						45.83831465					39.04963824		
Molybdenum (diss.filt)	**70 (8) ?**																											
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.31				1.81					1.47			1.24						1.15					1.12		
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.090706625				0.477192836					0.15836176			0.315221021						0.025					0.211611445		
Antimony (diss.filt)	**5 (5)**																											
Selenium (diss.filt)	**10(5)**	**10**	0.10				0.23					0.10			0.10						0.10					0.10		
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	1.01				4.77					3.46			4.47						1.47					3.39		
Iron (Total)																												
Manganese (Total)																												
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.13				0.36					0.25			0.27						0.13					0.13		
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.025				0.025					0.025			0.025						0.025					0.025		
Aluminium (diss.filt)			50				165.2951494					161.8064758			50						50					50		
Vanadium (diss.filt)			0.184				0.357					0.217			0.329						0.104					0.227		
Phenols	**ug/l**																											
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50		22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50		22.50	22.50
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	**15000 (7)**		10	10	10	10	10	10	10	10	10	10	10	10		10	10	10	10	10	10	10	10	10	10		10	10
EC>C6-C8	**15000 (7)**		12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5		12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5		12.5	12.5
EC>C8-C10	**300 (7)**		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5		7.5	7.5
EC>C10-C12	**300 (7)**																											
EC>C12-C16	**300 (7)**																											
EC>C16-C21																												
EC>C21-C35																												
EC>C35-C44																												
Aromatics																												
EC C5-C7	**10 (7)**		1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1		1	1
EC>C7-C8	**700 (7)**		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		2.5	2.5
EC>C8-C10	**300 (7)**																											
EC>C10-C12	**90 (7)**																											
EC>C12-C16	**90 (7)**																											
EC>C16-C21	**90 (7)**																											
EC>C21-C35	**90 (7)**																											
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50
Ethylbenzene	**300 (8)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50
p/m-Xylene			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
o-Xylene			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50
Sum of detected Xylenes	**500 (8)**		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50		1.50	1.50
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.003	0.003	0.006	0.006	0.003	0.025				0.015	0.012	0.008		0.012	0.012	0.007	0.003	0.003	0.003	0.003	0.025	0.003			0.003	0.010
Acenaphthylene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.057	0.001		0.002	0.002	0.001		0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001			0.001	0.002
Acenaphthene (aq)	**-**		0.001	0.001	0.003	0.001	0.001	0.008	0.032	0.011		0.003	0.002	0.001		0.002	0.002	0.003	0.001	0.002	0.003	0.002	0.002	0.002			0.003	0.008
Fluorene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.004	0.012	0.006		0.001	0.001	0.001		0.001	0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.001			0.003	0.003
Phenanthrene (aq)	**-**		0.002	0.002	0.005	0.007	0.002	0.002	0.026	0.002		0.005	0.006	0.005		0.004	0.002	0.006	0.002	0.004	0.002	0.004	0.005	0.006			0.069	0.010
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		0.001	0.001	0.001	0.005	0.002	0.006	0.011	0.008		0.001	0.001	0.001		0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001			0.002	0.001
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		0.001	0.001	0.002	0.014	0.002	0.001	0.001	0.001		0.003	0.004	0.005		0.001	0.001	0.026	0.002	0.003	0.001	0.003	0.007	0.008			0.047	0.014
Pyrene (aq)	**-**		0.001	0.001	0.002	0.012	0.002	0.003	0.034	0.002		0.004	0.003	0.004		0.002	0.001	0.011	0.001	0.002	0.001	0.003	0.006	0.007			0.021	0.011
Benzo(a)anthracene (aq)	**-**		0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001		0.001	0.001	0.002		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.003			0.001	0.003
Chrysene (aq)	**-**		0.001	0.001	0.001	0.006	0.001	0.001	0.002	0.001		0.002	0.001	0.003		0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.003	0.005			0.001	0.006
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001	0.001	0.001	0.004	0.001	0.001	0.001	0.001		0.001	0.001	0.004		0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.004			0.001	0.005
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001		0.001	0.001	0.002		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.003			0.001	0.003
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.001**	**0.001**	**0.001**	**0.003**	0.001	**0.010**	0.001	**0.001**		**0.001**	**0.001**	**0.004**		**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.002**	**0.003**	**0.005**			**0.001**	**0.004**
Indeno(1,2,3-cd)pyrene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.006		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.005			0.001	0.004
Dibenzo(a,h)anthracene (aq)	**-**		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002			0.002	0.002
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.004		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.004			0.002	0.003
INORGANICS	**mg/l**																											
Dissolved Organic Carbon			8.9				22.2					8.7			11.8						6.7					6.7		
pH	**6 - 9 (2&4)**		7.8				7.3					7.6			7.3						7.5					7.4		
Alkalinity (Total)			74				31					63			23						66					30		
Chloride	**250 (5)**		16				12					19			15						18					31		
Ammoniacal Nitrogen			0.02				0.1					0.04			0.05						0.02					0.05		
Nitrite			0.0025				0.053					0.006			0.0025						0.011					0.005		
Nitrate	**50 (5)**		0.57				4.96					0.97			0.78						1.56					1.06		
Sulphate	**250 (5)**		9.54				7.57					7.35			5.74						10.26					7.45		
Sulphide																												
Calcium			28.26				15.08					14.79			11.71						28.76					16.46		
Potassium			2.11				2.21					2.17			2.77						2.26					2.84		
Magnesium			5.29				2.69					2.65			2.11						4.95					3.29		
Sodium	**200(5)**		11.80				8.68					8.54			9.00						12.43					15.85		
Biochemical Oxygen Demand			2.0				1.5					1.5			1.5						1.5					1.5		
Chemical Oxygen Demand			25				59					20			34						13					23		
Conductivity			230				129					219			125						234					198		
Total Oxidisable Nitrogen			0.57				5.01					0.98			0.78						1.57					1.06		
Total Phosphorus			0.125				0.125					0.125			0.125						0.125					0.125		

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:
Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																										
HEAVY METALS	µg/l		22/03/2022	29/03/2022	20/07/2016	09/08/2016	27/09/2016	09/01/2017	11/01/2017	06/03/2017	07/03/2017	19/07/2017	20/07/2017	15/08/2017	29/08/2017	30/08/2017	31/08/2017	05/09/2017	07/09/2017	12/09/2017	14/09/2017	15/09/2017	18/09/2017	21/09/2017	22/09/2017	25/10/2017	30/11/2017	04/12/2017
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.29					12.50			12.50	0.44			0.57		0.54	0.59	0.51	0.69	0.83		0.60	0.65		0.51	0.42	0.45
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025					5.000			5.000	0.025			0.570		0.025	0.025	0.025	0.025	0.025		0.025	0.025		0.025	0.025	0.025
Chromium (diss.filt)	50 (5)		0.125					12.500			12.500	0.125		0.125	0.125		0.125	0.125	0.125	0.125	0.125		0.268	0.443		0.252	0.125	0.125
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	1.110					10.000			10.000	0.500			3.040		2.370	2.940	2.270	3.430	3.690		2.370	3.490		2.000	1.800	1.990
Iron (diss.)	1000 (AA) (1&2)		273					594			534	595			611		536	686	661	850	744		774	744		742	423	449
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025					0.0025			0.0025	0.0025			0.0025		0.0025	0.0025	0.0025	0.0052	0.0056		0.0025	0.0054		0.0025		0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	33.20073766					22			81	67			221		242	188	190	67	97		189	75		106	113	86
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	1.01					12.50			12.50	1.11			1.85		1.74	1.77	1.60	1.81	2.07		1.79	1.74		1.59	1.47	1.61
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.025					12.5			12.5	0.125			0.125		0.125	0.125	0.125	0.468	0.567		0.125	0.45		0.125	0.125	0.125
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10	0.10									0.25		0.10	0.10		0.10	0.10	0.10	0.10	0.10		0.35	0.35		0.36	0.31	0.28
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	1.45					10.00			10.00	0.50			2.26		2.11	3.35	1.69	3.65	4.06		3.16	4.28		2.93	3.51	5.98
Iron (Total)									1920		934	897														1100		
Manganese (Total)									134		110	93														127		
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.13									0.25																
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025									0.025		0.025	0.025		0.025	0.025	0.025	0.025	0.025		0.025	0.025				
Aluminium (diss.filt)			50					50			50	50			50		50	50	50	50	50		50	50		50	5	50
Vanadium (diss.filt)			0.095									0.115			0.288		0.243	0.302	0.224	0.442	0.440		0.250	0.443		0.125	0.195	0.194
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50	22.50				1.25		1.25			9.20			22.50						22.50			22.50			
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)		10	10				25		25				10	10		10	10	10	10	10		10	10				
EC>C6-C8	15000 (7)		12.5	12.5				30		30				12.5	12.5		12.5	12.5	12.5	12.5	12.5		12.5	12.5				
EC>C8-C10	300 (7)		7.5	7.5				0.05		0.05				7.5	7.5		7.5	7.5	7.5	7.5	7.5		7.5	7.5				
EC>C10-C12	300 (7)							3.5						5	5		5	5	5	5	5		5	5				
EC>C12-C16	300 (7)							5		5				5	5		5	5	5	5	5		5	5				
EC>C16-C21								2.5		2.5				5	5		5	5	5	5	5		24	5				
EC>C21-C35								10		10				5	5		5	5	5	5	5		5	5				
EC>C35-C44								2.5		2.5				5	5		5	5	5	5	5		5	5				
Aromatics																												
EC C5-C7	10 (7)		1	1				0.025		0.025				1	1		1	1	1	1	1		1	1				
EC>C7-C8	700 (7)		2.5	2.5				0.025		0.025				2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5				
EC>C8-C10	300 (7)							0.025						25	25		25	25	25	25	25		25	25				
EC>C10-C12	90 (7)							3.5						5	5		5	5	5	5	5		5	5				
EC>C12-C16	90 (7)							3		3				5	5		5	5	5	5	5		5	5				
EC>C16-C21	90 (7)							15		15				5	5		5	5	5	5	5		5	5				
EC>C21-C35	90 (7)							15		15				5	5		5	5	5	5	5		5	5				
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		0.50	0.50				0.50		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50			
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50	0.50				0.50		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50			
Ethylbenzene	300 (8)		0.50	0.50				0.50		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50			
p/m-Xylene			1.00	1.00				0.50		0.50			0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
o-Xylene			0.50	0.50				0.50		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50			
Sum of detected Xylenes	500 (8)		1.50	1.50																								
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.008	0.013				0.005		0.005			0.500	0.003	0.003		0.003	0.003	0.003	0.003	0.003		0.003	0.003				
Acenaphthylene (aq)	-		0.001	0.001				0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Acenaphthene (aq)	-		0.002	0.006				0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Fluorene (aq)	-		0.001	0.003				0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Phenanthrene (aq)	-		0.002	0.005				0.005		0.005				0.002	0.002		0.002	0.002	0.002	0.002	0.002		0.002	0.002				
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.001	0.006				0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.001	0.002				0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Pyrene (aq)	-		0.001	0.001				0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Benzo(a)anthracene (aq)	-		0.001	0.001				0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Chrysene (aq)	-		0.001	0.001				0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001	0.001				0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001	0.001				0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.001**	**0.001**				**0.005**		**0.005**				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Indeno(1,2,3-cd)pyrene (aq)	-		0.001	0.001				0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001				
Dibenzo(a,h)anthracene (aq)	-		0.002	0.002				0.005		0.005				0.002	0.002		0.002	0.002	0.002	0.002	0.002		0.002	0.002				
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.002	0.002				0.005		0.005				0.001	0.002		0.002	0.002	0.002	0.002	0.002		0.002	0.002				
INORGANICS	mg/l																											
Dissolved Organic Carbon			4.23		9.5	16	13	7.4			6.7	7.9			8.1		7.4	9.2	8	18.3	18.2		11.5	17.4		9.3	7.2	8.3
pH	6 - 9 (2&4)		7.6		7.7	8	7.8				7.3	7.7			7.2		7.8	7.4	7.6	7.3	7.3		7.2	7.2		7.4	7.4	7.4
Alkalinity (Total)			66		80	71	89	54			55	60			67		73	60	71	31	36		56	29		51	50	48
Chloride	250 (5)		20		29	18	20	18			20	17			17.9		17	14	17	12	12		16	12		16	20	16
Ammoniacal Nitrogen			0.02		0.015	0.012	0.026	0.04			0.05	0.02			0.08		0.07	0.06	0.05	0.07	0.05			0.05		0.06	0.06	0.06
Nitrite			0.006		0.27	0.01	0.029	0.011			0.011	0.007			0.008		0.008	0.01	0.009	0.009	0.01			0.012		0.01	0.008	0.009
Nitrate	50 (5)		1.56		21	3.5	3.6	0.81			1.23	0.88			1.242		1.24	0.89	1.1	0.4	0.45			0.51		1	1.04	0.92
Sulphate	250 (5)		9.89					4.34			11.00	7.38			10.60		7.89	9.81	9.90	3.62	4.52		8.91	3.48		7.61	7.96	7.20
Sulphide																												
Calcium			27.76					19.50			22.60	29.60			27.10		27.60	24.12	28.10	13.20	14.70		23.20	12.20		22.00	21.30	20.80
Potassium			1.96												2.89		3.01	2.72	3.10	2.47	3.16		2.47	2.74		2.93	2.80	3.25
Magnesium			4.77					3.13			4.65	4.71			4.60		3.41	4.33	5.31	1.87	2.75		4.12	1.97		3.77	3.43	0.11
Sodium	200(5)		12.25					11.40			12.10	11.40			11.50		11.50	10.30	11.90	7.35	7.37		10.10	6.69		10.60	13.40	10.50
Biochemical Oxygen Demand			1.5												1.5		1.5	1.0	1.0	1.5	1.5			1.5		1.5	1.5	1.0
Chemical Oxygen Demand			25												26		23	34	26	54				51		20	22	25
Conductivity			240									244			233		240	204	237	126	135		201	119		193	206	182
Total Oxidisable Nitrogen			1.57					0.82			1.24	0.89			1.25		1.25	0.9	1.11	0.41	0.46			0.52		1.01	1.05	0.93
Total Phosphorus			0.125												0.125		0.125	0.125	0.125	0.125	0.125			0.125		0.125	0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW7																							
HEAVY METALS	**µg/l**		12/01/2018	18/01/2018	17/04/2018	18/04/2018	26/06/2018	27/06/2018	03/10/2018	04/10/2018	09/01/2019	14/01/2019	07/02/2019	11/02/2019	27/03/2019	28/03/2019	11/04/2019	29/04/2019	21/05/2019	22/05/2019	19/06/2019	20/06/2019	04/07/2019	05/07/2019	07/08/2019	08/08/2019	10/09/2019	11/09/2019
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.40		0.42			0.33	0.38		0.40			0.45		0.26	0.35			0.33		0.46		0.38		0.55		0.56
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l**		0.025		0.025			0.025	0.025		0.025			0.025		0.025	0.025			0.025		0.025		0.025		0.025		0.025
Chromium (diss.filt)	**50 (5)**		0.125		0.125			0.125	0.125		0.125			0.250		0.250	0.250			0.250		0.250		0.250		0.250		0.250
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	1.860		2.370			1.080	1.030		1.484			2.538		1.289	1.880			0.897		1.899		1.090		2.222		2.147
Iron (diss.)	**1000 (AA) (1&2)**		332		530			196	609		594			410		243	357			91		634		235		735		877
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025		0.0025			0.0025	0.0025		0.0025			0.0025		0.0025	0.0025			0.0025		0.00539		0.0025		0.0025		0.0025
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	64		52			118	58		66			39.80023163		97.60196449	45			59.87016021		67.87434932		75		48.99420257		97.11075365
Molybdenum (diss.filt)	**70 (8) ?**																											
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.21		1.16			0.91	1.10		1.22			1.19		1.15	1.11			0.89		1.32		1.06		1.61		1.68
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.125		0.125			0.125	0.125		0.125			0.29216588		0.125	0.125			0.125		0.125		0.125		0.125		0.125
Antimony (diss.filt)	**5 (5)**																											
Selenium (diss.filt)	**10(5)**	**10**	0.25		0.21			0.46	0.33		0.31			0.10		0.36	0.40			0.30		0.36		0.37		0.40		0.45
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	4.44		3.26			0.50	1.43		2.26			4.53		2.17	2.10			0.50		2.07		0.50		2.07		2.85
Iron (Total)				1806.513599		1170																						
Manganese (Total)				139.772752		68																						
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**													0.25		0.25	0.25			0.25		0.25		0.25		0.25		0.25
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**													0.025		0.025	0.025			0.025		0.025		0.025		0.025		0.025
Aluminium (diss.filt)			50		50			20	50		50			104.5019373		50	50			50		50		50		50		50
Vanadium (diss.filt)			0.229		0.238			0.080	0.120		0.166			0.341		0.093	0.126			0.059		0.190				0.243		0.234
Phenols	**ug/l**																											
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**			22.50		22.50	22.50			22.50																		
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	**15000 (7)**			10		10	10			10																		
EC>C6-C8	**15000 (7)**			12.5		12.5	12.5			12.5																		
EC>C8-C10	**300 (7)**			7.5		7.5	7.5			7.5																		
EC>C10-C12	**300 (7)**			5		5	5			5																		
EC>C12-C16	**300 (7)**			5		5	5			5																		
EC>C16-C21				5		5	5			5																		
EC>C21-C35				5		5	5			5																		
EC>C35-C44				5		5	5			5																		
Aromatics																												
EC C5-C7	**10 (7)**			1		1	1			1																		
EC>C7-C8	**700 (7)**			2.5		2.5	2.5			2.5																		
EC>C8-C10	**300 (7)**			25		25	25			25																		
EC>C10-C12	**90 (7)**			5		5	5			5																		
EC>C12-C16	**90 (7)**			5		5	5			5																		
EC>C16-C21	**90 (7)**			5		5	5			5																		
EC>C21-C35	**90 (7)**			5		5	5			5																		
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**			0.50		0.50	0.50			0.50																		
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**			0.50		0.50	0.50			0.50																		
Ethylbenzene	**300 (8)**			0.50		0.50	0.50			0.50																		
p/m-Xylene				1.00		1.00	1.00			1.00																		
o-Xylene				0.50		0.50	0.50			0.50																		
Sum of detected Xylenes	**500 (8)**																											
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**			0.012		0.003	0.003			0.003																		
Acenaphthylene (aq)	**-**			0.001		0.001	0.001			0.001																		
Acenaphthene (aq)	**-**			0.001		0.002	0.001			0.001																		
Fluorene (aq)	**-**			0.001		0.001	0.001			0.001																		
Phenanthrene (aq)	**-**			0.002		0.002	0.002			0.002																		
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**			0.001		0.001	0.001			0.001																		
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**			0.001		0.001	0.001			0.001																		
Pyrene (aq)	**-**			0.001		0.001	0.001			0.001																		
Benzo(a)anthracene (aq)	**-**			0.001		0.001	0.001			0.001																		
Chrysene (aq)	**-**			0.001		0.001	0.001			0.001																		
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**			0.001		0.001	0.001			0.001																		
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**			0.001		0.001	0.001			0.001																		
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**			0.001		0.001	0.001			0.001																		
Indeno(1,2,3-cd)pyrene (aq)	**-**			0.001		0.001	0.001			0.001																		
Dibenzo(a,h)anthracene (aq)	**-**			0.002		0.002	0.002			0.002																		
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**			0.002		0.002	0.002			0.002																		
INORGANICS	**mg/l**																											
Dissolved Organic Carbon				3.74		11	1.6		7			8.7	10.6		4.6			10	4.3		10.3		4.5		16.1		11.4	
pH	**6 - 9 (2&4)**			7.3		7.4	6.8		7.5			7.5	7.3		7.5			7.4	7.6		7.6		7.7		7.7		7.5	
Alkalinity (Total)				29		35	81		76			58	25		65			55	86		57		87		65		56	
Chloride	**250 (5)**			29		13	23		18			16	9.5		20			19	19		16		20		16		16	
Ammoniacal Nitrogen				0.08		0.06	0.87		0.02			0.02	0.06		0.02			0.02	0.02		0.05		0.02		0.02		0.04	
Nitrite				0.006		0.015	0.026		0.005			0.009	0.007		0.008			0.006	0.009		0.009		0.008		0.01		0.01	
Nitrate	**50 (5)**			0.6		0.77	5.29		0.68			1.13	0.81		2.12			0.9	1.13		0.93		1.1		1.04		1.44	
Sulphate	**250 (5)**		7.10		5.31			10.40	10.70		10.10			5.65		11.31	8.84			10.93		9.64		11.40		8.31		10.21
Sulphide														0.005		0.005				0.005		0.005				0.005		0.005
Calcium			13.80		14.90			32.40	28.40		24.50			12.14		27.97	21.90			32.75		23.36		35.10		23.34		24.99
Potassium			2.74		1.79			2.24	2.08		1.96			2.27		2.23	1.68			2.16		1.78		2.41		2.18		2.23
Magnesium			2.24		2.73			5.98	5.46		4.38			2.18		4.70	4.09			6.02		4.29		6.38		4.42		4.23
Sodium	**200(5)**		18.10		8.76			13.10	12.20		11.30			9.77		12.94	11.00			12.89		10.85		13.40		10.19		10.90
Biochemical Oxygen Demand				1.5		1.5	1.5		3.0			1.0	2.4		1.0			1.0	1.0		1.0		1.0		1.0		1.0	
Chemical Oxygen Demand				23		35	10		20			22	39		10			21	10		30		10		38		33	
Conductivity				186		139	335		242			214	127		247			205	264		198		271		217		204	
Total Oxidisable Nitrogen				0.61		0.78	5.32		0.68			1.14	0.82		2.13			0.91	1.14		0.94		1.11		1.05		1.45	
Total Phosphorus				0.125		0.125	0.125		0.125			0.125	0.125		0.125			0.125	0.125		0.125		0.125		0.125		0.125	

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:
Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																								
HEAVY METALS	µg/l		15/10/2019	06/11/2019	06/01/2020	07/01/2020	22/01/2020	26/02/2020	18/03/2020	10/08/2020	07/09/2020	13/10/2020	10/11/2020	01/12/2020	11/01/2021	03/02/2021	09/03/2021	20/04/2021	21/04/2021	11/05/2021	23/06/2021	05/08/2021	23/09/2021	20/10/2021	24/11/2021	08/12/2021	24/01/2022
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		0.53	0.49	0.39		0.33	0.37	0.35	0.53	0.56	0.57	0.44	0.41	0.34	0.40	0.25		0.35	0.36	0.32	0.59	0.51	0.67	0.42	0.53	0.29
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l**		0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025		0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Chromium (diss.filt)	**50 (5)**		0.250	0.250	0.250		0.125	0.125	0.125	0.125	0.315	0.361	0.125	0.125	0.125	0.254	0.125		0.125	0.125	0.125	0.281	0.125	0.406	0.125	0.273	0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	2.870	1.711	1.801		1.308	2.036	1.965	1.851	2.052	2.580	1.675	1.559	1.286	1.812	0.963		1.120	1.418	0.826	2.320	1.228	2.986	1.437	2.155	1.134
Iron (diss.)	**1000 (AA) (1&2)**		730	826	493		420	258	408	872	787	737	528	579	390	477	265		388	438	166	553	844	**1049**	**1014**	383	347
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.00568	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.00781	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.006512496	0.0025	0.0025	0.0025
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	91	80.92187352	67.9209712		92.69076899	77.9198311	64.32093116	88.63199154	44.12974068	55.21872328	108.2217009	95.67560323	78.22461447	55.29642557	115.0610447		61.34123098	52.39454631	82.72699945	44.81586192	53.10175204	51.47886149	49.90969865	39.6980184	106.0948673
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	1.73	1.63	1.31		1.34	1.39	1.14	1.67	1.70	1.74	1.55	1.54	1.31	1.28	1.18		1.26	0.98	1.01	1.58	1.30	1.92	1.41	1.22	1.22
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.125	0.125	0.125		0.125	0.125	0.191	0.146395183	0.22052687	0.302	0.118453748	0.120805956	0.092617085	0.234987461	0.025		0.060622196	0.118486051	0.025	0.278116652	0.082572178	0.429407832	0.085999319	0.31377573	0.025
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**	0.47	0.38	0.30		0.41	0.31	0.23	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.10		0.10	0.10	0.10	0.10	0.10	0.23	0.10	0.10	0.10
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	4.06	2.63	3.38		1.97	5.02	3.70	2.27	2.45	3.23	2.87	2.93	2.76	4.27	1.92		1.94	2.13	1.15	2.30	1.09	4.15	2.73	4.53	1.85
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.25	0.25	0.25					0.13	0.27	0.36	0.13	0.13	0.13	0.13	0.13		0.13	0.13	0.13	0.28	0.13	0.41	0.13	0.27	0.13
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.025	0.025	0.025					0.025	0.025	0.025	0.025	0.025	0.125	0.025	0.025		0.077	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Aluminium (diss.filt)			50	50	50		50	50	50	50	50	105.4321123	50	50	50	50	50		50	50	50	50	50	154.7648399	151.6580833	50	50
Vanadium (diss.filt)			0.208	0.188	0.160		0.111	0.211	0.197	0.196	0.248	0.291	0.168	0.167	0.145	0.239	0.069		0.093	0.174	0.060	0.252	0.173	0.344	0.155	0.344	0.083
Phenols	ug/l																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																										
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	**15000 (7)**																										
EC>C6-C8	**15000 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**300 (7)**																										
EC>C12-C16	**300 (7)**																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	**10 (7)**																										
EC>C7-C8	**700 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**90 (7)**																										
EC>C12-C16	**90 (7)**																										
EC>C16-C21	**90 (7)**																										
EC>C21-C35	**90 (7)**																										
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																										
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																										
Ethylbenzene	**300 (8)**																										
p/m-Xylene																											
o-Xylene																											
Sum of detected Xylenes	**500 (8)**																										
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																										
Acenaphthylene (aq)	-																										
Acenaphthene (aq)	-																										
Fluorene (aq)	-																										
Phenanthrene (aq)	-																										
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																										
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																										
Pyrene (aq)	-																										
Benzo(a)anthracene (aq)	-																										
Chrysene (aq)	-																										
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																										
Indeno(1,2,3-cd)pyrene (aq)	-																										
Dibenzo(a,h)anthracene (aq)	-																										
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																										
INORGANICS	mg/l																										
Dissolved Organic Carbon			9.8	10.6		6.6	5.2	5.8	8.3	5.7	11.6	15	7.8	7	7.9	12.2	4.7	9.6		9	4.6		8.5	24.4	8	10.6	6.1
pH	**6 - 9 (2&4)**		7.4	7.5		7.6	7.6	7.3	7.1	7.5	7.6	7.4	7.2	7.3	7.3	7.2	7.4	7.7		7.7	7.5	7.4	7.7	7.2	7.3	7.2	7.3
Alkalinity (Total)			62	62		53	64	40	31	63	59	45	58	58	49	33	72	66		43	84	48	74	35	65	21	68
Chloride	**250 (5)**		18	17		17	18	27	17	18	15	14	20	22	20	13	20	17		12	18	14	17	13	20	15	19
Ammoniacal Nitrogen			0.16	0.05		0.05	0.07	0.13	0.09	0.05	0.02	0.02	0.04	0.04	0.06	0.07	0.04	0.02		0.02	0.05	0.07	0.02	0.02	0.05	0.05	0.07
Nitrite			0.013	0.008		0.011	0.009	0.009	0.007	0.01	0.009	0.01	0.012	0.01	0.013	0.013	0.008	0.005		0.006	0.007	0.017	0.006	0.015	0.009	0.0025	0.015
Nitrate	**50 (5)**		1.27	1.22		1.19	1.76	1.23	0.84	1.15	1	0.87	1.48	1.53	1.3	0.82	0.78	1.12		0.6	1.04	0.84	0.85	0.64	1.38	0.74	1.85
Sulphate	**250 (5)**		10.50	9.78	6.91		10.90	7.34	6.30	10.58	8.81	7.73	10.03	9.82	8.48	5.88	10.87		7.68	6.44	10.38	8.77	10.03	8.77	8.81	5.21	11.73
Sulphide				0.005	0.021																						
Calcium			27.00	25.81	17.99		28.23	17.57	15.24	27.28	24.12	19.77	25.43	25.75	21.71	14.79	29.89		20.93	17.44	32.10	15.98	28.54	19.14	17.30	10.94	30.41
Potassium			3.15	2.35	1.70		2.60	2.35	2.31	2.33	2.36	2.46	2.61	2.53	2.12	2.14	2.28		1.62	1.57	2.03	2.01	2.13	2.90	2.64	2.66	2.54
Magnesium			4.59	4.49	3.09		4.77	2.82	2.72	4.74	4.05	3.31	4.21	4.21	3.66	2.39	4.97		3.61	3.30	5.86	3.08	5.27	3.37	3.06	2.00	5.18
Sodium	**200(5)**		12.20	11.43	8.88		12.53	13.86	10.43	11.93	10.37	9.47	11.51	11.54	12.50	8.75	12.64		9.37	8.51	12.59	8.05	11.83	10.18	9.11	8.64	12.63
Biochemical Oxygen Demand			1.0	1.0		1.0	1.0	1.0	1.0	1.0	2.2	1.0	1.0	1.0	1.0	2.2	1.5	1.0		1.5	1.5	2.5	2.1	1.5	1.5	1.5	1.5
Chemical Oxygen Demand			31	24		20	10	10	26	26	29	33	10	19	16	26	5	15		27	13	51	24	55	18	33	13
Conductivity			215	213		193	233	203	146	227	194	163	211	214	197	138	246	227		158	262	175	236	145	232	119	246
Total Oxidisable Nitrogen			1.28	1.23		1.2	1.77	1.24	0.85	1.16	1.01	0.88	1.49	1.54	1.31	0.83	0.79	1.12		0.61	1.05	0.86	0.86	0.65	1.39	0.74	1.86
Total Phosphorus			0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																									
HEAVY METALS	μg/l		22/02/2022	22/03/2022	20/07/2016	09/08/2016	27/09/2016	09/01/2017	11/01/2017	06/03/2017	07/03/2017	19/07/2017	20/07/2017	15/08/2017	29/08/2017	30/08/2017	31/08/2017	05/09/2017	07/09/2017	12/09/2017	14/09/2017	15/09/2017	18/09/2017	21/09/2017	22/09/2017	25/10/2017	30/11/2017
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.37	0.28				12.50			12.50	0.46			0.56		0.52	0.57	0.51	0.69	0.80		0.60	0.67		0.52	0.44
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025	0.025				5.000			5.000	0.025			0.557		0.025	0.025	0.025	0.025	0.025		0.025	0.025		0.025	0.025
Chromium (diss.filt)	50 (5)		0.125	0.125				12.500			12.500	0.125		0.125	0.125		0.125	0.125	0.125	0.125	0.125		0.293	0.436		0.264	0.257
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	1.811	1.068				10.000			10.000	0.500			2.860		2.480	2.990	2.250	3.580	3.640		2.520	3.350		2.020	1.830
Iron (diss.)	1000 (AA) (1&2)		241	251				607			543	591			620		498	607	624	874	753		775	718		770	453
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025				0.0025			0.0025	0.0025			0.0025		0.0025	0.0025	0.0025	0.0054	0.0062		0.0025	0.0054		0.0025	0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	39.41607759	65.99032889				26			59	124			176		183	122	164	78	79		142	70		85	112
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	1.12	1.07				12.50			12.50	1.17			1.84		1.79	1.71	1.61	1.82	2.03		1.81	1.73		1.59	1.55
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.224893005	0.025				12.5			12.5	0.125			0.125		0.125	0.125	0.125	0.481	0.572		0.257	0.476		0.125	0.125
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	10	0.10	0.10								0.22		0.10	0.10		0.10	0.10	0.10	0.10	0.10		0.32	0.32		0.33	0.31
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	3.77	1.58				10.00			10.00	1.17			3.01		1.99	1.92	1.95	4.07	4.37		3.43	4.06		2.44	3.58
Iron (Total)									1820		854	860														1140	
Manganese (Total)									119		77	142														104	
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.13	0.13								0.25															
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025	0.025								0.025		0.025	0.025		0.025	0.025	0.025	0.025	0.025		0.025	0.025			
Aluminium (diss.filt)			50	50				50			50	50			50		50	50	50	50	50		50	50		50	5
Vanadium (diss.filt)			0.231	0.088								0.129			0.294		0.233	0.300	0.238	0.442	0.451		0.292	0.436		0.125	0.205
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)							1.25		1.25			1.25			22.50						22.50			22.50		
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)							25		25				10	10		10	10	10	10	10		10	10			
EC>C6-C8	15000 (7)							30		30				12.5	12.5		12.5	12.5	12.5	12.5	12.5		12.5	12.5			
EC>C8-C10	300 (7)							0.05		0.05				7.5	7.5		7.5	7.5	7.5	7.5	7.5		7.5	7.5			
EC>C10-C12	300 (7)							3.5						5	5		5	5	5	5	5		5	5			
EC>C12-C16	300 (7)							5		5				5	5		5	5	5	5	5		5	5			
EC>C16-C21								2.5		2.5				5	5		5	5	5	5	5		24	5			
EC>C21-C35								0.01		0.01				5	5		5	5	5	5	5		5	5			
EC>C35-C44								2.5		2.5				5	5		5	5	5	5	5		6	5			
Aromatics																											
EC C5-C7	10 (7)							0.025		0.025				1	1		1	1	1	1	1		1	1			
EC>C7-C8	700 (7)							0.025		0.025				2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5			
EC>C8-C10	300 (7)							0.025						25	25		25	25	25	25	25		25	25			
EC>C10-C12	90 (7)							3.5						5	5		5	5	5	5	5		5	5			
EC>C12-C16	90 (7)							3		3				5	5		5	5	5	5	5		5	5			
EC>C16-C21	90 (7)							15		15				5	5		5	5	5	5	5		5	5			
EC>C21-C35	90 (7)							15		15				5	5		5	5	5	5	5		5	5			
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)							0.50		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)							0.50		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		
Ethylbenzene	300 (8)							0.50		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		
p/m-Xylene								0.50		0.50			0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
o-Xylene								0.50		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		
Sum of detected Xylenes	500 (8)																										
Polyaromatic Hydrocabons	μg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)							0.005		0.005			0.500	0.003	0.003		0.003	0.003	0.003	0.003	0.003		0.003	0.003			
Acenaphthylene (aq)	-							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Acenaphthene (aq)	-							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Fluorene (aq)	-							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Phenanthrene (aq)	-							0.005		0.005				0.002	0.002		0.002	0.002	0.002	0.002	0.002		0.002	0.002			
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Pyrene (aq)	-							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Benzo(a)anthracene (aq)	-							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Chrysene (aq)	-							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Indeno(1,2,3-cd)pyrene (aq)	-							0.005		0.005				0.001	0.001		0.001	0.001	0.001	0.001	0.001		0.001	0.001			
Dibenzo(a,h)anthracene (aq)	-							0.005		0.005				0.002	0.002		0.002	0.002	0.002	0.002	0.002		0.002	0.002			
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)							0.005		0.005				0.001	0.002		0.002	0.002	0.002	0.002	0.002		0.002	0.002			
INORGANICS	mg/l																										
Dissolved Organic Carbon			6.4	4.1	25	16	14	8			6.7	7.7			9.1		7.7	7.5	7.8	17.7	21		11.8	18.1		9.3	7
pH	6 - 9 (2&4)		7.4	7.4	8.1	8	7.8				7.4	7.6			7.3		7.7	7.5	7.6	7.3	7.4		7.4	7.2		7.5	7.6
Alkalinity (Total)			29	68	83	69	84	55			52	60			67		71	60	71	32	34		53	29		50	49
Chloride	250 (5)		32	20	22	18	20	18			20	17			18.5		17	15	17	13	12		16	12		15	21
Ammoniacal Nitrogen			0.06	0.02	0.073	0.005	0.041	0.05			0.05	0.05			0.075		0.08	0.07	0.06	0.07	0.04			0.04		0.11	0.07
Nitrite			0.005	0.007	0.1	0.01	0.027	0.011			0.011	0.009			0.007		0.007	0.01	0.008	0.01	0.009			0.011		0.008	0.008
Nitrate	50 (5)		1.04	1.63	4.3	3.5	3.5	0.84			1.03	0.84			1.053		1.11	0.82	0.98	0.44	0.4			0.41		0.77	0.92
Sulphate	250 (5)		7.50	10.60							10.40	7.73			10.30		7.21	9.48	9.62	3.71	4.64		8.24	3.38		6.96	7.71
Sulphide																											
Calcium			16.36	28.64				19.90			21.60	29.20			26.10		26.60	23.60	28.40	13.10	13.80		21.80	11.90		20.90	21.20
Potassium			2.82	2.11											3.07		2.62	2.27	2.74	2.48	2.96		2.55	2.73		2.74	2.80
Magnesium			3.31	4.92				2.61			4.45	4.71			4.74		3.47	4.20	5.37	1.75	2.63		3.99	1.98		3.62	3.42
Sodium	200(5)		16.11	12.36				11.20			12.00	11.80			11.60		11.30	10.30	11.70	7.12	7.37		9.96	6.81		10.50	13.30
Biochemical Oxygen Demand			1.5	1.5											1.5		1.5	1.0	1.0	2.0	1.5			1.5		1.5	1.5
Chemical Oxygen Demand			30	25											32		23	33	28	55				49		20	20
Conductivity			191	246								248			227		235	199	234	130	130		189	115		184	205
Total Oxidisable Nitrogen			1.04	1.64				0.85			1.04	0.85			1.06		1.12	0.83	0.99	0.45	0.41			0.42		0.78	0.93
Total Phosphorus			0.125	0.125											0.125		0.125	0.125	0.125	0.125	0.125			0.125		0.125	0.125

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Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																										
HEAVY METALS	µg/l		04/12/2017	12/01/2018	18/01/2018	17/04/2018	18/04/2018	10/05/2018	11/05/2018	15/05/2018	16/05/2018	24/05/2018	30/05/2018	06/06/2018	14/06/2018	21/06/2018	26/06/2018	27/06/2018	05/07/2018	09/07/2018	17/07/2018	25/07/2018	02/08/2018	09/08/2018	13/08/2018	20/08/2018	28/08/2018	03/09/2018
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.44	0.43		0.43							0.38					0.34				0.35				0.50		
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025	0.025		0.025							0.025					0.025				0.025				0.025		
Chromium (diss.filt)	50 (5)		0.252	0.125		0.125							0.250					0.125				0.250				0.250		
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	1.990	1.920		2.420							1.250					1.040				1.080				2.380		
Iron (diss.)	1000 (AA) (1&2)		454	342		536							107					219				156				729		
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025	0.0025		0.0025							0.0025					0.0025				0.0025				0.00516		
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	845	63		46							115					138				82				39		
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	1.62	1.25		1.14							1.18					0.98				0.99				1.32		
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.125	0.125		0.125							0.125					0.125				0.125				0.125		
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10	0.27	0.24		0.22							0.33					0.51				0.37				0.23		
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	7.00	4.15		3.01							2.39					0.50				0.50				2.50		
Iron (Total)					1897.366379		1100																					
Manganese (Total)					126.3400865		59																					
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)												0.25									0.50				0.25		
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)												0.025									0.500				0.025		
Aluminium (diss.filt)			50	50		50							50					20				50				50		
Vanadium (diss.filt)			0.188	0.239		0.249							0.082					0.077				0.078				2.000		
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)				22.50		22.50	22.50		22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50		22.50	22.50	22.50	22.50	22.50	22.50	22.50	0.25	22.50	22.50
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)				10		10	25		25		25	25	25	25	25	10		25	25	25	25	25	25	25	25	25	25
EC>C6-C8	15000 (7)				12.5		12.5	75		75		75	75	75	75	75	12.5		75	75	75	75	75	75	75	75	75	75
EC>C8-C10	300 (7)				7.5		7.5	50		50		25	50	50	50	50	7.5		50	50	50	50	50	50	50	50	50	50
EC>C10-C12	300 (7)				5		5	3.5		3.5		3.5	3.5			3.5	5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
EC>C12-C16	300 (7)				5		5	5		5		5	5			5	5		5	5	5	5	5	5	5	5	5	
EC>C16-C21					5		5	2.5		2.5		2.5	2.5			2.5	5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
EC>C21-C35					5		5	10		10		10	10			10	5		10	10	10	10	10	10	10	10	10	
EC>C35-C44					5		5	2.5		2.5		2.5	2.5			2.5	5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Aromatics																												
EC C5-C7	10 (7)				1		1	25		25		25	25	25	25	25	1		25	25	25	25	25	25	25	25	25	25
EC>C7-C8	700 (7)				2.5		2.5	25		25		25	25	25	25	25	2.5		25	25	25	25	25	25	25	25	25	25
EC>C8-C10	300 (7)				25		25	25		25		25	25	25	25	25	25		25	25	25	25	25	25	25	25	25	25
EC>C10-C12	90 (7)				5		5	3.5		3.5		3.5	3.5			3.5	5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
EC>C12-C16	90 (7)				5		5	3		3		3	3			3	5		3	3	3	3	3	3	3	3	3	
EC>C16-C21	90 (7)				5		5	15		15		15	15			15	5		15	15	15	15	15	15	15	15	15	
EC>C21-C35	90 (7)				5		5	15		15		15	15			15	5		15	15	15	15	15	15	15	15	15	
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)				0.50		0.50		0.50		0.50						0.50											
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)				0.50		0.50		0.50		0.50						0.50											
Ethylbenzene	300 (8)				0.50		0.50		0.50		0.50						0.50											
p/m-Xylene					1.00		1.00		1.00		1.00						1.00											
o-Xylene					0.50		0.50		0.50		0.50						0.50											
Sum of detected Xylenes	500 (8)																											
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)				0.003		0.003	0.009		0.007		0.003	0.006	0.003	0.003	0.003	0.007		0.003	0.003	0.003	0.007	0.003	0.003	0.006	0.003	0.003	0.007
Acenaphthylene (aq)	-				0.001		0.001	0.002		0.001		0.001	0.001	0.001	0.001	0.001	0.003		0.001	0.003	0.002	0.003	0.001	0.003	0.002	0.001	0.001	0.004
Acenaphthene (aq)	-				0.001		0.002	0.006		0.003		0.002	0.001	0.003	0.001	0.001	0.003		0.001	0.003	0.003	0.004	0.002	0.003	0.002	0.001	0.003	0.006
Fluorene (aq)	-				0.001		0.001	0.004		0.001		0.001	0.002	0.003	0.001	0.001	0.001		0.001	0.002	0.001	0.001	0.003	0.002	0.001	0.001	0.004	0.005
Phenanthrene (aq)	-				0.002		0.002	0.008		0.003		0.003	0.008	0.006	0.003	0.003	0.002		0.003	0.003	0.003	0.003	0.007	0.003	0.005	0.003	0.008	0.006
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)				0.001		0.001	0.001		0.001		0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)				0.001		0.001	0.005		0.002		0.002	0.002	0.002	0.002	0.002	0.001		0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.004	0.004
Pyrene (aq)	-				0.001		0.001	0.004		0.002		0.002	0.002	0.002	0.002	0.002	0.001		0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.004
Benzo(a)anthracene (aq)	-				0.001		0.001	0.006		0.006		0.006	0.006	0.006	0.006	0.006	0.001		0.006	0.006	0.006	0.006	0.006	0.006	0.002	0.006	0.006	0.006
Chrysene (aq)	-				0.001		0.001	0.006		0.006		0.006	0.006	0.006	0.006	0.006	0.001		0.006	0.006	0.006	0.006	0.006	0.006	0.002	0.006	0.006	0.006
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)				0.001		0.001	0.005		0.005		0.005	0.005	0.005	0.005	0.005	0.001		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)				0.001		0.001	0.005		0.005		0.005	0.005	0.005	0.005	0.005	0.001		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**				0.001		0.001	0.004		0.011		0.004	0.004	0.004	0.004	0.004	0.001		0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Indeno(1,2,3-cd)pyrene (aq)	-				0.001		0.001	0.002		0.001		0.001	0.001	0.002	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001	0.001	0.001
Dibenzo(a,h)anthracene (aq)	-				0.002		0.002	0.001		0.001		0.001	0.001	0.005	0.001	0.001	0.002		0.001	0.001	0.001	0.001	0.002	0.001	0.004	0.001	0.001	0.003
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)				0.002		0.002	0.002		0.001		0.001	0.001	0.003	0.001	0.001	0.002		0.001	0.001	0.001	0.001	0.003	0.001	0.002	0.001	0.001	0.002
INORGANICS	mg/l																											
Dissolved Organic Carbon			8.6		5.34		11.2						4.9									4.6				18.6		
pH	6 - 9 (2&4)		7.5		7.3		7.5						7.8									7.8				7.5		
Alkalinity (Total)			46		29		34						87									89				32		
Chloride	250 (5)		16		27		12						20									20				12		
Ammoniacal Nitrogen			0.06		0.08		0.06						0.08									0.04				0.07		
Nitrite			0.008		0.006		0.015						0.014									0.011				0.013		
Nitrate	50 (5)		0.78		0.57		0.65						0.98									0.86				0.42		
Sulphate	250 (5)		6.82	5.57		4.84							10.60					10.50				12.00				11.10		
Sulphide													0.005									0.005				0.005		
Calcium			19.30	13.80		14.00							32.30					32.70				33.60				15.20		
Potassium			3.18	2.77		1.71							2.56					2.30				2.43				1.65		
Magnesium			0.10	2.23		2.59							5.86					6.12				6.42				3.27		
Sodium	200(5)		10.30	17.10		8.58							14.80					13.40				13.40				9.70		
Biochemical Oxygen Demand			1.0		1.5		1.5						1.5									1.5				1.5		
Chemical Oxygen Demand			25		24		35						10									10				52		
Conductivity			177		182		133						283									276				144		
Total Oxidisable Nitrogen			0.79		0.58		0.66						0.99									0.87				0.43		
Total Phosphorus			0.125		0.125		0.125						0.125									0.125				0.125		

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Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																										
HEAVY METALS	**µg/l**		**13/09/2018**	**20/09/2018**	**26/09/2018**	**01/10/2018**	**03/10/2018**	**04/10/2018**	**10/10/2018**	**17/10/2018**	**23/10/2018**	**31/10/2018**	**06/11/2018**	**15/11/2018**	**20/11/2018**	**21/11/2018**	**03/12/2018**	**10/12/2018**	**11/12/2018**	**03/01/2019**	**07/01/2019**	**09/01/2019**	**14/01/2019**	**24/01/2019**	**28/01/2019**	**07/02/2019**	**11/02/2019**	**14/02/2019**
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)			0.55			0.38									0.35			0.47			0.41					0.45	
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l			0.025			0.025									0.025			0.025			0.025					0.025	
Chromium (diss.filt)	50 (5)			0.332			0.125									0.250			0.250			0.125					0.250	
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94		2.800			1.080									1.510			2.690			1.494					2.430	
Iron (diss.)	1000 (AA) (1&2)			811			624									452			512			643					383	
Mercury (diss.filt)	0.07 MAC (1&2)			0.00522			0.0025									0.0025			0.0025			0.0025					0.0025	
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92		41.4392001			93									94			49			81					40.98526921	
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98		1.60			1.14									1.19			1.55			1.24					1.41	
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64		0.125			0.125									0.125			0.346			0.125					0.323107014	
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10		0.26			0.28									0.33			0.36			0.24					0.23	
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15		2.75			2.22									1.60			4.76			2.23					3.85	
Iron (Total)																												
Manganese (Total)																												
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)															0.25			0.25								0.25	
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)															0.025			0.025								0.025	
Aluminium (diss.filt)				118.2826156			50									50			103			50					50	
Vanadium (diss.filt)				0.316			0.120									0.143			0.328			0.170					0.295	
Phenols	**ug/l**																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50	22.50	22.50	22.50		22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50		22.50			22.50	22.50			22.50	22.50	22.50		22.50
Speciated TPH	**ug/l**																											
Aliphatics																												
EC C5-C6	15000 (7)		25	25	25	25		10	25	25	25	25	25	25	25		25			25	25		25	25	25	25		25
EC>C6-C8	15000 (7)		75	75	75	75		12.5	75	75	75	75	75	75	75		75			75	75		75	75	75	75		75
EC>C8-C10	300 (7)		50	50	50	50		7.5	50	50	50	50	50	50	50		50			50	50		50	50	50	50		50
EC>C10-C12	300 (7)		5	5	10	5		5	5	5	5	5	5	5	5		5				5		5	5		5		100
EC>C12-C16	300 (7)		5	5	10	5		5	5	5	5	5	5	5	5		10				5		5	5		5		100
EC>C16-C21			5	5	20	5		5	5	5	5	5	5	5	5		60				5		5	20		5		100
EC>C21-C35			5	5	120	50		5	5	5	5	5	5	5	5		30				5		5	20		20		100
EC>C35-C44			5	5	20	5		5	5	5	5	5	5	5	5		20				5		5	5		5		100
Aromatics																												
EC C5-C7	10 (7)		**25**	**25**	**25**	**25**		1	**25**	**25**	**25**	**25**	**25**	**25**	**25**		**25**			**25**	**25**		**25**	**25**	**25**	**25**		**25**
EC>C7-C8	700 (7)		25	25	25	25		2.5	25	25	25	25	25	25	25		25			25	25		25	25	25	25		25
EC>C8-C10	300 (7)		25	25	25	25		25	25	25	25	25	25	25	25		25			25	25		25	25	25	25		25
EC>C10-C12	90 (7)		5	5	10	5		5	5	5	5	5	5	5	5		5				5		5	5		5		**100**
EC>C12-C16	90 (7)		5	5	10	5		5	5	5	5	5	5	5	5		5				5		5	5		5		**100**
EC>C16-C21	90 (7)		5	5	10	10		5	5	5	5	5	5	5	5		5				5		5	5		5		**100**
EC>C21-C35	90 (7)		5	5	10	5		5	5	5	5	5	5	5	5		5				5		5	5		5		**100**
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)							0.50																				
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)							0.50																				
Ethylbenzene	300 (8)							0.50																				
p/m-Xylene								1.00																				
o-Xylene								0.50																				
Sum of detected Xylenes	500 (8)																											
Polyaromatic Hydrocabons	**µg/l**																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.003	0.011	0.014	0.003		0.003	0.003	0.003	0.003	0.007	0.003	0.003	0.003		0.003			0.003	0.003		0.011	0.006	0.007	0.006		0.003
Acenaphthylene (aq)	-		0.003	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001		0.001			0.002	0.001		0.002	0.001	0.001	0.001		0.002
Acenaphthene (aq)	-		0.003	0.003	0.002	0.001		0.001	0.001	0.001	0.001	0.004	0.001	0.001	0.001		0.001			0.003	0.001		0.003	0.001	0.001	0.003		0.002
Fluorene (aq)	-		0.003	0.003	0.001	0.001		0.001	0.001	0.001	0.001	0.004	0.001	0.001	0.001		0.001			0.002	0.001		0.003	0.003	0.001	0.005		0.001
Phenanthrene (aq)	-		0.003	0.009	0.003	0.003		0.002	0.003	0.003	0.003	0.006	0.003	0.003	0.003		0.003			0.003	0.003		0.012	0.007	0.003	0.009		0.003
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001			0.001	0.001		0.001	0.001	0.001	0.001		0.001
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.002	0.005	0.002	0.003		0.001	0.005	0.002	0.002	0.002	0.002	0.002	0.002		0.004			0.002	0.002		0.002	0.003	0.002	0.009		0.007
Pyrene (aq)	-		0.002	0.005	0.002	0.002		0.001	0.004	0.002	0.002	0.002	0.002	0.002	0.002		0.003			0.002	0.002		0.002	0.004	0.002	0.011		0.009
Benzo(a)anthracene (aq)	-		0.006	0.013	0.006	0.006		0.001	0.006	0.006	0.006	0.006	0.006	0.006	0.006		0.006			0.006	0.006		0.006	0.006	0.014	0.030		0.026
Chrysene (aq)	-		0.006	0.013	0.006	0.006		0.001	0.006	0.006	0.006	0.006	0.006	0.006	0.006		0.006			0.006	0.006		0.006	0.006	0.014	0.030		0.026
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.005	0.005	0.005	0.005		0.001	0.005	0.005	0.005	0.005	0.010	0.005	0.005		0.005			0.005	0.005		0.005	0.005	0.011	0.012		0.010
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.005	0.005	0.005	0.005		0.001	0.005	0.005	0.005	0.005	0.010	0.005	0.005		0.005			0.005	0.005		0.005	0.005	0.011	0.012		0.010
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.004**	**0.004**	**0.004**	**0.004**		0.001	**0.004**	**0.004**	**0.004**	**0.004**	**0.004**	**0.004**	**0.004**		**0.004**			**0.004**	**0.004**		**0.004**	**0.023**	**0.022**	**0.018**		**0.004**
Indeno(1,2,3-cd)pyrene (aq)	-		0.001	0.002	0.001	0.001		0.001	0.006	0.001	0.001	0.001	0.013	0.007	0.001		0.002			0.003	0.001		0.001	0.004	0.006	0.006		0.004
Dibenzo(a,h)anthracene (aq)	-		0.001	0.004	0.001	0.001		0.002	0.006	0.001	0.001	0.001	0.015	0.006	0.001		0.001			0.003	0.001		0.001	0.004	0.010	0.005		0.005
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.001	0.002	0.001	0.001		0.002	0.007	0.001	0.001	0.001	0.012	0.006	0.001		0.001			0.003	0.001		0.001	0.004	0.007	0.006		0.006
INORGANICS	**mg/l**																											
Dissolved Organic Carbon				19.9			2.1											11.7					8.1			9.3		
pH	6 - 9 (2&4)			7.7			6.5								7.5			7.5					7.5			7.2		
Alkalinity (Total)				30			65								62			33					59			35		
Chloride	250 (5)			14			24								19			17					17			9.7		
Ammoniacal Nitrogen				0.02			0.02								0.05			0.04					0.05			0.11		
Nitrite				0.009			0.036								0.006			0.007					0.01			0.008		
Nitrate	50 (5)			0.56			4.78								1.15			1.18					1.04			0.97		
Sulphate	250 (5)			10.65			10.60									12.10			9.49			9.92					6.91	
Sulphide																0.005			0.005								0.005	
Calcium				15.11			28.30									26.70			16.90			24.10					15.36	
Potassium				1.75			2.07									2.37			2.40			1.91					2.45	
Magnesium				3.01			5.50									4.74			2.90			4.35					2.71	
Sodium	200(5)			9.36			12.30									12.00			9.93			11.20					11.41	
Biochemical Oxygen Demand				1.5			2.6								1.0			2.5					1.0			2.3		
Chemical Oxygen Demand				57			10								10			31					23			39		
Conductivity				170			300								229			165					215			160		
Total Oxidisable Nitrogen				0.57			4.82								1.16			1.19					1.05			0.98		
Total Phosphorus				0.0125			0.125								0.125			0.125					0.125			0.125		

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																									
HEAVY METALS	µg/l		19/02/2019	26/02/2019	05/03/2019	11/03/2019	20/03/2019	27/03/2019	28/03/2019	01/04/2019	11/04/2019	15/04/2019	25/04/2019	29/04/2019	08/05/2019	16/05/2019	21/05/2019	22/05/2019	29/05/2019	05/06/2019	19/06/2019	20/06/2019	26/06/2019	04/07/2019	05/07/2019	09/07/2019	19/07/2019
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)								0.26		0.36							0.33				0.46			0.40		
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l								0.025		0.025							0.025				0.025			0.025		
Chromium (diss.filt)	50 (5)								0.250		0.250							0.250				0.250			0.250		
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94							1.287		1.970							0.973				2.258			1.110		
Iron (diss.)	1000 (AA) (1&2)								264		365							105				670			245		
Mercury (diss.filt)	0.07 MAC (1&2)								0.0025		0.0025							0.0025				0.0025			0.0025		
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92							95.45795623		59							120.8463514				68.03796761			168		
Molybdenum (diss.filt)	70 (8) ?																										
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98							1.11		1.12							0.92				1.35			1.17		
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64							0.125		0.125							0.125				0.125			0.125		
Antimony (diss.filt)	5 (5)																										
Selenium (diss.filt)	10(5)	**10**							0.35		0.41							0.30				0.29			0.36		
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15							2.29		2.39							1.07				2.41			1.33		
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)								0.25		0.25							0.25				0.25			0.25		
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)								0.025		0.025							0.025				0.025			0.025		
Aluminium (diss.filt)									50		50							50				50			50		
Vanadium (diss.filt)									0.100		0.130							0.057				0.207					
Phenols	ug/l																										
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50	22.50	22.50	22.50	22.50	22.50		22.50						22.50	22.50		22.50	22.50	22.50		22.50	22.50		22.50	22.50
Speciated TPH	ug/l																										
Aliphatics																											
EC C5-C6	15000 (7)			25	25	25	25	25		25					25				25	25			25	10		10	10
EC>C6-C8	15000 (7)			75	75	75	75	75		75					75				75	75			75	12.5		12.5	12.5
EC>C8-C10	300 (7)			50	50	50	50	50		50					50				50	50			50	7.5		7.5	7.5
EC>C10-C12	300 (7)			5	5	5	5	5							5					5				5		5	5
EC>C12-C16	300 (7)			5	5	5	5	5							5					5				5		5	5
EC>C16-C21				5	5	5	5	5							5					5				5		5	5
EC>C21-C35				5	5	10	5	5							5					40				5		5	5
EC>C35-C44				5	5	5	5	5							5					10				5		5	5
Aromatics																											
EC C5-C7	10 (7)			**25**	**25**	**25**	**25**	**25**		**50**					**25**				**25**	**25**			**25**	1		1	1
EC>C7-C8	700 (7)			25	25	25	25	25		25					25				25	25			25	2.5		2.5	2.5
EC>C8-C10	300 (7)			25	25	25	25	25		25					25				25	25			25				5
EC>C10-C12	90 (7)			5	5	5	5	5							5					5				5		5	5
EC>C12-C16	90 (7)			5	5	5	5	5							5					5				5		5	5
EC>C16-C21	90 (7)			5	5	5	5	5							5					5				5		5	5
EC>C21-C35	90 (7)			5	5	20	5	5							5					5				5		5	5
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)														**25.00**	**25.00**			**25.00**	**25.00**			**25.00**	0.50		0.50	0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)														25.00	25.00			25.00	25.00			25.00	0.50		0.50	0.50
Ethylbenzene	300 (8)														25.00	25.00			25.00	25.00			25.00	0.50		0.50	0.50
p/m-Xylene															25.00	25.00			25.00	25.00			25.00	1.00		1.00	1.00
o-Xylene															25.00	25.00				25.00			25.00	0.50		0.50	0.50
Sum of detected Xylenes	500 (8)																							1.50		1.50	1.50
Polyaromatic Hydrocabons	µg/l																										
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.003	0.013	0.003	0.003	0.003	0.003		0.007					0.003		0.016		0.003	0.011	0.003		0.003	0.003		0.003	
Acenaphthylene (aq)	-		0.001	0.003	0.002	0.001	0.001	0.002		0.002					0.003		0.004		0.001	0.001	0.002		0.001	0.003		0.002	
Acenaphthene (aq)	-		0.001	0.004	0.001	0.002	0.001	0.001		0.001					0.002		0.004		0.001	0.001	0.002		0.001	0.002		0.001	
Fluorene (aq)	-		0.001	0.004	0.001	0.001	0.001	0.001		0.001					0.003		0.005		0.001	0.002	0.002		0.001	0.001		0.002	
Phenanthrene (aq)	-		0.003	0.006	0.003	0.008	0.003	0.003		0.003					0.005		0.003		0.003	0.011	0.002		0.002	0.002		0.002	
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.001	0.001	0.001	0.001	0.001	0.001		0.001					0.001		0.001		0.001	0.001	0.001		0.001	0.001		0.001	
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.003	0.002	0.002	0.011	0.002	0.002		0.002					0.002		0.002		0.002	0.011	0.002		0.001	0.001		0.001	
Pyrene (aq)	-		0.002	0.002	0.002	0.009	0.002	0.002		0.002					0.002		0.002		0.002	0.010	0.002		0.001	0.001		0.001	
Benzo(a)anthracene (aq)	-		0.012	0.014	0.012	0.022	0.006	0.014		0.006					0.006		0.006		0.006	0.006	0.001		0.001	0.001		0.002	
Chrysene (aq)	-		0.012	0.014	0.012	0.022	0.006	0.014		0.006					0.006		0.006		0.006	0.006	0.001		0.001	0.001		0.002	
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.005	0.005	0.005	0.012	0.005	0.005		0.005					0.005		0.005		0.005	0.005	0.002		0.001	0.001		0.005	
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.005	0.005	0.005	0.012	0.005	0.005		0.005					0.005		0.005		0.005	0.005	0.001		0.001	0.001		0.004	
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.004**	**0.004**	**0.011**	**0.004**	**0.004**	**0.004**		**0.008**					**0.004**		**0.004**		**0.004**	**0.004**	**0.001**		**0.001**	**0.001**		**0.005**	
Indeno(1,2,3-cd)pyrene (aq)	-		0.004	0.001	0.003	0.003	0.001	0.001		0.001					0.001		0.001		0.001	0.010	0.001		0.001	0.001		0.003	
Dibenzo(a,h)anthracene (aq)	-		0.003	0.001	0.004	0.004	0.002	0.001		0.001					0.001		0.001		0.001	0.001	0.002		0.002	0.002		0.006	
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.005	0.001	0.004	0.003	0.001	0.001		0.001					0.001		0.001		0.001	0.008	0.002		0.002	0.002		0.002	
INORGANICS	mg/l																										
Dissolved Organic Carbon								4.7						8.5			4.3				10.9			4.7			
pH	6 - 9 (2&4)							7.4						7.5			7.5				7.6			7.7			
Alkalinity (Total)								64						53			87				55			87			
Chloride	250 (5)							20						18			20				16			20			
Ammoniacal Nitrogen								0.05						0.02			0.05				0.08			0.06			
Nitrite								0.006						0.006			0.01				0.009			0.009			
Nitrate	50 (5)							1.79						0.77			1.04				0.79			1.02			
Sulphate	250 (5)								10.76		7.99							11.00				8.97			11.70		
Sulphide									0.005									0.005				0.005					
Calcium									27.16		20.00							32.91				22.36			34.90		
Potassium									2.20		1.59							2.25				1.65			2.49		
Magnesium									4.56		3.73							6.03				4.18			6.43		
Sodium	200(5)								12.89		10.40							13.05				10.87			13.70		
Biochemical Oxygen Demand								1.0						1.0			1.0				1.0			1.0			
Chemical Oxygen Demand								11						23			10				31			10			
Conductivity								236						196			267				191			275			
Total Oxidisable Nitrogen								1.8						0.78			1.05				0.8			1.03			
Total Phosphorus								0.125						0.125			0.125				0.125			0.125			

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
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8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.
Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.
Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.
Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW8																									
HEAVY METALS	µg/l		23/07/2019	01/08/2019	07/08/2019	08/08/2019	15/08/2019	20/08/2019	29/08/2019	03/09/2019	10/09/2019	11/09/2019	17/09/2019	24/09/2019	02/10/2019	03/10/2019	09/10/2019	15/10/2019	06/11/2019	12/11/2019	20/11/2019	26/11/2019	28/11/2019	03/12/2019	11/12/2019	16/12/2019	30/12/2019	06/01/2020
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)					0.61						0.59						0.53	0.49									0.39
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l					0.025						0.025						0.025	0.025									0.025
Chromium (diss.filt)	50 (5)					0.250						0.250						0.250	0.250									0.250
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94				2.166						2.340						2.520	2.524									1.557
Iron (diss.)	1000 (AA) (1&2)					965						917						752	846									493
Mercury (diss.filt)	0.07 MAC (1&2)					0.0025						0.0025						0.00778	0.0025									0.0025
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92				67.27663599						88.36356153						71	72.07333723									61.66824981
Molybdenum (diss.filt)	70 (8) ?																											
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98				1.69						1.73						1.78	1.59									1.27
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64				0.265117066						0.281122535						0.125	0.125									0.125
Antimony (diss.filt)	5 (5)																											
Selenium (diss.filt)	10(5)	10				0.40						0.43						0.40	0.37									0.31
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15				2.02						3.24						2.97	2.79									3.56
Iron (Total)																												
Manganese (Total)																												
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)					0.25						0.25						0.25	0.25									0.25
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)					0.025						0.025						0.025	0.025									0.025
Aluminium (diss.filt)						50						50						50	50									50
Vanadium (diss.filt)						0.260						0.250						0.205	0.187									0.164
Phenols	ug/l																											
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50	22.50			22.50	22.50	22.50	22.50	22.50		22.50	22.50		22.50			22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	
Speciated TPH	ug/l																											
Aliphatics																												
EC C5-C6	15000 (7)		10	10	10		10	10	10	10	10		10	25					10	10	10	10	25	10	10	10	10	
EC>C6-C8	15000 (7)		12.5	12.5	12.5		12.5	12.5	12.5	12.5	12.5		12.5	75					12.5	12.5	12.5	12.5	75	12.5	12.5	12.5	12.5	
EC>C8-C10	300 (7)		7.5	7.5	7.5		7.5	7.5	7.5	7.5	7.5		7.5	50					7.5	7.5	7.5	7.5	50	7.5	7.5	7.5	7.5	
EC>C10-C12	300 (7)		5	20				5	5					5					5	5	5	5	5	5	5	5	5	
EC>C12-C16	300 (7)		5	20				5	5					5					5				5					
EC>C16-C21			440	5				5	5					5					5	5	5	5	20	5	5	5	5	
EC>C21-C35			240	10				5	5					10					5	5	5	5	5	5	5	5	5	
EC>C35-C44			5	5				5	5					5					5	5	5	5	5	5	5	5	5	
Aromatics																												
EC C5-C7	10 (7)		1	1	1		1	1	1	1	1		1	**25**					1	1	1	1	**25**	1	1	1	1	
EC>C7-C8	700 (7)		2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	25					2.5	2.5	2.5	2.5	25	2.5	2.5	2.5	2.5	
EC>C8-C10	300 (7)													25									25					
EC>C10-C12	90 (7)		5	20				5	5					5					5	5	5	5	5	5	5	5	5	
EC>C12-C16	90 (7)		5	40				5	5					5					5				5					
EC>C16-C21	90 (7)		5	20				5	5					5					5	5	5	5	5	5	5	5	5	
EC>C21-C35	90 (7)		5	5				5	5					10					5	5	5	5	5	5	5	5	5	
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50		0.50	**25.00**					0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50		0.50	25.00					0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	
Ethylbenzene	300 (8)		0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50		0.50	25.00					0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	
p/m-Xylene			1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	25.00					1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
o-Xylene			0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50		0.50	25.00					0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	
Sum of detected Xylenes	500 (8)		1.50	1.50	1.50		1.50	1.50	1.50	1.50	1.50		1.50	1.50					1.50	1.50	1.50	1.50		1.50	1.50	1.50	1.50	
Polyaromatic Hydrocabons	µg/l																											
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.003	0.003			0.003	0.003	0.003	0.003	0.003		0.003	0.003		0.003			0.003	0.014	0.031	0.046	0.003	0.040	0.046	0.120		
Acenaphthylene (aq)	-		0.003	0.001			0.001	0.001	0.001	0.001	0.001		0.002	0.001		0.001			0.002	0.001	0.008	0.011	0.001	0.010	0.001	0.015		
Acenaphthene (aq)	-		0.003	0.001			0.001	0.001	0.001	0.001	0.001		0.004	0.001		0.001			0.002	0.003	0.009	0.010	0.001	0.011	0.005	0.014		
Fluorene (aq)	-		0.003	0.001			0.002	0.001	0.002	0.001	0.001		0.002	0.001		0.001			0.002	0.004	0.006	0.018	0.002	0.013	0.016	0.020		
Phenanthrene (aq)	-		0.002	0.002			0.002	0.002	0.006	0.002	0.004		0.008	0.003		0.005			0.005	0.016	0.013	0.023	0.003	0.042	0.072	0.074		
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.003	0.001			0.001	0.001	0.001	0.001	0.001		0.001	0.001		0.001			0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.001		
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.002	0.001			0.001	0.001	0.003	0.002	0.001		0.001	0.002		0.001			0.002	0.011	0.005	0.005	0.002	0.004	0.021	0.011		
Pyrene (aq)	-		0.002	0.001			0.001	0.001	0.002	0.002	0.001		0.001	0.002		0.001			0.002	0.008	0.005	0.005	0.002	0.002	0.016	0.008		
Benzo(a)anthracene (aq)	-		0.001	0.001			0.001	0.001	0.001	0.001	0.001		0.001	0.006		0.001			0.001	0.002	0.001	0.001	0.006	0.001	0.004	0.001		
Chrysene (aq)	-		0.002	0.001			0.001	0.001	0.001	0.001	0.001		0.001	0.006		0.001			0.001	0.004	0.001	0.001	0.006	0.001	0.006	0.002		
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.003	0.001			0.001	0.001	0.002	0.001	0.001		0.001	0.005		0.001			0.001	0.004	0.001	0.001	0.005	0.001	0.001	0.002		
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.002	0.001			0.001	0.001	0.001	0.001	0.001		0.001	0.005		0.001			0.001	0.001	0.001	0.001	0.005	0.001	0.002	0.001		
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.003**	**0.001**			**0.001**	**0.001**	**0.001**	**0.001**	**0.001**		**0.001**	**0.004**		**0.001**			**0.001**	**0.001**	**0.001**	**0.001**	**0.004**	**0.001**	**0.004**	0.001		
Indeno(1,2,3-cd)pyrene (aq)	-		0.003	0.001			0.001	0.001	0.001	0.001	0.001		0.001	0.001		0.001			0.001	0.001	0.001	0.001	0.002	0.001	0.006	0.004		
Dibenzo(a,h)anthracene (aq)	-		0.005	0.002			0.002	0.002	0.002	0.002	0.002		0.002	0.001		0.002			0.002	0.002	0.002	0.002	0.001	0.002	0.002	0.002		
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.002	0.002			0.002	0.002	0.002	0.002	0.002		0.002	0.001		0.002			0.002	0.002	0.002	0.002	0.001	0.002	0.003	0.004		
INORGANICS	mg/l																											
Dissolved Organic Carbon					16.2						11.9							9.3	10									
pH	6 - 9 (2&4)				7.6						7.5							7.6	7.6									
Alkalinity (Total)					65						54							60	61									
Chloride	250 (5)				16						15							17	18									
Ammoniacal Nitrogen					0.02						0.05							0.08	0.06									
Nitrite					0.01						0.007							0.009	0.008									
Nitrate	50 (5)				0.98						1.19							1.2	1.13									
Sulphate	250 (5)					8.61						9.57						9.81	9.27									6.68
Sulphide						0.005						0.005							0.005									0.01
Calcium						25.01						23.66						26.00	24.91									17.97
Potassium						2.39						2.10						2.66	2.34									1.70
Magnesium						4.76						4.08						4.41	4.38									3.16
Sodium	200(5)					11.20						10.68						11.90	11.28									9.03
Biochemical Oxygen Demand					1.0						1.0							1.0	1.0									
Chemical Oxygen Demand					33						34							27	23									
Conductivity					207						191							208	202									
Total Oxidisable Nitrogen					0.99						1.2							1.21	1.14									
Total Phosphorus					0.125						0.125							0.125	0.125									

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Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																									
HEAVY METALS	µg/l		07/01/2020	15/01/2020	22/01/2020	27/01/2020	05/02/2020	11/02/2020	19/02/2020	26/02/2020	03/03/2020	11/03/2020	18/03/2020	30/06/2020	07/07/2020	15/07/2020	21/07/2020	28/07/2020	04/08/2020	10/08/2020	18/08/2020	24/08/2020	03/09/2020	07/09/2020	24/09/2020	01/10/2020	06/10/2020
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**				0.32					0.39			0.34							0.55				0.58			
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**				0.025					0.025			0.025							0.025				0.025			
Chromium (diss.filt)	**50 (5)**				0.125					0.125			0.125							0.125				0.291			
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**			1.300					2.023			1.596							1.876				1.898			
Iron (diss.)	**1000 (AA) (1&2)**				441					263			414							895				853			
Mercury (diss.filt)	**0.07 MAC (1&2)**				0.0025					0.0025			0.0025							0.0025				0.0025			
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**			79.72363779					68.4268323			48.48511335							92.75763471				65.50679809			
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**			1.35					1.40			1.07							1.68				1.76			
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$(AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**			0.125					0.125			0.215							0.168349158				0.202852018			
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**			0.38					0.30			0.21							0.10				0.10			
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**			1.82					4.96			4.11							2.24				2.40			
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**																			0.13				0.27			
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**																			0.025				0.025			
Aluminium (diss.filt)					50					50			50							50				50			
Vanadium (diss.filt)					0.116					0.214			0.203							0.209				0.231			
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50												22.50	22.50	22.50
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
EC>C6-C8	**15000 (7)**		12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
EC>C8-C10	**300 (7)**		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
EC>C10-C12	**300 (7)**			5	5	5	5	5	5	5	5	5	5														
EC>C12-C16	**300 (7)**																										
EC>C16-C21				5	5	5	5	5	5	5	5	5	5														
EC>C21-C35				5	5	5	5	5	5	5	5	5	5														
EC>C35-C44				5	5	5	5	5	5	5	5	5	5														
Aromatics																											
EC C5-C7	**10 (7)**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EC>C7-C8	**700 (7)**		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**90 (7)**			5	5	5	5	5	5	5	5	5	5														
EC>C12-C16	**90 (7)**																										
EC>C16-C21	**90 (7)**			5	5	5	5	5	5	5	5	5	5														
EC>C21-C35	**90 (7)**			5	5	5	5	5	5	5	5	5	5														
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Ethylbenzene	**300 (8)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
p/m-Xylene			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
o-Xylene			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Sum of detected Xylenes	**500 (8)**		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.009	0.010	0.003	0.007	0.018	0.003	0.003	0.003	0.003	0.003	0.001														0.014
Acenaphthylene (aq)	**-**		0.002	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001														0.001
Acenaphthene (aq)	**-**		0.005	0.004	0.002	0.003	0.002	0.001	0.001	0.001	0.001	0.001	0.001														0.003
Fluorene (aq)	**-**		0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001														0.002
Phenanthrene (aq)	**-**		0.012	0.004	0.002	0.004	0.006	0.002	0.002	0.002	0.002	0.002	0.002														0.009
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001														0.001
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		0.005	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001														0.003
Pyrene (aq)	**-**		0.004	0.002	0.001	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.002														0.002
Benzo(a)anthracene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001														0.001
Chrysene (aq)	**-**		0.001	0.001	0.004	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001														0.002
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001														0.002
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001														0.002
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	0.001	0.001	**0.001**														**0.003**
Indeno(1,2,3-cd)pyrene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001														0.002
Dibenzo(a,h)anthracene (aq)	**-**		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002														0.002
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002														0.002
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			6.7		5.4					6.3			8.6							4.4				11.1			
pH	**6 - 9 (2&4)**		7.6		7.7					7.4			7.5							7.7				7.7			
Alkalinity (Total)			52		63					38			27							62				61			
Chloride	**250 (5)**		16		19					25			16							17				16			
Ammoniacal Nitrogen			0.05		0.09					0.12			0.07							0.08				0.04			
Nitrite			0.01		0.01					0.007			0.006							0.01				0.008			
Nitrate	**50 (5)**		0.99		1.6					1.06			0.65							0.98				0.98			
Sulphate	**250 (5)**				10.60					7.14			5.28							10.19				9.85			
Sulphide																											
Calcium					27.53					17.09			12.98							26.30				25.14			
Potassium					2.55					2.37			1.82							2.26				2.27			
Magnesium					4.68					2.84			2.37							4.61				4.28			
Sodium	**200(5)**				12.56					14.55			9.92							11.80				10.80			
Biochemical Oxygen Demand			1.0		1.0					1.0			1.0							1.0				2.1			
Chemical Oxygen Demand			10		10					10			25							28				26			
Conductivity			192		230					198			131							222				206			
Total Oxidisable Nitrogen			1		1.61					1.07			0.66							0.99				0.99			
Total Phosphorus			0.125		0.125					0.125			0.125							0.125				0.125			

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)											
HEAVY METALS	µg/l		13/10/2020	20/10/2020	27/10/2020	02/11/2020	10/11/2020	17/11/2020	26/11/2020	01/12/2020	14/12/2020	21/12/2020	05/01/2021
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		0.58				0.45			0.42			
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l		0.025				0.025			0.025			
Chromium (diss.filt)	50 (5)		0.412				0.125			0.259			
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	2.430				1.675			1.607			
Iron (diss.)	1000 (AA) (1&2)		800				557			595			
Mercury (diss.filt)	0.07 MAC (1&2)		0.0025				0.0025			0.0025			
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	54.35931577				83.00181808			83.47153168			
Molybdenum (diss.filt)	70 (8) ?												
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	1.77				1.49			1.58			
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	0.305				0.136078764			0.144104177			
Antimony (diss.filt)	5 (5)												
Selenium (diss.filt)	10(5)	10	0.10				0.10			0.10			
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	3.26				2.86			3.01			
Iron (Total)													
Manganese (Total)													
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		0.41				0.13			0.13			
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		0.025				0.025			0.025			
Aluminium (diss.filt)			110.1919904				50			50			
Vanadium (diss.filt)			0.287				0.186			0.182			
Phenols	ug/l												
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50
Speciated TPH	ug/l												
Aliphatics													
EC C5-C6	15000 (7)		10	10	10	10	10	10	10	10	10	10	10
EC>C6-C8	15000 (7)		12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
EC>C8-C10	300 (7)		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
EC>C10-C12	300 (7)												
EC>C12-C16	300 (7)												
EC>C16-C21													
EC>C21-C35													
EC>C35-C44													
Aromatics													
EC C5-C7	10 (7)		1	1	1	1	1	1	1	1	1	1	1
EC>C7-C8	700 (7)		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
EC>C8-C10	300 (7)												
EC>C10-C12	90 (7)												
EC>C12-C16	90 (7)												
EC>C16-C21	90 (7)												
EC>C21-C35	90 (7)												
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Ethylbenzene	300 (8)		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
p/m-Xylene			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
o-Xylene			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Sum of detected Xylenes	500 (8)		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Polyaromatic Hydrocabons	µg/l												
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		0.003		0.003	0.009	0.009	0.016	0.003	0.060	0.003	0.010	0.011
Acenaphthylene (aq)	-		0.001		0.001	0.002	0.001	0.001	0.001	0.009	0.001	0.001	0.004
Acenaphthene (aq)	-		0.001		0.001	0.031	0.003	0.003	0.001	0.011	0.002	0.003	0.004
Fluorene (aq)	-		0.001		0.001	0.005	0.002	0.003	0.001	0.007	0.001	0.002	0.002
Phenanthrene (aq)	-		0.002		0.002	0.008	0.006	0.011	0.028	0.011	0.004	0.005	0.002
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		0.001		0.001	0.001	0.001	0.001	0.001	0.013	0.001	0.001	0.001
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		0.001		0.001	0.005	0.004	0.005	0.025	0.004	0.002	0.003	0.002
Pyrene (aq)	-		0.001		0.001	0.005	0.002	0.004	0.013	0.004	0.002	0.003	0.002
Benzo(a)anthracene (aq)	-		0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Chrysene (aq)	-		0.001		0.001	0.003	0.001	0.002	0.001	0.002	0.001	0.002	0.001
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001		0.001	0.003	0.001	0.002	0.001	0.001	0.001	0.001	0.001
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.001**		**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	0.001	**0.001**	**0.001**
Indeno(1,2,3-cd)pyrene (aq)	-		0.001		0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Dibenzo(a,h)anthracene (aq)	-		0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
INORGANICS	mg/l												
Dissolved Organic Carbon			12.7				9.1			7.1			
pH	6 - 9 (2&4)		7.4				7.4			7.4			
Alkalinity (Total)			44				55			57			
Chloride	250 (5)		14				19			21			
Ammoniacal Nitrogen			0.04				0.02			0.05			
Nitrite			0.008				0.01			0.008			
Nitrate	50 (5)		0.74				1.21			1.36			
Sulphate	250 (5)		8.06				9.12			9.31			
Sulphide													
Calcium			20.82				23.75			24.78			
Potassium			2.67				2.49			2.48			
Magnesium			3.50				3.94			4.06			
Sodium	200(5)		10.25				11.20			11.68			
Biochemical Oxygen Demand			1.0				1.0			1.0			
Chemical Oxygen Demand			32				10			20			
Conductivity			160				199			207			
Total Oxidisable Nitrogen			0.75				1.22			1.37			
Total Phosphorus			0.125				0.125			0.125			

Sample Point / Determinands															
HEAVY METALS	11/01/2021	21/01/2021	25/01/2021	03/02/2021	16/02/2021	04/03/2021	09/03/2021	18/03/2021	25/03/2021	30/03/2021	07/04/2021	14/04/2021	20/04/2021	21/04/2021	27/04/2021
Arsenic (diss.filt)	0.35			0.40			0.28							0.34	
Cadmium (diss.filt)	0.025			0.025			0.025							0.025	
Chromium (diss.filt)	0.125			0.260			0.125							0.125	
Copper (diss.filt)	1.332			1.743			1.092							1.115	
Iron (diss.)	400			479			237							351	
Mercury (diss.filt)	0.0025			0.0025			0.0025							0.0025	
Manganese (diss.filt)	66.26014542			47.34078784			95.90043094							62.39160978	
Molybdenum (diss.filt)															
Nickel (diss.filt)	1.32			1.25			1.18							1.25	
Lead (diss.filt)	0.111662135			0.239890992			0.025							0.056755054	
Antimony (diss.filt)															
Selenium (diss.filt)	0.10			0.21			0.10							0.10	
Zinc (diss.filt)	2.73			3.83			2.08							1.88	
Iron (Total)															
Manganese (Total)															
Chromium III (diss.filt)	0.13			0.25			0.13							0.13	
Chromium VI (diss.filt)	0.125			0.025			0.107							0.065	
Aluminium (diss.filt)	50			50			50							50	
Vanadium (diss.filt)	0.152			0.242			0.082							0.091	
Phenols															
Phenols, Total	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50		22.50	22.50
Speciated TPH															
Aliphatics															
EC C5-C6	10	10	10	10	10	10	10	10	10	10	10	10		10	10
EC>C6-C8	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5		12.5	12.5
EC>C8-C10	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5		7.5	7.5
EC>C10-C12												5			
EC>C12-C16															
EC>C16-C21												5			
EC>C21-C35												5			
EC>C35-C44												5			
Aromatics															
EC C5-C7	1	1	1	1	1	1	1	1	1	1	1	1		1	1
EC>C7-C8	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		2.5	2.5
EC>C8-C10															
EC>C10-C12												5			
EC>C12-C16															
EC>C16-C21												5			
EC>C21-C35												5			
Benzene	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50
Toluene	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50
Ethylbenzene	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50
p/m-Xylene	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
o-Xylene	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50
Sum of detected Xylenes	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50		1.50	1.50
Polyaromatic Hydrocabons															
Naphthalene (aq)	0.021	0.003	0.023	0.047	0.372	0.086	0.003	0.007	0.003	0.003	0.003	0.018		0.003	0.074
Acenaphthylene (aq)	0.005	0.002	0.003	0.003	0.031	0.006	0.002	0.003	0.002	0.001	0.001	0.003			0.004
Acenaphthene (aq)	0.004	0.001	0.003	0.003	0.051	0.005	0.003	0.003	0.004	0.002	0.001	0.007		0.001	0.007
Fluorene (aq)	0.003	0.002	0.003	0.004	0.009	0.003	0.002	0.001	0.002	0.001	0.001	0.004		0.001	0.001
Phenanthrene (aq)	0.002	0.006	0.006	0.008	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.004		0.002	0.007
Anthracene (aq)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001
Fluoranthene (aq)	0.001	0.006	0.003	0.005	0.001	0.001	0.003	0.001	0.001	0.001	0.001	0.001		0.002	0.001
Pyrene (aq)	0.002	0.006	0.003	0.004	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001		0.002	0.001
Benzo(a)anthracene (aq)	0.001	0.002	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001
Chrysene (aq)	0.001	0.003	0.001	0.003	0.002	0.001	0.002	0.002	0.001	0.001	0.001	0.001		0.002	0.001
Benzo(b)fluoranthene (aq)	0.001	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001
Benzo(k)fluoranthene (aq)	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001
Benzo(a)pyrene (aq)	**0.001**	**0.002**	**0.001**	**0.002**	**0.001**	**0.001**	**0.001**	**0.002**	**0.001**	**0.001**	**0.001**	**0.001**		**0.001**	**0.001**
Indeno(1,2,3-cd)pyrene (aq)	0.001	0.004	0.001	0.006	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001
Dibenzo(a,h)anthracene (aq)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002
Benzo(g,h,i)perylene (aq)	0.002	0.003	0.002	0.005	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002
INORGANICS															
Dissolved Organic Carbon	8.3			13.1			4.9						8.9		
pH	7.5			7.3			7.5						7.6		
Alkalinity (Total)	47			30			72						66		
Chloride	20			13			19						32		
Ammoniacal Nitrogen	0.06			0.07			0.06						0.04		
Nitrite	0.012			0.011			0.013						0.005		
Nitrate	1.13			0.69			1.05						0.98		
Sulphate	7.78			5.30			10.51							7.27	
Sulphide															
Calcium	20.44			13.53			29.31							20.34	
Potassium	2.07			2.02			2.27							1.54	
Magnesium	3.49			2.25			4.93							3.55	
Sodium	12.51			8.88			12.62							9.47	
Biochemical Oxygen Demand	1.0			2.3			1.5						1.0		
Chemical Oxygen Demand	16			25			11						15		
Conductivity	195			128			244						222		
Total Oxidisable Nitrogen	1.14			0.7			1.06						0.98		
Total Phosphorus	0.125			0.125			0.125						0.125		

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 µg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																									
HEAVY METALS	**µg/l**		04/05/2021	11/05/2021	18/05/2021	26/05/2021	02/06/2021	10/06/2021	15/06/2021	23/06/2021	29/06/2021	05/07/2021	15/07/2021	21/07/2021	29/07/2021	05/08/2021	11/08/2021	17/08/2021	25/08/2021	02/09/2021	08/09/2021	16/09/2021	23/09/2021	30/09/2021	05/10/2021	12/10/2021	20/10/2021
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**			0.35						0.33				0.42		0.58							0.54				0.66
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l**			0.025						0.025				0.025		0.025							0.025				0.025
Chromium (diss.filt)	**50 (5)**			0.125						0.125				0.125		0.284							0.125				0.375
Copper (diss.filt)	**1 (AA) bioavailable (see Note 1) (1) (see Note 4) (2)**	**34.94**		1.209						0.835				0.702		2.024							1.628				3.210
Iron (diss.)	**1000 (AA) (1&2)**			456						198				123		655							881				**1069**
Mercury (diss.filt)	**0.07 MAC (1&2)**			0.0025						0.0025				0.0025		0.0025							0.0025				0.006141277
Manganese (diss.filt)	**123 (AA) (see note 1)**	**276.92**		41.09679028						163.043113				**327.3214511**		37.69751014							90.97136505				39.94032389
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4(see note 5) (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**		1.00						1.07				1.08		1.51							1.37				1.89
Lead (diss.filt)	**1.2(see note 5) (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**		0.084974372						0.025				0.025		0.345606284							0.107449104				0.479000052
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**		0.10						0.10				0.10		0.10							0.10				0.25
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC (see Note 2)**	**37.15**		1.75						1.42				0.51		1.95							1.43				4.75
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**			0.13						0.13				0.13		0.27							0.13				0.38
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**			0.025						0.025				0.025		0.025							0.025				0.025
Aluminium (diss.filt)				50						50				50		50							50				164.3361742
Vanadium (diss.filt)				0.139						0.058				0.025		0.262							0.174				0.363
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
EC>C6-C8	**15000 (7)**		12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
EC>C8-C10	**300 (7)**		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
EC>C10-C12	**300 (7)**																										
EC>C12-C16	**300 (7)**																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	**10 (7)**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EC>C7-C8	**700 (7)**		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**90 (7)**																										
EC>C12-C16	**90 (7)**																										
EC>C16-C21	**90 (7)**																										
EC>C21-C35	**90 (7)**																										
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Ethylbenzene	**300 (8)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
p/m-Xylene			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
o-Xylene			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Sum of detected Xylenes	**500 (8)**		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.033		0.003	0.003	0.003	0.059	0.003	0.014	0.003	0.009	0.003	0.003	0.003	0.003	0.006	0.006	0.006
Acenaphthylene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002		0.001	0.001	0.001	0.001	0.001	0.004	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.001
Acenaphthene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.003	0.011	0.001	0.001	0.016	0.001	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.001
Fluorene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001
Phenanthrene (aq)	**-**		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.006	0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.006	0.004
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.001	0.001	0.001	0.001	0.004	0.003
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.005	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.002
Pyrene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.004	0.002
Benzo(a)anthracene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Chrysene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.002**	**0.001**		**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	0.001	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
Indeno(1,2,3-cd)pyrene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Dibenzo(a,h)anthracene (aq)	**-**		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
INORGANICS	**mg/l**																										
Dissolved Organic Carbon				7.9						4.9													9				23.1
pH	**6 - 9 (2&4)**			7.8						7.6				7.6		7.7							7.7				7.3
Alkalinity (Total)				50						85				100		52							74				31
Chloride	**250 (5)**			13						21				20		14							17				12
Ammoniacal Nitrogen				0.02						0.06				0.11		0.05							0.06				0.02
Nitrite				0.006						0.007				0.015		0.014							0.005				0.016
Nitrate	**50 (5)**			0.52						0.93				0.88		0.65							0.58				0.85
Sulphate	**250 (5)**			7.36						12.30				12.54		8.05							9.88				7.33
Sulphide																											
Calcium				19.54						32.71				37.40		16.53							28.26				15.10
Potassium				1.46						2.26				2.62		1.78							2.22				2.29
Magnesium				3.68						5.98				6.79		3.35							5.29				2.72
Sodium	**200(5)**			9.65						13.74				14.65		8.20							11.90				8.75
Biochemical Oxygen Demand				1.5						1.5				1.5		2.3							2.4				1.5
Chemical Oxygen Demand				23						12				12		41							24				62
Conductivity				207						265				294		178							234				129
Total Oxidisable Nitrogen				0.53						0.94				0.89		0.66							0.58				0.87
Total Phosphorus				0.125						0.125				0.125		0.125							0.125				0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)																									
HEAVY METALS	**µg/l**		**27/10/2021**	**02/11/2021**	**09/11/2021**	**17/11/2021**	**24/11/2021**	**29/11/2021**	**07/12/2021**	**08/12/2021**	**14/12/2021**	**20/12/2021**	**06/01/2022**	**10/01/2022**	**20/01/2022**	**24/01/2022**	**02/02/2022**	**08/02/2022**	**14/02/2022**	**21/02/2022**	**22/02/2022**	**01/03/2022**	**08/03/2022**	**22/03/2022**	**29/03/2022**	**24/05/2018**	**30/05/2018**
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**						0.44			0.48						0.32					0.40			0.29			0.50
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) CaCO$_3$ >200 mg/l**						0.025			0.025						0.025					0.025			0.025			0.025
Chromium (diss.filt)	**50 (5)**						0.125			0.273						0.125					0.125			0.125			0.250
Copper (diss.filt)	**1 (AA) bioavailable (see Note 1) (1) (see Note 4) (2)**	**34.94**					1.350			2.153						1.257					2.021			1.100			1.300
Iron (diss.)	**1000 (AA) (1&2)**						**1068**			400						397					214			261			20
Mercury (diss.filt)	**0.07 MAC (1&2)**						0.0025			0.0025						0.0025					0.0025			0.0025			0.0025
Manganese (diss.filt)	**123 (AA) (see note 1)**	**276.92**					40.01435341			38.59422187						83.77490173					39.10349876			64.49130966			44
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4(see note 5) (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**					1.44			1.23						1.19					1.14			1.08			1.41
Lead (diss.filt)	**1.2(see note 5) (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**					0.086038641			0.286623219						0.025					0.177145084			0.025			0.125
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**					0.10			0.10						0.10					0.10			0.10			0.57
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC (see Note 2)**	**37.15**					2.49			4.24						2.04					2.93			1.61			1.67
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**						0.13			0.27						0.13					0.13			0.13			0.25
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**						0.025			0.025						0.025					0.025			0.025			0.076
Aluminium (diss.filt)							165.234203			50						50					50			50			50
Vanadium (diss.filt)							0.169			0.315						0.101					0.238			0.097			2.000
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		22.50	22.50	22.50	22.50	22.50	22.50	22.50		22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50		22.50	22.50	22.50	22.50		
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**		10	10	10	10	10	10	10		10	10	10	10	10	10	10	10	10	10		10	10	10	10		
EC>C6-C8	**15000 (7)**		12.5	12.5	12.5	12.5	12.5	12.5	12.5		12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5		12.5	12.5	12.5	12.5		
EC>C8-C10	**300 (7)**		7.5	7.5	7.5	7.5	7.5	7.5	7.5		7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5		7.5	7.5	7.5	7.5		
EC>C10-C12	**300 (7)**																										
EC>C12-C16	**300 (7)**																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	**10 (7)**		1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1		1	1	1	1		
EC>C7-C8	**700 (7)**		2.5	2.5	2.5	2.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		2.5	2.5	2.5	2.5		
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**90 (7)**																										
EC>C12-C16	**90 (7)**																										
EC>C16-C21	**90 (7)**																										
EC>C21-C35	**90 (7)**																										
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50		
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50		
Ethylbenzene	**300 (8)**		0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50		
p/m-Xylene			1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00		
o-Xylene			0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50	0.50	0.50		
Sum of detected Xylenes	**500 (8)**		1.50	1.50	1.50	1.50	1.50	1.50	1.50		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50		1.50	1.50	1.50	1.50		
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.019			0.012	0.007	0.006	0.003		0.005	0.010	0.005	0.003	0.008	0.009	0.008	0.007	0.003	0.003		0.009	0.033	0.011	0.019		
Acenaphthylene (aq)	**-**		0.001	0.002	0.005	0.001	0.001	0.001	0.001		0.001	0.002	0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.001		0.003	0.008	0.002	0.005		
Acenaphthene (aq)	**-**		0.009	0.004	0.004	0.004	0.002	0.003	0.001		0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.002	0.002	0.001		0.004	0.014	0.003	0.008		
Fluorene (aq)	**-**		0.005	0.002	0.005	0.003	0.002	0.001	0.001		0.001	0.002	0.002	0.002	0.002	0.002	0.004	0.002	0.001	0.001		0.002	0.004	0.001	0.003		
Phenanthrene (aq)	**-**		0.002	0.002	0.002	0.002	0.004	0.005	0.002		0.002	0.002	0.011	0.002	0.007	0.002	0.019	0.010	0.006	0.002		0.002	0.010	0.002	0.005		
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		0.007	0.007	0.007	0.006	0.001	0.001	0.001		0.001	0.001	0.005	0.001	0.002	0.001	0.003	0.001	0.001	0.001		0.001	0.001	0.001	0.006		
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		0.001	0.001	0.001	0.006	0.002	0.004	0.001		0.001	0.001	0.011	0.002	0.024	0.001	0.017	0.021	0.009	0.003		0.003	0.018	0.001	0.001		
Pyrene (aq)	**-**		0.001	0.001	0.032	0.032	0.002	0.003	0.002		0.001	0.001	0.006	0.001	0.010	0.001	0.014	0.011	0.008	0.002		0.002	0.015	0.001	0.001		
Benzo(a)anthracene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.009	0.002	0.003	0.001		0.001	0.004	0.001	0.001		
Chrysene (aq)	**-**		0.002	0.001	0.001	0.002	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.010	0.002	0.005	0.001		0.001	0.008	0.001	0.001		
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001	0.001	0.001	0.002	0.001	0.001	0.002		0.001	0.001	0.001	0.001	0.001	0.001	0.009	0.002	0.005	0.002		0.001	0.006	0.001	0.001		
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001	0.001	0.001	0.002	0.001	0.001	0.001		0.001	0.001	0.001	0.001	0.001	0.001	0.010	0.001	0.003	0.001		0.001	0.004	0.001	0.001		
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		**0.015**	**0.001**	**0.002**	**0.001**	**0.001**	**0.001**	**0.001**		**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	0.001	**0.019**	**0.002**	**0.006**	0.001		**0.001**	**0.006**	**0.001**	**0.001**		
Indeno(1,2,3-cd)pyrene (aq)	**-**		0.001	0.001	0.001	0.001	0.001	0.001	0.002		0.001	0.001	0.001	0.001	0.001	0.001	0.008	0.002	0.006	0.001		0.001	0.004	0.001	0.001		
Dibenzo(a,h)anthracene (aq)	**-**		0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.002	0.002		
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		0.002	0.002	0.002	0.002	0.002	0.002	0.002		0.002	0.002	0.002	0.002	0.002	0.002	0.006	0.002	0.005	0.002		0.002	0.004	0.002	0.002		
INORGANICS	**mg/l**																										
Dissolved Organic Carbon							9.4			10						6.4					6.1			3.99		2.2	
pH	**6 - 9 (2&4)**						7.5			7.3						7.5					7.4			7.5		6.7	
Alkalinity (Total)							65			23						68					31			68		71	
Chloride	**250 (5)**						17			16						18					31			20		24	
Ammoniacal Nitrogen							0.06			0.05						0.08					0.05			0.05		0.3	
Nitrite							0.007			0.0025						0.013					0.006			0.007		0.031	
Nitrate	**50 (5)**						1.02			0.84						1.74					1.15			1.65		5.09	
Sulphate	**250 (5)**						7.46			6.23						11.11					7.96			10.94			21.60
Sulphide																											0.005
Calcium							14.73			12.22						29.10					17.42			28.74			38.30
Potassium							2.30			2.77						2.37					2.98			2.10			3.52
Magnesium							2.67			2.21						5.10					3.37			4.86			5.73
Sodium	**200(5)**						8.50			9.31						12.70					16.11			12.58			14.90
Biochemical Oxygen Demand							1.5			1.5						1.5					1.5			1.5		1.5	
Chemical Oxygen Demand							20			31						12					26			25		10	
Conductivity							215			130						236					200			247		310	
Total Oxidisable Nitrogen							1.03			0.84						1.75					1.16			1.66		5.12	
Total Phosphorus							0.125			0.125						0.125					0.125			0.125		0.125	

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	SW9																								
HEAVY METALS	**μg/l**		26/06/2018	27/06/2018	25/07/2018	20/08/2018	20/09/2018	03/10/2018	20/11/2018	21/11/2018	10/12/2018	11/12/2018	09/01/2019	14/01/2019	11/04/2019	29/04/2019	04/07/2019	05/07/2019	15/10/2019	22/01/2020	07/09/2020	01/12/2020	09/03/2021	23/06/2021	23/09/2021	08/12/2021	24/01/2022
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**			0.17	0.14	0.50	0.31	0.17		0.21		0.28	0.16		0.17			0.19	0.22	0.21	0.25	0.22	0.17	0.16	0.33	0.46	0.19
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **$CaCO_3$ >200 mg/l**			0.025	0.025	0.025	0.025	0.025		0.025		0.056	0.025		0.025			0.025	0.025	0.025	0.025	0.051	0.025	0.025	0.025	0.025	0.025
Chromium (diss.filt)	**50 (5)**			0.125	0.250	0.250	0.125	0.125		0.250		0.250	0.125		0.250			0.250	0.250	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**		0.500	0.500	0.723	3.530	1.030		2.090		3.680	1.394		0.918			1.350	2.180	1.851	2.423	2.052	0.967	0.509	0.549	4.213	1.558
Iron (diss.)	**1000 (AA) (1&2)**			20	20	20	20	20		20		20	20		20			20	20	20	20	20	20	20	70	57	20
Mercury (diss.filt)	**0.07 MAC (1&2)**			0.0025	0.0025	0.0025	0.0025	0.0025		0.0025		0.0025	0.0025		0.0025			0.0025	0.00514	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**		99	12.5	12.5	18.94325851	51		12.5		32	66		44			31	47	34.63943781	54.35996793	42.11756677	32.12831367	37.90759539	50.92444615	12.5	33.30171433
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**		0.91	1.06	0.60	1.47	1.22		0.90		1.76	1.06		1.18			1.09	1.53	1.35	1.41	1.47	1.10	1.04	0.98	1.53	1.22
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**		0.125	0.125	0.125	0.125	0.125		0.125		0.125	0.125		0.125			0.125	0.125	0.125	0.025	0.224506727	0.025	0.025	0.025	0.059533343	0.025
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**		0.75	0.58	0.57	1.19	0.73		0.92		1.07	0.70		0.72			0.68	0.93	0.82	0.49	0.42	0.39	0.25	0.10	0.55	0.48
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**		1.12	0.50	9.08	1.59	2.57		1.12		2.56	1.24		1.54			6.57	2.56	2.47	3.63	2.34	1.71	1.13	3.14	3.56	3.40
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**				0.25	0.25				0.25		0.25			0.25			0.25	0.25		0.13	0.13	0.13	0.13	0.13	0.13	0.13
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**				0.088	0.073				0.112		0.101			0.101			0.071	0.060		0.085	0.157	0.025	0.101	0.025	0.066	0.099
Aluminium (diss.filt)				20	50	50	50	50		50		50	50		50			50	50	50	50	50	50	50	50	50	50
Vanadium (diss.filt)				0.025	0.025	2.000	0.185	0.066		0.059		0.121	0.057		0.050				0.082	0.061	0.104	0.080	0.025	0.025	0.025	0.194	0.061
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**		22.50																								
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**		10																								
EC>C6-C8	**15000 (7)**		12.5																								
EC>C8-C10	**300 (7)**		7.5																								
EC>C10-C12	**300 (7)**		5																								
EC>C12-C16	**300 (7)**		5																								
EC>C16-C21			5																								
EC>C21-C35			5																								
EC>C35-C44			5																								
Aromatics																											
EC C5-C7	**10 (7)**		1																								
EC>C7-C8	**700 (7)**		2.5																								
EC>C8-C10	**300 (7)**		25																								
EC>C10-C12	**90 (7)**		5																								
EC>C12-C16	**90 (7)**		5																								
EC>C16-C21	**90 (7)**		5																								
EC>C21-C35	**90 (7)**		5																								
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**		0.50																								
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**		0.50																								
Ethylbenzene	**300 (8)**		0.50																								
p/m-Xylene			1.00																								
o-Xylene			0.50																								
Sum of detected Xylenes	**500 (8)**																										
Polyaromatic Hydrocabons	**μg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**		0.003																								
Acenaphthylene (aq)	**-**		0.001																								
Acenaphthene (aq)	**-**		0.001																								
Fluorene (aq)	**-**		0.001																								
Phenanthrene (aq)	**-**		0.002																								
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**		0.001																								
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**		0.001																								
Pyrene (aq)	**-**		0.001																								
Benzo(a)anthracene (aq)	**-**		0.001																								
Chrysene (aq)	**-**		0.001																								
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001																								
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**		0.001																								
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		0.001																								
Indeno(1,2,3-cd)pyrene (aq)	**-**		0.001																								
Dibenzo(a,h)anthracene (aq)	**-**		0.003																								
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**		0.002																								
INORGANICS	**mg/l**																										
Dissolved Organic Carbon					1.4	2.3	4.2	12.4			3.8			1.8		1.8	2.4		2.4	2.1	3.2	2.4	2.3	1.9	2.4	5.7	4.2
pH	**6 - 9 (2&4)**				6.7	6.7	7	7.3	6.9		6.9			6.7		6.8	6.5		6.6	6.9	6.8	6.6	6.5	6.3	6.5	6.9	6.5
Alkalinity (Total)					63	61	62	156	63		64			65		64	67		75	73	69	70	66	62	74	65	69
Chloride	**250 (5)**				23	22	24	29	25		26			24		24	23		22	22	22	27	23	50	23	18	23
Ammoniacal Nitrogen					0.02	0.07	0.08	0.8	0.02		0.02			0.05		0.02	0.02		0.15	0.15	0.09	0.17	0.08	0.14	0.12	0.05	0.14
Nitrite					0.036	0.033	0.02	0.0025	0.013		0.017			0.023		0.016	0.014		0.007	0.009	0.017	0.019	0.005	0.029	0.033	0.006	0.037
Nitrate	**50 (5)**				5.11	4.92	6.03	0.03	5.91		7.67			5.29		5.19	5.31		4.97	5	3.88	5.79	1.74	4.96	3.56	4.52	5.24
Sulphate	**250 (5)**			21.60	19.90	20.20	29.49	20.30		17.10		20.70	18.70		20.90			18.50	19.30	18.00	17.69	18.04	18.37	20.39	17.74	14.65	19.75
Sulphide					0.005	0.005				0.005		0.005															
Calcium				43.10	35.10	34.70	40.14	35.10		38.00		40.70	37.60		37.90			37.90	39.90	39.17	37.02	40.03	36.65	37.52	37.24	34.93	39.70
Potassium				4.28	2.73	3.39	5.07	3.32		4.04		4.89	3.50		3.35			3.44	4.19	4.15	4.49	4.32	3.47	3.13	3.10	5.70	3.96
Magnesium				5.57	5.49	5.38	5.47	5.31		4.56		5.04	5.06		5.47			5.43	5.48	5.24	4.99	5.37	5.09	5.70	5.12	4.12	5.60
Sodium	**200(5)**			14.00	13.80	14.50	13.49	13.80		13.50		12.70	13.50		14.30			14.00	14.40	13.92	12.70	13.70	13.01	14.15	13.13	11.13	13.92
Biochemical Oxygen Demand					1.5	1.5	1.5	37.0	1.0		2.5			1.0		1.5	2.9		1.5	1.0	1.0	1.0	1.5	2.8	3.5	1.5	1.5
Chemical Oxygen Demand					10	10	10	106	10		34			10		10	10		10	10	23	5	5	28	11	15	5
Conductivity					291	289	331	485	304		332			315		296	301		305	308	293	313	293	295	300	267	306
Total Oxidisable Nitrogen					5.15	4.95	6.05	0.03	5.92		7.69			5.31		5.21	5.32		4.98	5.01	3.9	5.81	1.74	4.99	3.59	4.53	5.28
Total Phosphorus					0.125	0.125	0.0125	0.39	0.125		0.125			0.125		0.125	0.125		0.125	0.125	0.125	0.125	0.125	0.35	0.125	0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
5. UK Drinking Water Standard * (odour threshold MTBE)
6. Irish Drinking Water Standard
7. WHO (World Health Organisation) - Petroleum Products in Drinking Water, Background document for development of WHO Guidelines for Drinking Water Quality, WHO
8. WHO Drinking Water Guideline

MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS). Where the MAC-EQS are marked as "not applicable", the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

Note 2 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. PLUS ABC (ambient background concentrations - Ambient Background Concentration is an estimate of background levels of zinc based on a low percentile of monitoringdata. A figure of ***1 μg/l*** has been estimated for freshwaters in Northern Ireland.

Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 μg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) μg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	Trench																								
HEAVY METALS	**µg/l**		20/08/2018	20/09/2018	03/10/2018	20/11/2018	21/11/2018	10/12/2018	11/12/2018	09/01/2019	14/01/2019	07/02/2019	11/02/2019	27/03/2019	28/03/2019	11/04/2019	29/04/2019	21/05/2019	22/05/2019	06/01/2020	07/01/2020	22/01/2020	26/02/2020	18/03/2020	03/02/2021	09/03/2021	11/05/2021
Arsenic (diss.filt)	**50 (AA) (1) 25 (AA (2)**		1.18	0.62	0.75		0.82		0.39	1.40			0.48		0.48	1.04			1.53	0.90		0.53	0.38	0.27	0.21	0.25	0.51
Cadmium (diss.filt)	**0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2)** **CaCO$_3$ >200 mg/l**		0.025	0.025	0.025		0.025		0.025	0.025			0.025		0.025	0.025			0.025	0.025		0.025	0.025	0.053	0.025	0.025	0.025
Chromium (diss.filt)	**50 (5)**		0.250	0.125	0.125		0.250		0.250	0.125			0.250		0.250	0.250			0.250	0.250		0.125	0.125	0.125	0.125	0.125	0.125
Copper (diss.filt)	**1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)**	**34.94**	0.895	0.500	0.500		0.500		1.950	0.500			2.500		1.362	0.250			0.250	0.250		0.250	0.625	0.250	2.335	0.250	0.250
Iron (diss.)	**1000 (AA) (1&2)**		140	87	87		103		65	197			75		63	225			697	690		917	63	20	20	20	389
Mercury (diss.filt)	**0.07 MAC (1&2)**		0.0025	0.0025	0.0025		0.0025		0.0025	0.0025			0.0025		0.0025	0.0025			0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0105
Manganese (diss.filt)	**123 (AA) ($^{\text{see note 1}}$)**	**276.92**	**2370**	83.15200282	**1200**		**2830**		153	**7040**			**481.6837286**		**400.7313439**	**1430**			**6170**	**2226.339176**		**2171.025585**	**2520**	**2660**	**1747.726042**	218.7814178	**3960**
Molybdenum (diss.filt)	**70 (8) ?**																										
Nickel (diss.filt)	**4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)**	**14.98**	2.11	2.39	2.15		7.01		4.28	6.30			4.69		4.93	3.62			3.67	3.96		3.52	7.26	7.97	5.40	4.82	5.03
Lead (diss.filt)	**1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)**	**9.64**	0.125	0.125	0.125		0.125		0.125	0.125			0.125		0.125	0.125			0.125	0.125		0.125	0.125	0.053	0.025	0.025	0.025
Antimony (diss.filt)	**5 (5)**																										
Selenium (diss.filt)	**10(5)**	**10**	0.42	0.38	0.63		1.03		0.59	0.81			0.51		0.56	0.62			0.52	0.59		0.35	0.52	0.45	0.10	0.10	0.10
Zinc (diss.filt)	**10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$**	**37.15**	2.50	0.50	0.50		6.69		6.99	0.50			7.04		5.46	0.50			1.14	0.68		0.50	9.28	7.43	4.13	0.89	3.11
Iron (Total)																											
Manganese (Total)																											
Chromium III (diss.filt)	**4.7 (AA) (1) 95th%ile (32)**		0.25				0.25		0.25				0.25		0.25	0.25			0.25	0.25					0.13	0.13	0.13
Chromium VI (diss.filt)	**3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)**		0.025				0.025		0.025				0.025		0.025	0.025			0.025	0.025					0.025	0.025	0.025
Aluminium (diss.filt)			50	50	50		50		50	50			50		50	50			50	50		50	50	50	50	50	50
Vanadium (diss.filt)			2.000	0.025	0.025		0.126		0.062	0.085			0.095		0.025	0.025			0.061	0.093		0.061	0.025	0.025	0.025	0.025	0.025
Phenols	**ug/l**																										
Phenols, Total	**7.7 (1&2) 46 (95th%ile) (1&2)**																										
Speciated TPH	**ug/l**																										
Aliphatics																											
EC C5-C6	**15000 (7)**																										
EC>C6-C8	**15000 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**300 (7)**																										
EC>C12-C16	**300 (7)**																										
EC>C16-C21																											
EC>C21-C35																											
EC>C35-C44																											
Aromatics																											
EC C5-C7	**10 (7)**																										
EC>C7-C8	**700 (7)**																										
EC>C8-C10	**300 (7)**																										
EC>C10-C12	**90 (7)**																										
EC>C12-C16	**90 (7)**																										
EC>C16-C21	**90 (7)**																										
EC>C21-C35	**90 (7)**																										
Benzene	**10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)**																										
Toluene	**74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)**																										
Ethylbenzene	**300 (8)**																										
p/m-Xylene																											
o-Xylene																											
Sum of detected Xylenes	**500 (8)**																										
Polyaromatic Hydrocabons	**µg/l**																										
Naphthalene (aq)	**2 (AA) (1 &2) 130 (MAC 1&2)**																										
Acenaphthylene (aq)	**-**																										
Acenaphthene (aq)	**-**																										
Fluorene (aq)	**-**																										
Phenanthrene (aq)	**-**																										
Anthracene (aq)	**0.1 (AA & MAC) (1 & 2)**																										
Fluoranthene (aq)	**0.0063 (AA) (1 & 2) 0.12 (MAC 1)**																										
Pyrene (aq)	**-**																										
Benzo(a)anthracene (aq)	**-**																										
Chrysene (aq)	**-**																										
Benzo(b)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(k)fluoranthene (aq)	**0.017 (MAC) (1&2)**																										
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**																										
Indeno(1,2,3-cd)pyrene (aq)	**-**																										
Dibenzo(a,h)anthracene (aq)	**-**																										
Benzo(g,h,i)perylene (aq)	**0.0082 (MAC)(1) & 0.00082 (MAC) (2)**																										
INORGANICS	**mg/l**																										
Dissolved Organic Carbon			10.8	10				11.4			18	10.4		7.5			13.4	18			13.1	7.5	4	3.7	6.1	5.5	10.8
pH	**6 - 9 (2&4)**		7.4	7.3		7.6		7.4			7.7	7.5		7.2			7.5	7.3			7.1	7	7	7.6	6.7	6.8	6.8
Alkalinity (Total)			151	112		317		179			355	216		225			206	231			260	141	160	171	140	156	179
Chloride	**250 (5)**		18	21		39		35			10	28		28			26	24			28	23	26	24	19	21	19
Ammoniacal Nitrogen			0.4	0.33		9.7		4.45			0.04	7.06		5.2			0.55	1.74			6.48	1.32	3.47	2.97	2.3	0.52	0.16
Nitrite			0.007	0.018		0.23		0.155			0.008	0.053		0.024			0.008	0.0025			0.009	0.022	0.061	0.029	0.042	0.021	0.005
Nitrate	**50 (5)**		0.03	0.07		1.19		3.74			0.84	3.19		0.64			0.03	0.03			0.03	0.4	1.47	0.8	0.71	0.39	0.03
Sulphate	**250 (5)**		21.10	64.97	41.10		60.50		56.10	67.50			44.69		49.70	15.30			6.45	15.58		25.50	35.03	14.03	25.97	23.05	10.25
Sulphide			0.005				0.005		0.005				0.005		0.005				0.005	0.02							
Calcium			56.00	57.44	61.90		101.00		63.20	112.00			69.50		69.28	70.50			69.04	62.39		54.62	58.10	65.50	51.24	57.35	60.96
Potassium			8.54	10.12	11.40		18.70		12.30	20.80			11.63		8.25	8.74			6.21	9.91		9.06	7.81	8.75	7.40	6.94	3.38
Magnesium			7.49	7.58	9.59		19.60		10.20	19.40			11.68		9.03	10.80			10.58	9.06		7.79	8.53	9.95	7.10	7.96	9.08
Sodium	**200(5)**		16.80	14.01	21.60		42.70		25.20	39.20			25.99		23.24	24.10			23.03	18.73		18.70	18.00	20.30	14.06	16.31	18.34
Biochemical Oxygen Demand			6.2	8.7		12.0		12.0			6.9	2.2		10.0			10.0	15.0			15.0	2.8	1.5	2.3	6.5	1.5	6.2
Chemical Oxygen Demand			55	67		77		42			37	30		31			53	76			96	29	10	10	26	96	38
Conductivity			392	431		852		621			262	634		616			505	521			628	422	503	505	406	430	430
Total Oxidisable Nitrogen			0.03	0.09		1.42		3.89			0.85	3.24		0.66			0.03	0.03			0.03	0.42	1.53	0.83	0.75	0.41	0.03
Total Phosphorus			0.31	0.32		0.125		0.125			0.125	0.125		0.125			0.125	0.63			0.28	0.125	0.125	0.125	0.125	0.125	0.125

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
2. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 transitional waters.
3. Groundwater Drinking Water Protected Areas - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010
4. Freshwater EQS (AA)
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MAC - This parameter is the Environmental Quality Standard expressed as a maximum allowable concentration (MAC-EQS).Where the MAC-EQS are marked as “not applicable”, the AA-EQS values are considered protective against short-term pollution peaks in continuous discharges since they are significantly lower than the values derived on the basis of acutetoxicity.

Notes:

Note 1 -EQSbioavailable derived via the Metal Bioavailability Assessment Tool (M-BAT) developed by WFDTAG. Look at receptor specific assessment using the M-BAT tool with pH, DOC and Ca to derive a EQS referred to as the PNECdissolved. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

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Note 3 -Refer to Tables 1 and 2 WFD NI 2015 to classify receptor.

Note 4 - Transition & Coastal Copper - 3.76 µg/l dissolved, where DOC ≤ 1 mg/l **OR** 3.76 +(2.677 × ((DOC/2) - 0.5)) µg/l dissolved, where DOC > 1 mg/

Sample Point / Determinands	TSV	MBAT PNEC (ug/l)	Grand Total		
HEAVY METALS	**µg/l**				
Arsenic (diss.filt)	50 (AA) (1) 25 (AA (2)		6026.85		
Cadmium (diss.filt)	0.25 (AA) & 1.5 (MAC) (1), 1.5 (AA) (2) $CaCO_3$ >200 mg/l		592.280		
Chromium (diss.filt)	50 (5)		1410.359		
Copper (diss.filt)	1 (AA) bioavailable $^{\text{(see Note 1)}}$ (1) $^{\text{(see Note 4)}}$ (2)	34.94	4922.433		
Iron (diss.)	1000 (AA) (1&2)		8429.38		
Mercury (diss.filt)	0.07 MAC (1&2)		2.64782496		
Manganese (diss.filt)	123 (AA) ($^{\text{see note 1}}$)	276.92	4861.273924		
Molybdenum (diss.filt)	70 (8) ?				
Nickel (diss.filt)	4$^{\text{(see note 5)}}$ (AA) (1), 8.6 (AA) (2), 34 (MAC) (1&2)	14.98	12540.19		
Lead (diss.filt)	1.2$^{\text{(see note 5)}}$ (AA) (1), 1.3 (AA) (2), 14 (MAC) (1&2)	9.64	4141.345824		
Antimony (diss.filt)	5 (5)				
Selenium (diss.filt)	10(5)	10	390.58		
Zinc (diss.filt)	10.9 (AA) (1) +ABC bioavailable 6.8 (AA) (2) +ABC $^{\text{(see Note 2)}}$	37.15	5343.74		
Iron (Total)			12097.04515		
Manganese (Total)			2808.346997		
Chromium III (diss.filt)	4.7 (AA) (1) 95th%ile (32)		299.16		
Chromium VI (diss.filt)	3.4 (AA) (1), 0.6 (AA) (2), 32 (95th%ile) (2)		28.047		
Aluminium (diss.filt)			47.18770365		
Vanadium (diss.filt)			174.078		
Phenols	**ug/l**				
Phenols, Total	7.7 (1&2) 46 (95th%ile) (1&2)		58954.45	25000.00	
Speciated TPH	**ug/l**				
Aliphatics					
EC C5-C6	15000 (7)		7808.42		
EC>C6-C8	15000 (7)		4531.268		
EC>C8-C10	300 (7)		8282.048		
EC>C10-C12	300 (7)		8.1465		
EC>C12-C16	300 (7)		3.47		
EC>C16-C21			6.3965		
EC>C21-C35			12.101		
EC>C35-C44			2.4495		
Aromatics					
EC C5-C7	10 (7)		46093.93832		
EC>C7-C8	700 (7)		15683.73361		
EC>C8-C10	300 (7)		5590.305		
EC>C10-C12	90 (7)		8.1465		
EC>C12-C16	90 (7)		14.202		
EC>C16-C21	90 (7)		15.992		
EC>C21-C35	90 (7)		8.699		
Benzene	10 (AA) *MAC* 50 (1), 8 (AA) *MAC* 50 (2)		38839.94		
Toluene	74 (AA) *95th%ile (380)* (1), 74 (AA) 95th%ile (370) (2)		6794.53		
Ethylbenzene	300 (8)		5727.95		
p/m-Xylene			3160.79		
o-Xylene			1026.79		
Sum of detected Xylenes	500 (8)		3339.37		
Polyaromatic Hydrocabons	**µg/l**				
Naphthalene (aq)	2 (AA) (1 &2) 130 (MAC 1&2)		12004.548		
Acenaphthylene (aq)	-		1096.515		
Acenaphthene (aq)	-		812.587		
Fluorene (aq)	-		208.628		
Phenanthrene (aq)	-		173.042		
Anthracene (aq)	0.1 (AA & MAC) (1 & 2)		38.866		
Fluoranthene (aq)	0.0063 (AA) (1 & 2) 0.12 (MAC 1)		35.847		
Pyrene (aq)	-		36.616		
Benzo(a)anthracene (aq)	-		10.759		
Chrysene (aq)	-		12.847		
Benzo(b)fluoranthene (aq)	0.017 (MAC) (1&2)		7.710		
Benzo(k)fluoranthene (aq)	0.017 (MAC) (1&2)		5.502		
Benzo(a)pyrene (aq)	**0.00017 (AA) (1 & 2) MAC (0.27 (1) 0.027 (2))**		16.294		
Indeno(1,2,3-cd)pyrene (aq)	-		10.641		
Dibenzo(a,h)anthracene (aq)	-		6.277		
Benzo(g,h,i)perylene (aq)	0.0082 (MAC)(1) & 0.00082 (MAC) (2)		9.676		
INORGANICS	**mg/l**				
Dissolved Organic Carbon			29382.82		
pH	6 - 9 (2&4)		8946.91		
Alkalinity (Total)			514277.4		
Chloride	250 (5)		121283.42		
Ammoniacal Nitrogen			30051.329		
Nitrite			23.612		
Nitrate	50 (5)		3020.033		
Sulphate	250 (5)		33930.79		
Sulphide			0.794		
Calcium			100126.96		
Potassium			26609.27		
Magnesium			20298.48		
Sodium	200(5)		70412.32		
Biochemical Oxygen Demand			84205.3		
Chemical Oxygen Demand			188303.5		
Conductivity			1280654		
Total Oxidisable Nitrogen			2291.265		
Total Phosphorus			278.0425		

1. The Water Framework Directive (Priority Substances and Classification) Regulations (Northern Ireland) 2015 Freshwater.
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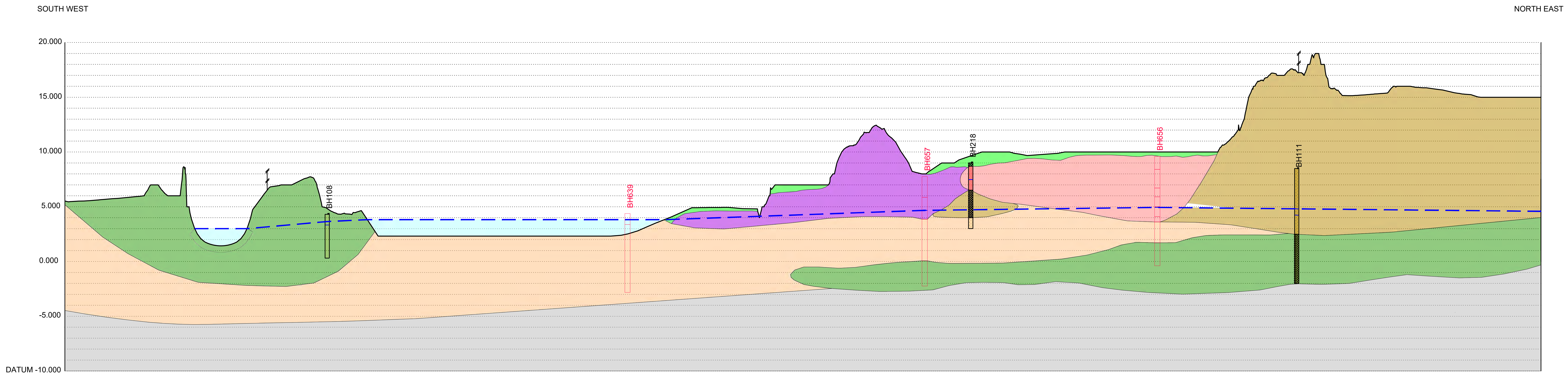
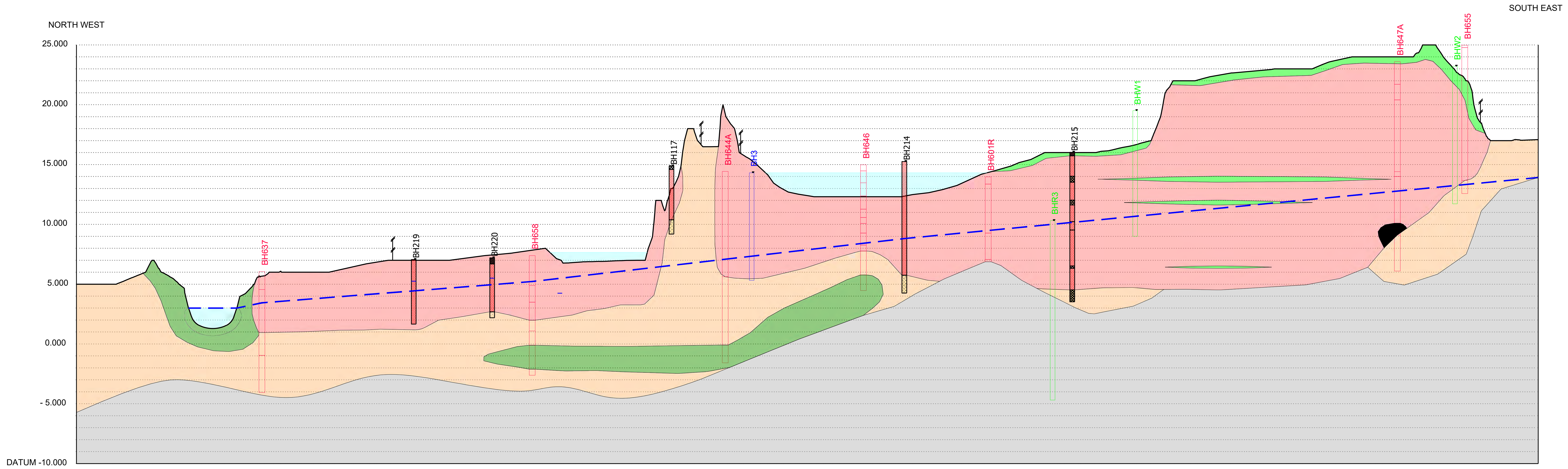
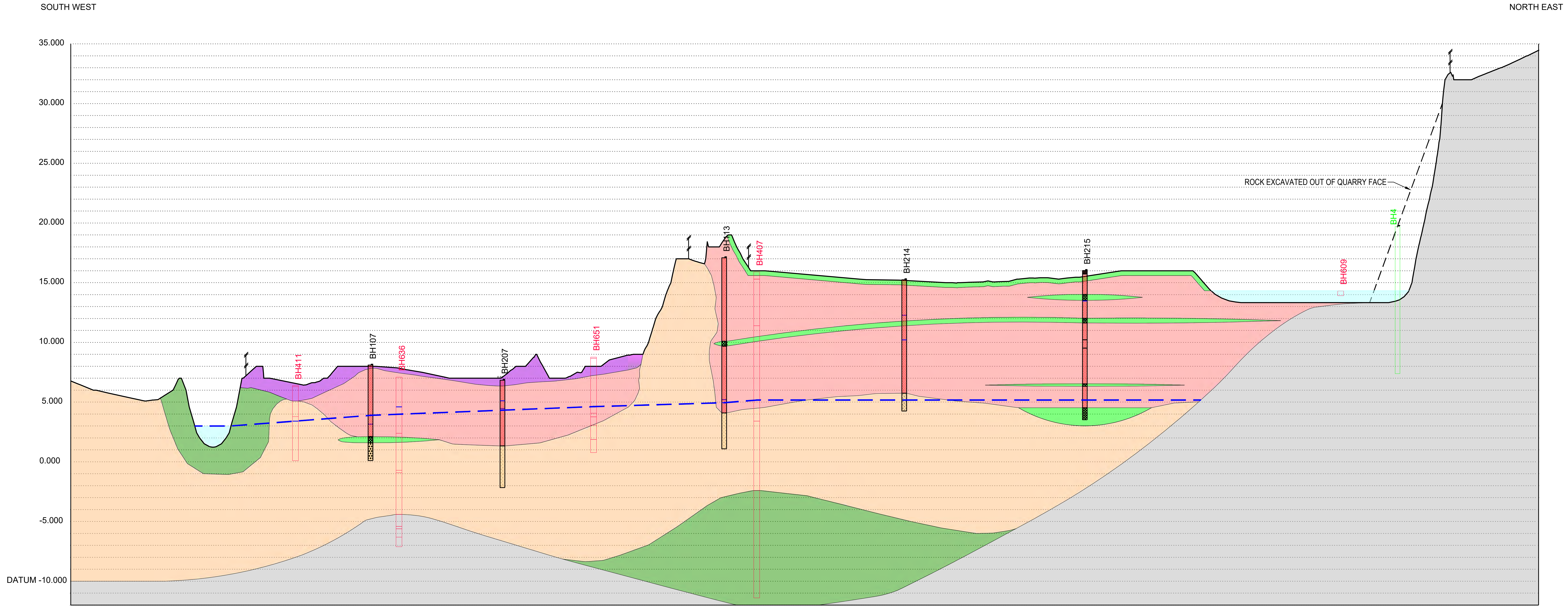
APPENDIX 14 –GEOLOGICAL SECTIONS



Section A-A' (1:1,250H, 1:6,250V)



Section B-B'(1:1,250H, 1:6,250V)



Section C-C' (1:1,250H, 1:6,250V)

KEY

🟧	SAND & GRAVEL
🟫	SANDY GRAVELLY CLAY
🟩	SILT / CLAY
🟥	DOMESTIC WASTE
🟪	CONSTRUCTION & DEMOLITION WASTE
🟩	REWORKED GROUND
■	TARRY WASTE
⬜	BEDROCK
🟦	WATER
—	WATER TABLE
▯	WYG 2015 SITE INVESTIGATION
▯	NIEA 2012 SITE INVESTIGATION
▯	MCLORINAN 2005-2008 SITE INVESTIGATION
▯	TETRA TECH 2022 SITE INVESTIGATION
⫽	FIELD BOUNDARY

NOTE:
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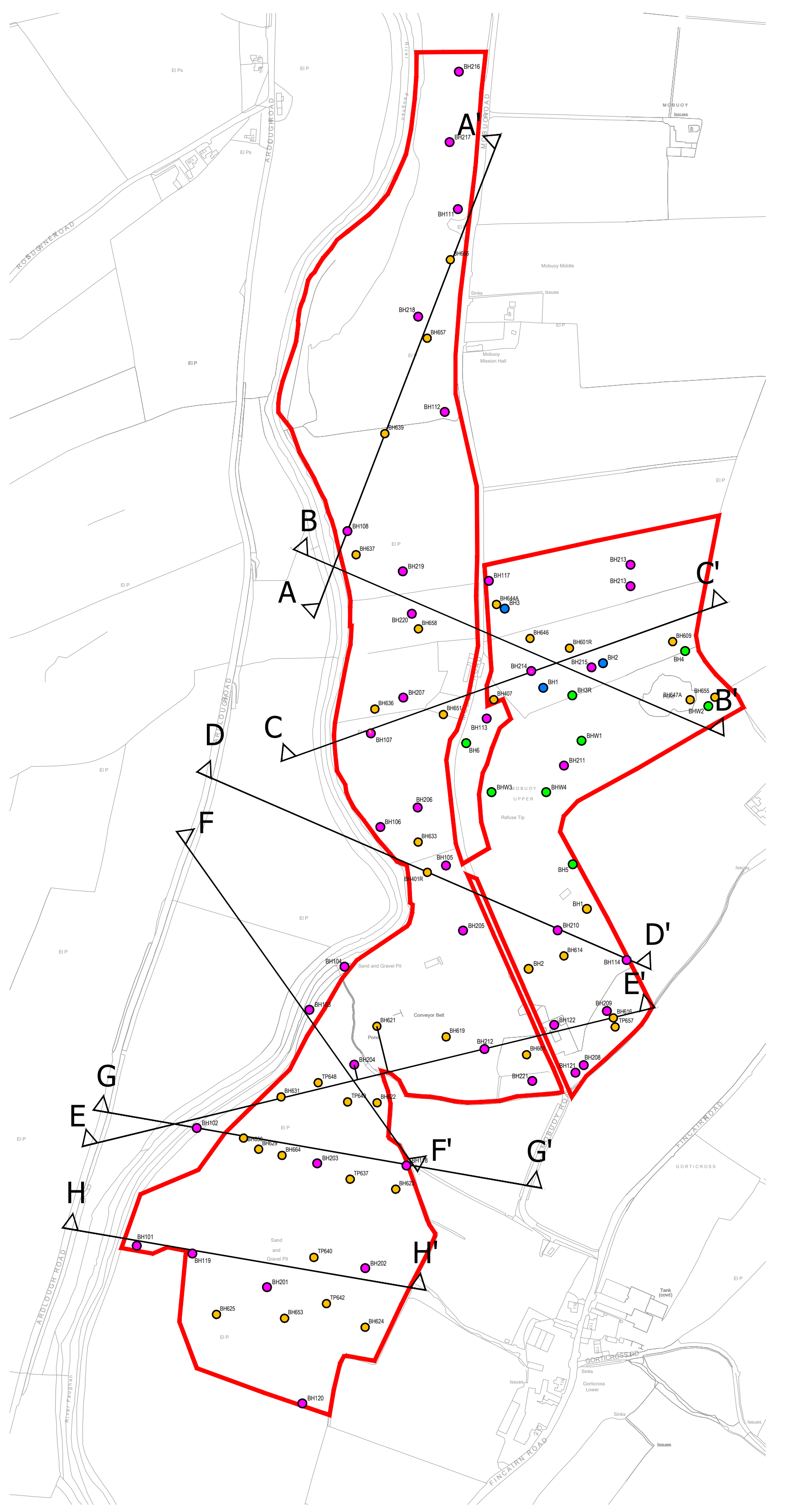

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P02	UPDATED FOLLOWING CLIENT COMMENTS	18.08.22	CM	CL	CL
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MOBUOY REMEDIAL CONTRACT

Sheet Title

GEOLOGICAL CROSS SECTIONS
SHEET 1 OF 4

Model Reference

N/A

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Status
B030252	CM	03.08.22	JB	03.08.22	CL	03.08.22	As Shown	S2

Client Project Number	Originator	Function	Spatial	Form	Role	Number	Revision
B030252	- TTE	- 00	- XX	- DR	- U	- 0005	P02

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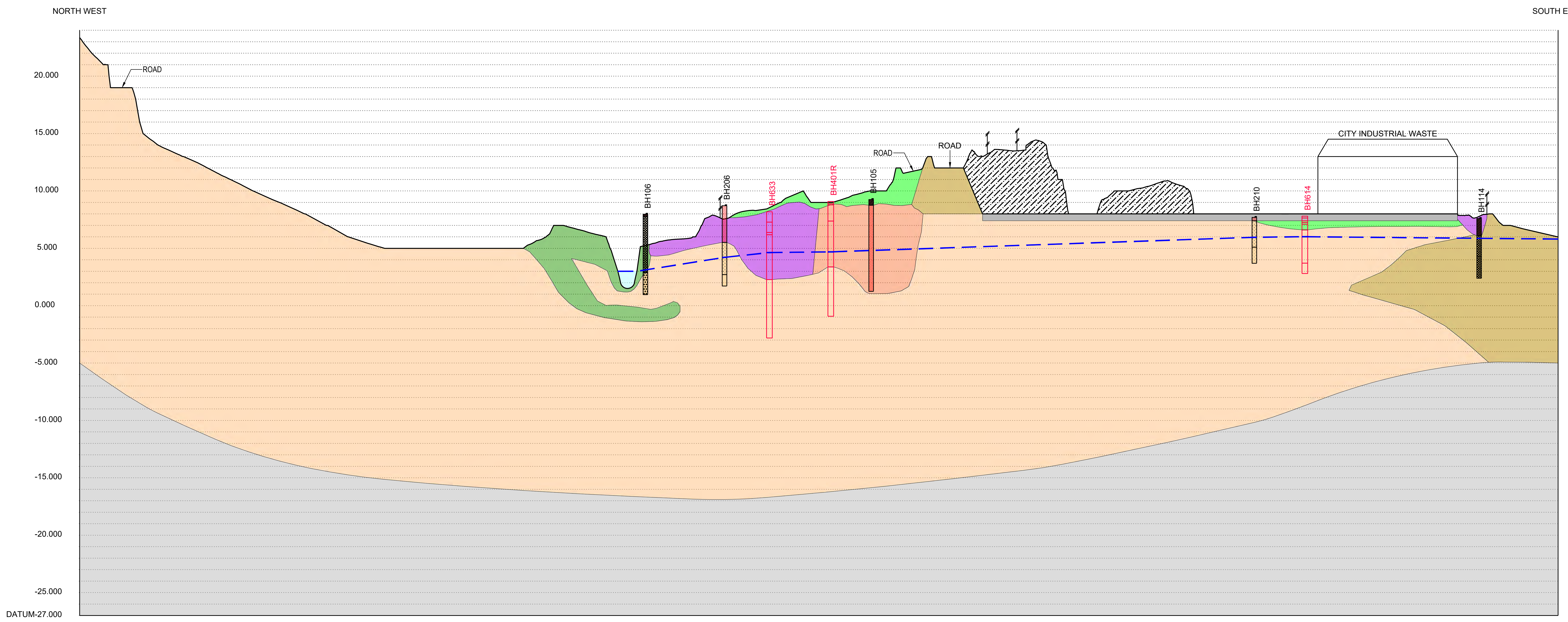

Section D-D' (1:1,250H, 1:6,250V)

KEY

- ▨ CONCRETE HARDSTANDING
- ▨ SAND AND GRAVEL
- ▨ SANDY GRAVELLY CLAY
- ▨ MIXED WASTE
- ▨ CONSTRUCTION & DEMOLITION WASTE
- 🟩 SILT / CLAY
- 🟩 PEAT
- 🟩 REWORKED GROUND
- ▨ BEDROCK
- ▨ WATER
- ▨ ABOVE GROUND WASTE
- — WATER TABLE
- ⫽ FIELD BOUNDARY

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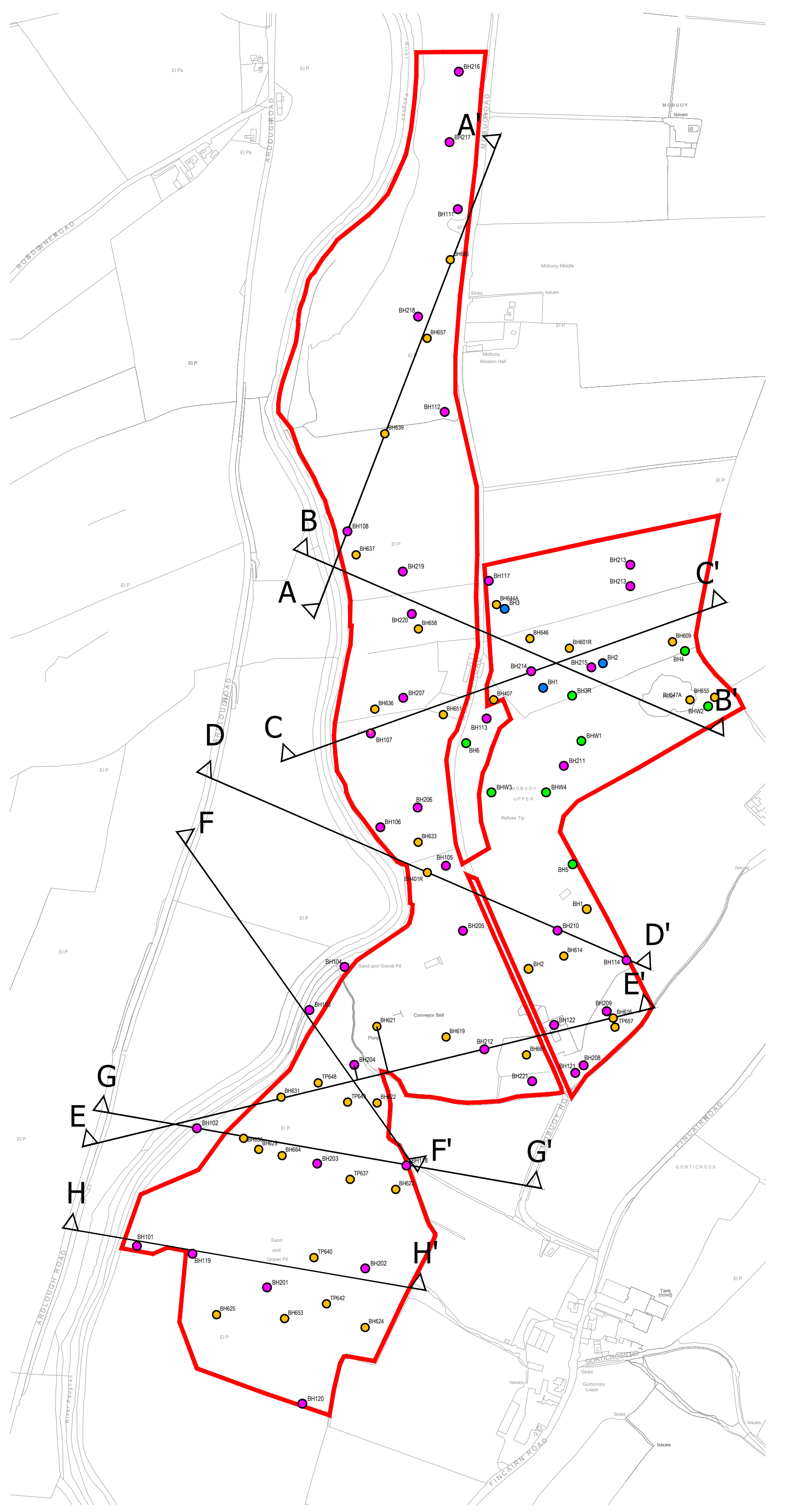

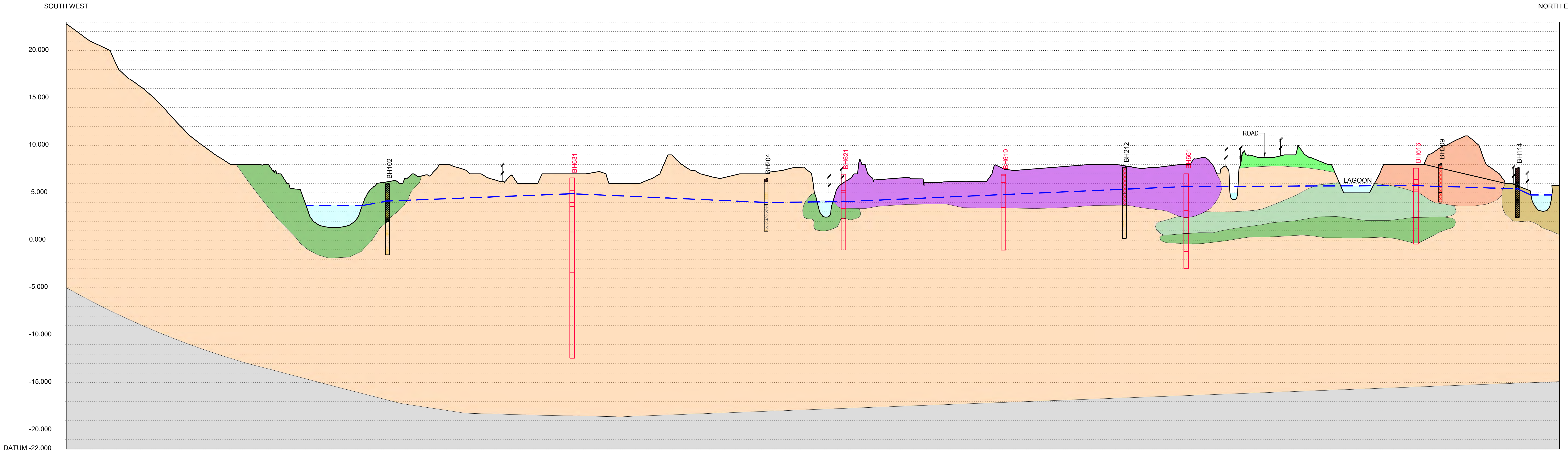

Section E-E' (1:1,250H, 1:6,250V)

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GEOLOGICAL CROSS SECTIONS
SHEET 2 OF 4

Model Reference

N/A

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B030252	CM	03.08.22	JB	03.08.22	CL	03.08.22	As Shown	S2

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B030252 -	TTE -	00 -	XX -	DR -	U -	0006	P02

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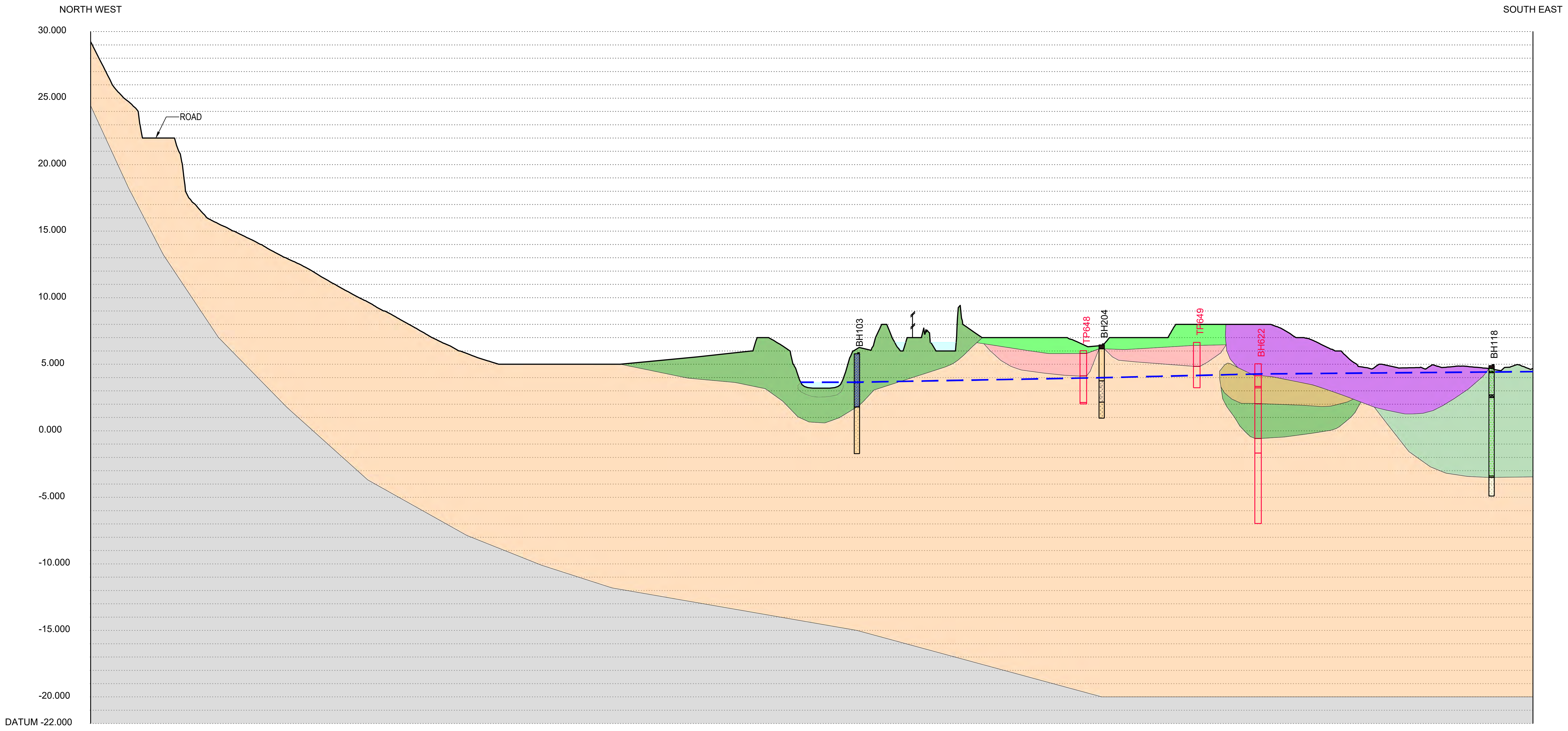

Section F-F' (1:1,250H, 1:6,250V)

KEY

🟧 SAND & GRAVEL
🟫 SANDY GRAVELLY CLAY
🟥 DOMESTIC WASTE
🟪 CONSTRUCTION & DEMOLITION WASTE
🟩 DISTURBED GROUND COVER
🟩 SILT / CLAY
🟩 PEAT
⬜ BEDROCK
⬜ WATER
▨ ABOVE GROUND WASTE
— WATER TABLE
⌇ FIELD BOUNDARY

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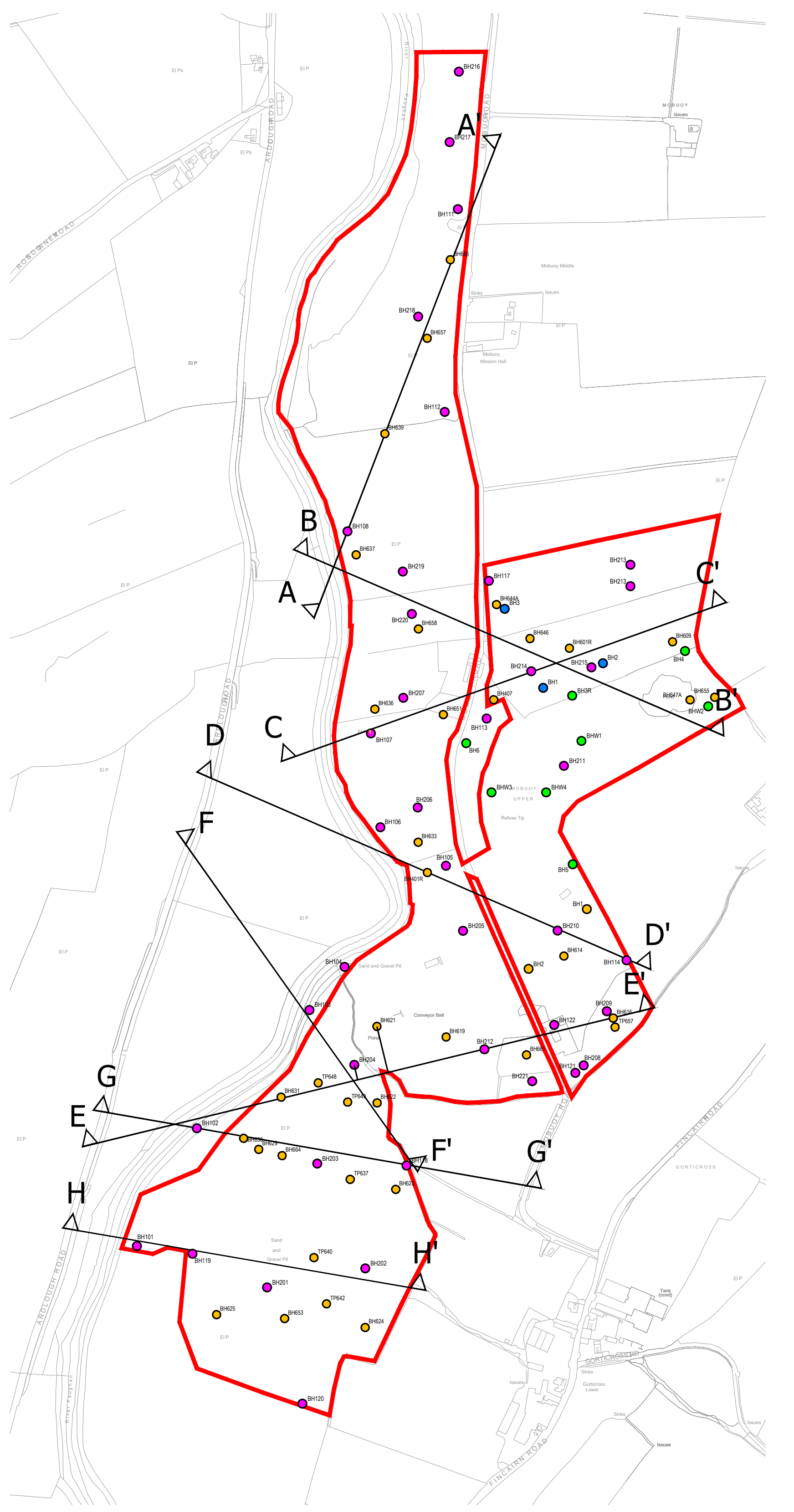

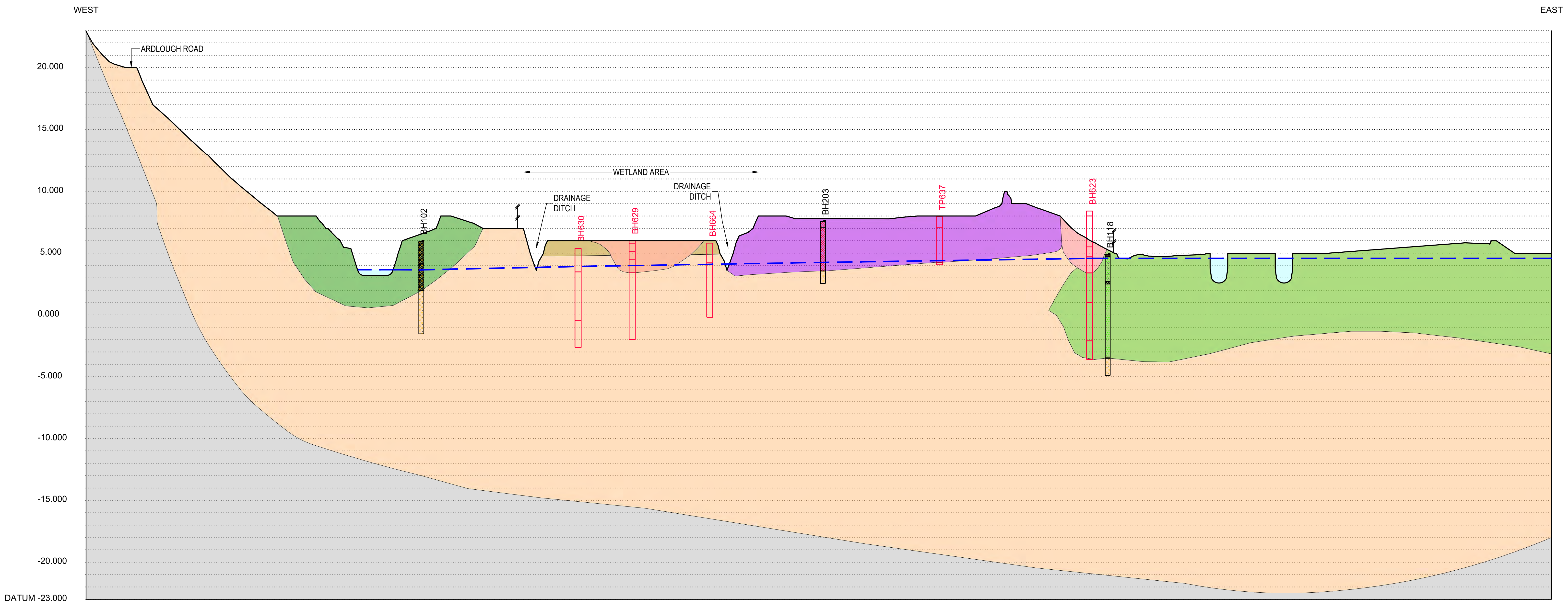

Section G-G' (1:1,250H, 1:6,250V)

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GEOLOGICAL CROSS SECTIONS
SHEET 3 OF 4

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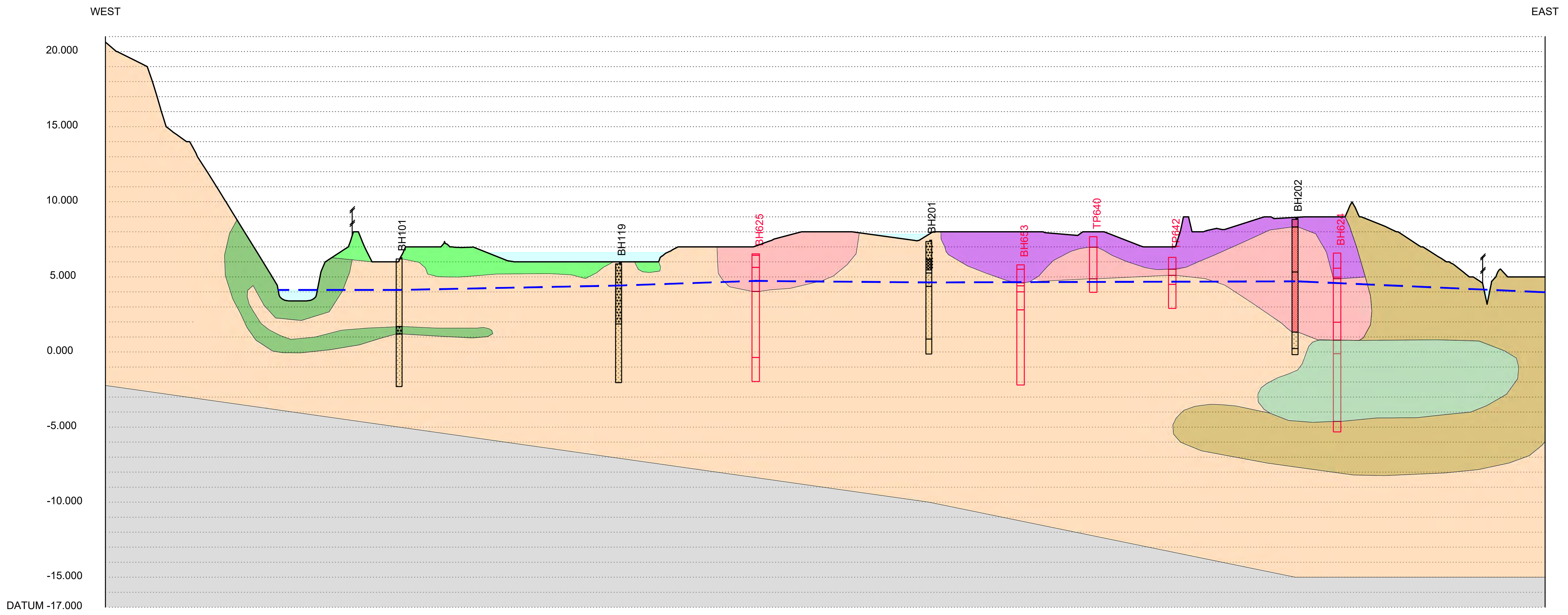

Section H-H' (1:1,250H, 1:6,250V)

KEY

- 🟧 SAND & GRAVEL
- 🟫 SANDY GRAVELLY CLAY
- 🟥 DOMESTIC WASTE
- 🟪 CONSTRUCTION & DEMOLITION WASTE
- 🟩 REWORKED GROUND
- 🟩 SILT / CLAY
- 🟩 PEAT
- ⬜ BEDROCK
- 🟦 WATER
- ▨ ABOVE GROUND WASTE
- — WATER TABLE
- ⌇ FIELD BOUNDARY

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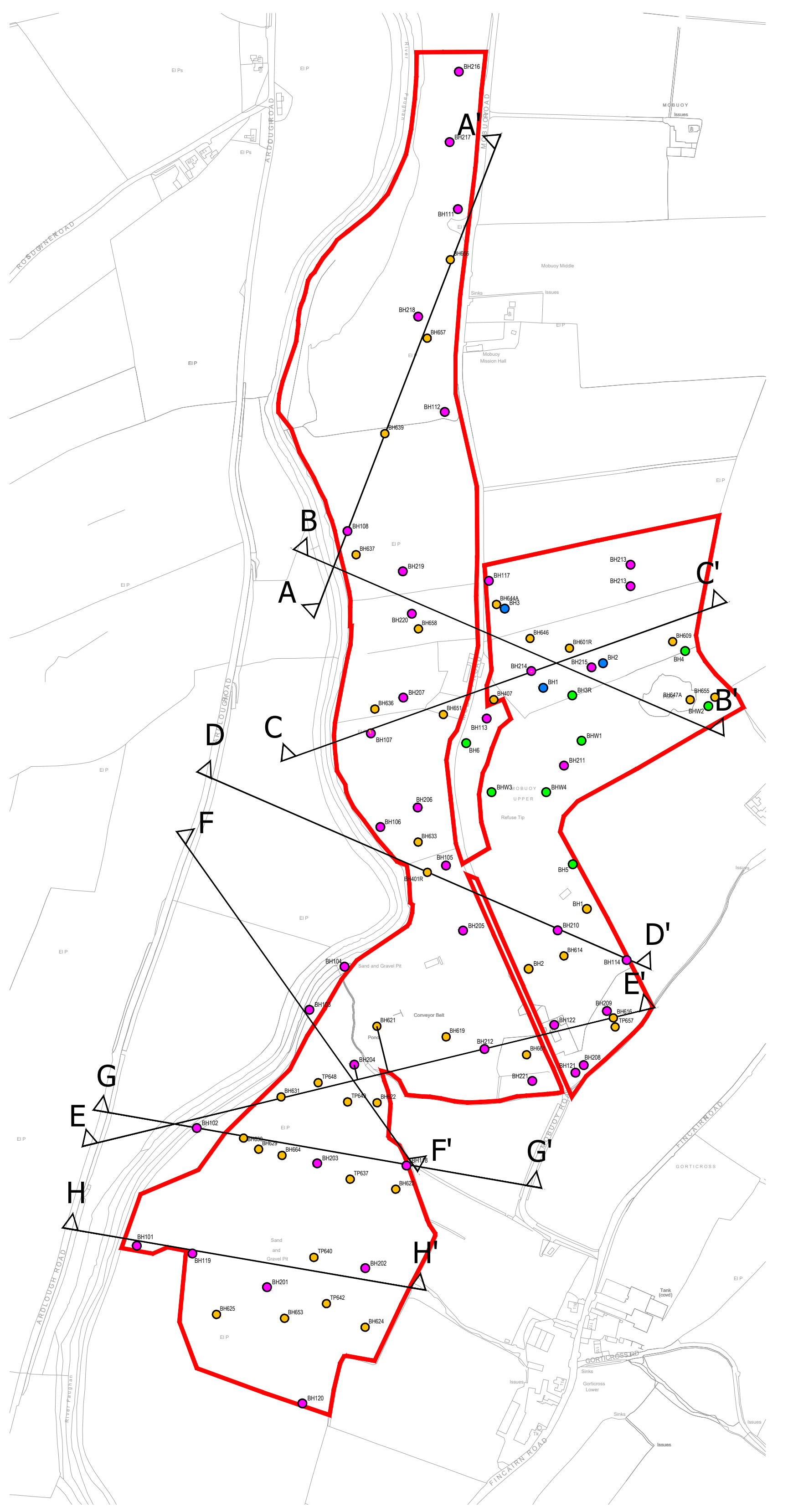

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GEOLOGICAL CROSS SECTIONS
SHEET 4 OF 4

Model Reference

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B030252	- TTE	- 00	- XX	- DR	- U	- 0008	P02

TTE_MT_v2

APPENDIX 15 – WATER MASS BALANCE MODEL FILES

DIGITAL APPENDIX

APPENDIX 16 – CONSIM AND RTM MODEL FILES

DIGITAL APPENDIX

APPENDIX 17 – DERIVATION OF SITE SSAC FILES

DIGITAL APPENDIX

APPENDIX 18 – SSAC SCREENING SUMMARY SHEET

Source Area 1,2,3

COC	Compliance Target (mg/L)	ConSim RTC (mg/L)	Water Balance RTC (mg/L)	Min	Average	Max	Predicted Travel Time (years)	Risk Rating
Arsenic	5.00E-02	1.09E-01	5.95E+01	3.60E-04	1.10E-02	1.10E-01	9870	Low
Boron	1.00E+00	1.00E+00	5.45E+02	1.80E-02	6.15E-01	2.60E+00	69	Low
Copper	3.49E-02	3.50E-02	1.90E+01	5.60E-04	5.30E-03	3.10E-02	1976	Negligible
Mercury	7.00E-05	1.21E-03	6.57E-01	2.50E-05	9.75E-05	1.70E-04	17020	Negligible
Nickel	1.50E-02	3.53E-02	1.92E+01	8.80E-04	2.96E-02	1.70E-01	9870	Low
Zinc	3.72E-02	3.72E-02	2.02E+01	4.00E-03	2.90E-02	1.30E-01	753	Low
Aromatic EC10 - EC12	9.00E-02	2.00E-01	1.09E+02	5.00E-04	2.80E-01	4.20E-01	5.7	Moderate
Toluene	7.40E-02	3.15E+00	1.71E+03	1.00E-03	4.55E-02	9.00E-02	3.0	Negligible
Naphthalene	2.00E-03	6.90E-03	3.75E+00	4.90E-04	2.50E-02	2.30E-01	3.7	Moderate
Ammonia	3.00E-01	5.56E-01	3.02E+02	1.50E-01	2.56E+00	1.60E+01	13	Moderate
Chloride	2.50E+02	2.50E+02	1.36E+05	1.90E+01	1.65E+02	7.50E+02	3.0	Low
Cyanide	1.00E-03	1.00E-03	5.45E-01	2.50E-03	7.75E-03	1.30E-02	2.8	Moderate

Source Area 3,8

COC	Compliance Target (mg/L)	ConSim RTC (mg/L)	Water Balance RTC (mg/L)	Min	Average	Max	Predicted Travel Time (years)	Risk Rating
Boron	1.00E+00	1.01E+00	1.65E+03	3.10E-01	7.60E-01	1.30E+00	19	Low
Mercury	7.00E-05	7.01E-05	1.14E-01	2.50E-05	5.25E-05	8.00E-05	18	Low
Nickel	1.50E-02	1.52E-02	2.48E+01	3.80E-03	2.20E-02	6.00E-02	2959	Moderate
Zinc	3.72E-02	3.72E-02	6.07E+01	3.10E-03	8.50E-01	1.10E+01	225	Moderate
Aromatics EC5 -7	1.00E-02	1.00E-02	1.63E+01	1.10E-01	2.63E-01	7.50E-01	1.1	Moderate
Aromatics EC8 -10	3.00E-01	3.64E-01	1.21E+02	1.50E-01	1.05E+00	6.40E+00	1.4	Moderate
Aromatics EC10 -12	9.00E-02	1.09E-01	4.90E+02	8.00E-02	1.32E+00	5.50E+00	2.0	Moderate
Aromatics EC12 -16	9.00E-02	1.11E-01	1.63E+01	1.00E-02	9.20E-01	4.50E+00	2.1	Moderate
Aromatics EC16 -21	9.00E-02	9.48E-02	5.94E+02	2.10E-02	9.60E-02	2.20E-01	2.4	Moderate
Aromatics EC21 -35	9.00E-02	9.00E-02	1.78E+02	7.20E-02	8.30E-02	9.40E-02	1.0	Low
Benzene	1.00E-02	1.00E-02	1.80E+02	1.70E-02	3.20E+00	9.70E+00	1.1	Moderate
Toluene	7.40E-02	7.40E-02	1.55E+02	4.90E-03	3.70E-01	1.00E+00	1.3	Moderate
Ethylbenzene	3.00E-01	3.00E-01	1.47E+02	1.50E-02	3.40E-01	1.40E+00	1.0	Moderate
Naphthalene (aq)	2.00E-03	2.00E-03	3.26E+00	9.80E-04	3.80E-01	1.50E+00	1.2	Moderate
Anthracene (aq)	1.00E-04	1.13E-04	1.85E-01	4.00E-04	1.20E-03	2.20E-03	5.4	Moderate
Fluoranthene (aq)	6.30E-06	7.04E-06	1.15E-02	8.40E-04	1.00E-03	2.30E-03	5.3	Moderate
Ammonia	3.00E-01	3.57E-01	6.04E+02	1.10E-01	2.50E-01	3.50E-01	2.50E+00	Negligible

Source Area 5

COC	Compliance Target (mg/L)	ConSim RTC (mg/L)	Water Balance RTC (mg/L)	Min	Average	Max	Predicted Travel Time (years)	Risk Rating
Cadmium	9.00E-05	9.13E-05	1.35E-01	1.10E-04	1.10E-02	2.50E-04	2283	Moderate
Nickel	1.50E-02	1.62E-02	2.40E+01	4.20E-03	1.03E-02	1.50E-02	3885	Negligible
Zinc	3.72E-02	3.72E-02	5.52E+01	7.50E-03	6.23E-02	1.20E-01	308	Moderate
Aromatic EC5 - 7	1.00E-02	2.81E-02	4.00E+01	3.60E-02	3.60E-02	3.60E-02	1.2	Moderate
Aromatic EC10 - 12	9.00E-02	1.33E-01	3.67E+02	3.70E-02	1.37E-01	3.10E-01	2.2	Moderate
Aromatic EC12 -16	9.00E-02	1.33E-01	7.13E+02	4.10E-02	1.84E-01	3.40E-01	3.0	Moderate
Aromatic EC16 -21	9.00E-02	9.99E-02	4.17E+01	2.90E-02	6.45E-02	1.00E-01	5.7	Low
Benzene	1.00E-02	2.70E-02	1.97E+02	6.30E-02	4.47E+00	1.30E+01	1.2	Moderate
Toluene	7.40E-02	2.47E-01	1.97E+02	7.70E-03	2.20E-01	6.20E-01	1.3	Low
Ethylbenzene	3.00E-01	4.81E-01	1.48E+02	1.00E-01	1.13E+00	1.70E+00	18	Moderate
Napthalene	2.00E-03	3.65E-03	5.41E+00	1.10E-03	3.00E-01	1.60E+00	1.5	Moderate
Anthracene	1.00E-04	1.26E-04	1.87E-01	4.80E-04	1.30E-03	2.40E-03	7.5	Moderate
Fluoranthene	6.30E-06	7.86E-06	1.17E-02	4.80E-04	1.40E-03	2.50E-03	7.3	Moderate
Ammonia	3.00E-01	4.07E-01	6.04E+02	7.50E-05	5.00E-04	1.10E-03	5.3	Negligible

Source Area 6

COC	Compliance Target (mg/L)	ConSim RTC (mg/L)	Water Balance RTC (mg/L)	Min	Average	Max	Predicted Travel Time (years)	Risk Rating
Cadmium	9.00E-05	9.04E-05	7.37E-02	1.30E-04	4.00E-04	9.30E-04	2188	Moderate
Nickel	1.50E-02	1.57E-02	1.28E+01	2.10E-03	9.10E-03	2.60E-02	4445	Low
Zinc	3.72E-02	3.72E-02	3.03E+01	3.90E-03	2.10E-02	4.00E-02	339	Low
Benzene	1.00E-02	2.94E-02	2.40E+01	8.30E-03	2.11E-02	4.30E-02	1.2	Low
Napthalene	2.00E-03	3.57E-03	2.91E+00	2.50E-04	7.30E-03	3.20E-02	1.6	Moderate
Chloride	2.50E+02	2.50E+02	2.04E+05	2.80E+01	1.18E+02	3.20E+02	1.0	Low
Ammonia	3.00E-01	3.99E-01	3.26E+02	2.40E-01	3.47E+00	1.30E+01	5.8	Moderate
Cyanide	1.00E-03	1.00E-03	8.17E-01	1.00E-02	1.30E-02	1.60E-02	134	Moderate

Source Area 7

COC	Compliance Target (mg/L)	ConSim RTC (mg/L)	Water Balance RTC (mg/L)	Min	Average	Max	Predicted Travel Time (years)	Risk Rating
Cadmium	9.00E-05	9.09E-05	7.06E-02	1.30E-04	3.00E-04	6.20E-04	803	Moderate
Nickel	1.50E-02	1.56E-02	1.21E+01	5.50E-04	7.70E-03	2.50E-02	1608	Low
Zinc	3.72E-02	3.72E-02	2.89E+01	2.60E-03	4.62E-02	1.60E-01	122	Moderate
Toluene	7.40E-02	7.40E-02	5.76E+01	1.00E-03	4.45E-03	7.90E-03	0.5	Negligible
Cyanide	1.00E-03	1.00E-03	7.78E-01	2.50E-03	9.25E-03	1.60E-02	49	Moderate

Source Area 8

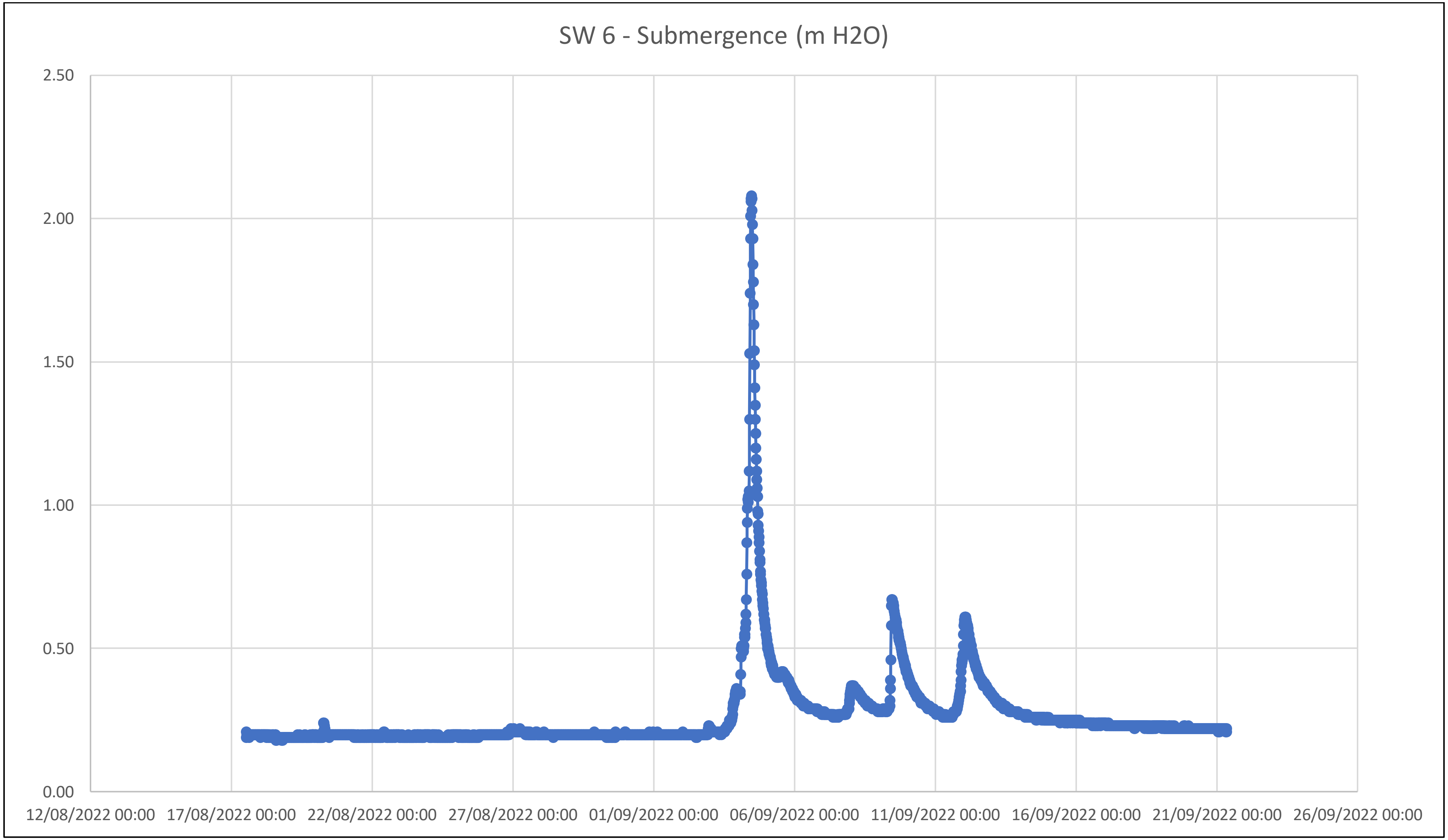
COC	Compliance Target (mg/L)	ConSim RTC (mg/L)	Water Balance RTC (mg/L)	Min	Average	Max	Predicted Travel Time (years)	Risk Rating
Cadmium	9.00E-05	9.01E-05	1.18E-01	5.50E-05	1.75E-04	2.00E-04	44	Moderate
Nickel	1.50E-02	1.50E-02	1.96E+01	1.50E-03	2.30E-02	5.50E-02	75	Moderate
Zinc	3.72E-02	3.72E-02	4.86E+01	5.30E-03	3.50E-02	9.30E-02	5.7	Low
Chloride	2.50E+02	2.50E+02	3.27E+05	4.70E+01	2.97E+02	9.80E+02	0.02	Moderate
Ammonia	3.00E-01	3.00E-01	3.92E+02	1.60E-01	4.10E-01	1.20E+00	0.10	Moderate

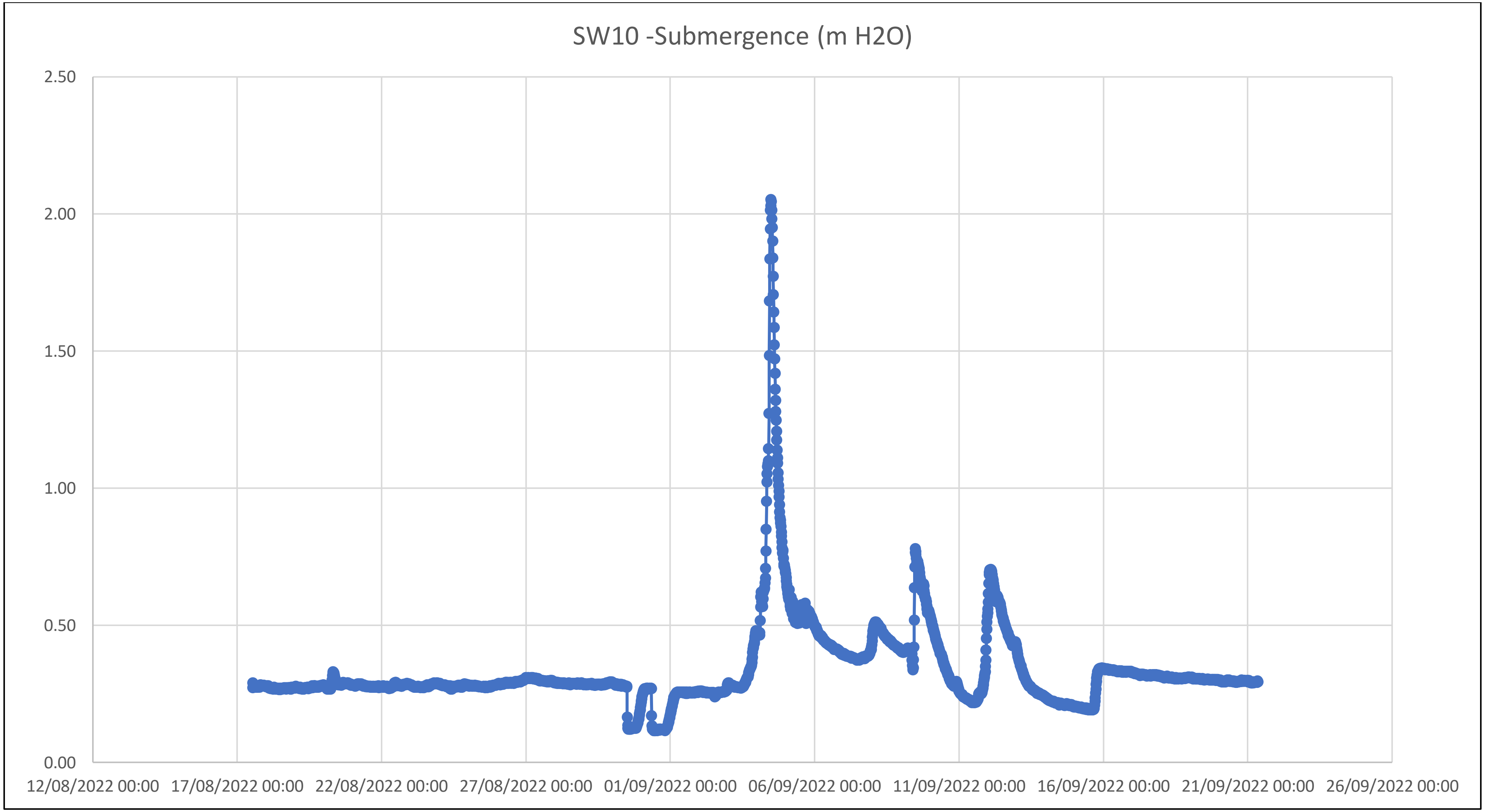
Source Area 9

COC	Compliance Target (mg/L)	ConSim RTC (mg/L)	Water Balance RTC (mg/L)	Min	Average	Max	Predicted Travel Time (years)	Risk Rating
Nickel	1.50E-02	1.60E-02	4.36E+00	9.00E-04	4.60E-03	2.30E-02	2198	Low
Zinc	3.72E-02	3.72E-02	1.01E+01	3.00E-03	2.80E-02	1.60E-01	167	Low
Ammonia	3.00E-01	3.90E-01	1.06E+02	7.50E-02	2.35E-01	4.90E-01	2.8	Low
Cyanide	1.00E-03	1.00E-03	2.72E-01	5.50E-03	8.25E-03	1.10E-02	0.60	Moderate

APPENDIX 19 - SURFACE WATER LEVEL LOGGER DATA OUTPUTS

Surface Wate Level Logger Data

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1.50
1.00
0.50
0.00
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17/08/2022 00:00
22/08/2022 00:00
27/08/2022 00:00
01/09/2022 00:00
06/09/2022 00:00
11/09/2022 00:00
16/09/2022 00:00
21/09/2022 00:00
26/09/2022 00:00