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NEWPORT WAFER FAB BASELINE DATA COLLECTION

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1. INTRODUCTION

1.1 Background

Ramboll UK Limited (Ramboll) has been appointed by Newport Wafer Fab Ltd (NWF, the "Client") to undertake an intrusive ground investigation to provide baseline information on soil, gas and groundwater quality for its permitted Installation located at Cardiff Road, Duffryn, Newport, NP10 8YJ (the "Site" or the "Installation").

The site operates under a Part A(1) Environmental Permit (reference BV7460ID), which was originally determined by the Environment Agency on the 21st December 2005.

The Permit was issued in December 2005, following which the first phase reporting of the Site Protection and Monitoring Programme (SPMP) for the Installation was prepared by ENVIRON (November 2006¹), which involved site investigation to collect reference data for soil and groundwater.

The Environmental Permitting Regulations (England and Wales) 2016 have since been updated to include the Industrial Emissions Directive (IED). Going forward, permitted facilities are required to maintain a SCR which describes and records the condition of the land and groundwater at particular points in time. The objective of the SCR is to enable the operator to demonstrate that it has protected the land and groundwater during the lifetime of the Permit and that the site is in a satisfactory state when the operator comes to surrender the Permit.

In June 2020, Ramboll prepared a desk-based Site Condition Report² (SCR) based on existing information, including baseline reference data that was collected in 2006 to support the original Permit application. The SCR was prepared in line with NRW's H5 Guidance 'Site Condition Report – Guidance and Template'. A recommendation was made that up-to-date information on the quality of soil and groundwater underlying the installation be collected, in order for the site to obtain a current baseline and provide groundwater monitoring points so that the site can comply with the requirements of the Industrial Emissions Directive going forwards.

This report presents the baseline data on soil and groundwater collected by Ramboll in 2021; and the data collected by ENVIRON in 2006.

1.2 Objectives

The objective of the investigation was to establish a 'baseline' in terms of soil and groundwater quality, and to provide groundwater monitoring points so that the site can comply with the requirements of the Industrial Emissions Directive going forwards.

Based on current guidance provided by NRW (2014/C 136/03), the baseline report must contain:

- a) Information on present and past uses of the site;
- b) Information on soil and groundwater that reflect the state [of soil and groundwater] at the time of commencement of the operation, having regard to the possibility of soil and groundwater contamination by those hazardous substances to be used, produced or released by the installation.

1.3 Report Layout

The report is structured as follows:

¹ First Phase Reporting of the Site Protection and Monitoring Programme for International Rectifier (Newport) Ltd, ENVIRON UK LTD, November 2006, Ref: 63-C10459

² Site Condition Report for Newport Wafer Fab Limited, Ramboll UK Ltd, June 2020, Ref: 1700003887_SCR_03

- Section 1: Describes the background to the report and sets out the objectives of the investigation.
- Section 2: Provides a description of the current site layout and summarises information from previous assessments, including a description of the site's history.
- Section 3: Introduces a preliminary conceptual site model for the site, which has been used in designing the baseline data collection strategy.
- Section 4: Details the ground and groundwater conditions encountered.
- Section 5: Presents the Baseline data for soil and groundwater.
- Section 6: Conclusions and Recommendations.

2. SITE DESCRIPTION AND HISTORY

2.1 Current use

NWF operates a semiconductor manufacturing facility with a dedicated effluent treatment plant (ETP) in Newport, South Wales. Figure 1 and Figure 2, presented in Appendix 1, show the Site layout and the boundary of the Environmental Permit Installation, which has not altered since the Permit was first issued.

The Installation is located on Cardiff Road (A48), approximately three kilometres south-west of the centre of Newport, and approximately 750m to the east of Junction 28 of the M4 motorway. The approximate National Grid reference of the site is 329258, 185688. The site is surrounded by mixed business, residential and parkland areas, with the nearest housing located approximately 50m to the south east of the site boundary. The entire site area comprises an area of 8.7ha, while the area of the IPPC installation occupies an area of approximately 4.5ha.

The Installation slopes gently generally downwards to the south-east from the highest point at approximately 33m above ordnance datum (AOD) in the west of the site to the lowest point in the south east at approximately 27m AOD.

The land within the Installation boundary is predominantly surfaced in hardstanding and buildings, with occasional areas of trees and landscaping, and a lagoon with reed bed. Ground around the ETP is surfaced in grass, and ground around the chemical store tertiary containment bund is gravel dressed.

At the time of the Permit issue, the Installation covered approximately 60% of the Operator's total land and comprised manufacturing and test areas, chemical storage, above and below ground storage tanks, a tertiary containment lagoon, a waste storage area, an energy centre and an ETP.

The Environmental Permit was varied in 2008 (EPR/BV7460ID/V0002) to vary the limits on air emission points A2, A12, A13 & A14 and in 2019 (EPR/BV7460ID/V0004) to include a medium combustion plant (CHP) within the original installation boundary. An administrative change was made in 2018 to change the name of the permit holder to Newport Wafer Fab Limited.

2.2 Past Use

The 1887 historical ordnance survey map showed the site to be located within a predominantly rural setting (within Tredegar Country Park) with a land drain crossing the eastern tip of the site, in a north-east to south-west orientation; and a footpath crossing the centre of the site from north to south. A fish pond (associated with Tredegar Park and House) was labelled approximately 130m south-west of the site boundary; and a stream (later labelled as the Main Dock Feeder) flowed past the northern site boundary in a south easterly direction, from approximately 50m north-east of its closest point. The Great Western Railway line was depicted approximately 400m north of the site.

By 1937, the footpath across the site was no longer shown, and woodland was depicted adjacent to the north-east, east and south-west site boundaries; and by 1954 the settlement of Newport had extended to within 400m north-east of the site.

By 1981/1982 offices had been constructed adjacent to the north-western site boundary, and Duffryn residential estate was present from approximately 50m south-east of the site. The site was developed into its approximate current configuration during the 1980s and 1990s.

Based on the historical maps, no significant potential sources of historical contamination have been identified at the site or within the immediate vicinity of the site.

At the time of Permit application, a new chemical storage facility was under construction in the east of the site. This is now operational and lies within the Environmental Permit Installation boundary.

Selected historical maps are provided in Appendix 2 of the SCR.

2.3 Existing Data

2.3.1 Historical Site Assessments and Evidence for Historical Contamination

The following historical site investigations were referenced in the Application Site Report³ (ASR) (2004):

- Site Investigation of Inmos Limited, by Geo-Testing Services Limited (October 1980, reference 8234), documenting a site investigation carried out prior to development of the site; and
- Accelerated Phase II Site Investigation of ESM, by Environmental Resources Management (ERM) (January 2002, reference 8550), undertaken to evaluate the potential for activities to have impacted sub-surface soil and groundwater underlying the site and to assess potential liabilities.

The initial site investigation carried out in 1980 was predominantly geotechnical and did not include environmental testing.

The Phase II site investigation in January 2002 comprised the excavation of 23 soil borings (16 of which were within the installation boundary) to a maximum depth of 4m, eleven of which were installed as 50mm diameter shallow groundwater monitoring wells. Soil samples were collected from each of the boreholes and groundwater samples were obtained from ten of the eleven monitoring wells. A water sample and a sediment sample were taken from the surface water lagoon outlet drain.

Soil samples were submitted for analysis at a UKAS Accredited laboratory, on a targeted basis for total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, pH, total cyanide and sulphate. Groundwater samples were analysed for metals, pH, total cyanide, sulphate, TPH, VOCs and SVOCs.

Volatile vapour readings, detected by a hand-held photoionisation detector, were considered to be elevated above typically background levels in some locations, located within discrete areas, up to a maximum of 400 ppm in SB23, in the east of the Installation. These areas included the solvent store/ETP – FAB 10 north, the waste storage compound, east of FAB 10 south, near the contractors' compound and near the lagoon. No field evidence of contamination (e.g. odours, staining) was recorded within the borehole logs.

The investigation concluded there was no evidence of significant or widespread soil or groundwater contamination beneath the site which posed a significant risk to the environment or human health.

The borehole logs and analytical certificates are presented in Appendix 6 of the SCR. Although this investigation was not designed specifically to provide reference or baseline data for the purposes of the Environmental Permit, it is considered to provide useful data on shallow soil conditions within the Installation boundary. First Phase Reporting of the SPMP

³ Newport Semiconductor Plant Application Site Report (ASR) for International Rectifier (Newport) Limited by Environ UK Ltd, November 2004, Ref:63-C7727B

Soil and groundwater reference data was collected for the Installation in July 2006 by Environ, in pursuance of Condition 2.10.10 of the Environmental Permit, and presented in the First Phase Reporting of the Site SPMP⁴.

The borehole (BH) and window sampling (WS) locations were selected based on identified potentially polluting areas, or 'zones' at the Installation, and prior to drilling were agreed with the Environment Agency with a design SPMP. A plan showing the locations of boreholes and window samples is provided in Figure 5 of Appendix 1. The zones comprised:

- Zone 1: Vicinity of the ETP (BH3, WS5, WS4) and beneath overhead effluent pipework close to FAB10 (BH2).
- Zone 2: External waste storage area (BH1, WS1, WS2, WS3).

The analytical results for soils and groundwater are presented and summarised in the SCR; results are incorporated in the baseline data presented in Section 5 of this report.

The results from the analysis of soil samples were considered to indicate elevated concentrations of mainly organic contaminants which were restricted to the Waste Storage Compound. The presence of VOCs and SVOCs within the waste compound was considered likely to be due to the historic siting of waste drums and skips, containing wastes contaminated with VOCs and SVOCs, on unsurfaced areas of this compound. Whilst these substances were still in use at the site at the time of the 2006 report, a dedicated storage building with a concrete floor had recently been constructed for the storage of drums of waste. Concentrations of these determinands were not found to be elevated in groundwater.

The 2006 report also noted that the site had procedures in place for the handling and disposal of wastes and the management of spillages and leaks and it was considered that the identified contamination within the shallow soils was a result of the historical waste handling and storage practices at the site. No on-going monitoring of groundwater was proposed, which was accepted by the Environment Agency at the time.

Based on this, no further monitoring of soil or groundwater has been undertaken at the site since 2006.

⁴ First Phase Reporting of the Site Protection and Monitoring Programme for International Rectifier (Newport) Ltd, ENVIRON UK LTD, November 2006, Ref: 63-C10459

3. BASELINE DATA COLLECTION STRATEGY

3.1 Conceptual Site Model

The conceptual site model (CSM) is a simplified representation of the environmental conditions at the site, and in the vicinity of the site, and is used to initially identify potentially sensitive receptors and potential pollutant linkages.

Table 3.1: Conceptual Site Model

Potential Sources of Contamination <i>Current and Historical Use</i> Potential contaminants associated with the site use as a manufacturing facility include the storage, use, and handling of liquid chemicals; effluent treatment plant; production of solid wastes.
Geology Geological records indicate that superficial deposits are present directly underlying the Installation, comprising alluvium (clay, silt, sand and gravel) over River Terrace Deposits (sand and gravel). The BGS map sheet and online map indicates that the solid geology underlying the majority of the Installation comprises the St Maughan's Formation (argillaceous sandstone), with the Mercia Mudstone Group (mudstone) shown to be present overlying St Maughan's Formation in the south-western approximately 25% of the site. However, online BGS borehole records suggest the presence of Mercia Mudstone underlying the superficial deposits across the full extent of the Installation. Environ's 2006 investigation report identified Made Ground in all sample locations drilled, to a maximum depth of 2.0m bgl, comprising angular gravelly fill overlying a geotextile membrane; underlain by sand, gravel and clayey sand.
Hydrogeology The superficial deposits (alluvium and river terrace deposits) are classified by NRW as a Secondary A Aquifer. The underlying Mercia Mudstone Formation bedrock is classified as a Secondary B Aquifer, described as lower permeability formations with potential to support small abstractions. The site is not situated within a currently designated groundwater Source Protection Zone (SPZ); and there are no records of licensed groundwater abstraction wells within 1km of the facility. Within Environ's 2006 intrusive investigation groundwater was encountered at all three of the borehole locations at depths between 3.8m and 4.4m bgl within the River Terrace Deposits. The groundwater flow direction was interpreted to be broadly to the south / south-east, towards the mouth of the River Usk / Severn Estuary. Overall, the site is considered to be of moderate environmental sensitivity in terms of groundwater.

Hydrology

On Site

There are two man-made surface water features at the Installation: an ornamental pond in the south-east of the Installation; and a reed bed, forming an integral part of the tertiary containment basin in the south-east of the site. As these features are man-made, and (in the case of the reed bed) are integral to the operation of the Installations drainage system, they are not considered to be environmental receptors in their own right.

Vicinity

Nearby surface water features located outside of the Installation boundary include:

- The Docksway Feeder is located approximately 60m from the Installation boundary at its closest point and runs through the NWF owned wooded land adjacent to the Installation. This watercourse has not been classified by NRW under the Water Framework Directive (WFD) Classification scheme. The Docksway Feeder flows in a broadly south-easterly direction and enters the Ebbw River approximately 1.2km south-east of the site.
- Ordnance survey mapping suggests that a drainage ditch is present within the wooded area, running in a south-west to north-east orientation. During previous assessments this has been observed to be a dry shallow ditch / depression which potentially links to the Docksway Feeder at a point close to the A48 dual carriage way. It is considered likely that this feature would only flow during periods of heavy rainfall, and that it is unlikely to be fed by the shallow groundwater.
- Drainage channels from approximately 45m north and 40m east at their closest points, which feed into a network of drainage channels that drain to the River Ebbw east of the site.
- Drainage channel approximately 65m south, drains to a boating lake, approximately 130m south west.
- A pond located in the grounds of Tredegar House is located approximately 90m east of the Installation.
- A drainage ditch that commences in the grounds of Tredegar House approximately 70m south west of the Site. From this point the ditch appears to be culverted under Duffryn Drive, to run broadly south, turning east and then north, around the residential housing estate, before appearing to terminate at approximately 185m east of the site.

Wider Surroundings

The River Ebbw is located approximately 130m east of the Installation at its closest point, flowing in a broadly south-easterly direction towards the River Usk, and entering the Usk at a point located approximately 3.0km south-east of the site.

This stretch of the Ebbw River is classified by the NRW as being of 'moderate' ecological quality and 'fail' chemical quality under the WFD.

An extensive interconnecting system of drainage ditches ('reens') is present from approximately 1.1km south-east of the Installation, forming part of Gwent Levels, ultimately discharging to the Severn Estuary.

There are no records of licensed surface water abstraction licences recorded within 1km of the facility.

According to NRW, the majority of the site (approximately 80%) is located in an area of medium risk of flooding, which means that each year, this area has a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%).

The western approximately 15% of the site is located in an area of low risk of flooding, which means that each year, this area has a chance of flooding of between 1 in 1000 (0.1%) and 1 in 100 (1%).

The north-eastern area of the site (approximately 5%) is located in an area of high risk of flooding, which means each year, this area has a chance of flooding of greater than 1 in 30 (3.3%).

NWF has undertaken site specific flood risk studies for the Installation. This has included the identification of flood defence measures which have recently been installed by NRW along the River Ebbw upstream of the Installation. It is noted that the current published NRW data does not include the protection afforded by the flood defence measures.

NWF reports that the site has not flooded during its operational history (approximately 22 years), and that, based on the results of their own studies, the site is not considered to be at risk of flooding.

Overall, the site is considered to be of moderate environmental sensitivity in terms of surface water.			
Potential Receptors to Contamination (if Present)			Receptor Present?
Human Health	On-site	The site is developed for commercial / industrial use as a semiconductor manufacturing facility. Construction workers will be exposed to soils through dermal contact, dust and ingestion while carrying out excavations. End users will be the NWF employees; however, the site is noted to be predominantly hard-surfaced.	Yes
	Off-site	Residential properties are located adjacent south-east of the site, separated from the site by Duffryn Drive.	Yes
Water Environment	On-site	Groundwater has been previously identified within the underlying superficial deposits of Alluvium and River Terrace Gravels.	Yes
	Off-site	Groundwater is anticipated to flow in a south / south-easterly direction.	Yes
		The Docksway Feeder is located approximately 60m from the Installation boundary at its closest point and runs through the NWF owned wooded land adjacent to the Installation. The River Ebbw is located approximately 130m east of the Installation at its closest point, flowing in a broadly south-easterly direction towards the River Usk.	Yes
Ecological Receptors	On-site	There are no statutory designated ecologically sensitive sites present on-site.	No
	Off-site	The Gwent Levels – St Brides SSSI is located approximately 750m south-east of the site, designated due to rich assemblages of invertebrate species. The area also contains a number of nationally rare plant species.	Yes

3.2 Rationale for Baseline Data Collection

The collection of baseline data is intended to provide up to date information on the quality of soil and groundwater underlying the installation, in order for the site to obtain a current baseline and provide groundwater monitoring points so that the site can comply with the requirements of the Industrial Emissions Directive going forwards.

The scope of the intrusive was designed to obtain shallow soil and groundwater data in the vicinity of the chemical store (constructed since the 2006 investigation); replace 'lost' boreholes in the vicinity of the effluent treatment plant; and to install groundwater monitoring boreholes on the downgradient southern boundary (as far as is reasonably practicable). All locations are shown on Figure 3, Appendix 1.

3.3 Baseline Data Collection

The intrusive work was undertaken between 1st and 14th July 2021 and was supervised by Robert Hodgson of Ramboll. The borehole logs are provided in Appendix 2.

The investigation comprised:

- location of boreholes using a specialist underground services clearance contractor;

- drilling six narrow diameter boreholes to depths up to 4.0m below ground level (bgl), using a tracked 'window sample' drilling rig to allow the collection of soil samples (PPCWS01 to PPCWS06);
- drilling six boreholes using cable percussion drilling techniques to depth of up to 6.5m bgl to allow the installation of groundwater monitoring wells (PPCBH01 to PPCBH06);
- supervision of drilling works by a Ramboll consultant who logged soil conditions and collected selected soil samples for laboratory analysis;
- submission of up to two soil samples per window sample and cable percussion borehole to an independent Ramboll approved laboratory for chemical analysis. The suite of determinands was based on the potentially polluting substances identified in the SCR, including a suite of common metals, pH, speciated petroleum hydrocarbons, a suite of volatile and semi-volatile organic compounds (including common organic solvents), ammonia, acetone, glycols;
- installation of the cable percussion boreholes as groundwater monitoring wells, completed at the surface with a metal traffic rated flush cover to allow for groundwater monitoring;
- installation of three of the window sample boreholes as ground gas monitoring wells, completed at the surface with a metal traffic rated flush cover to allow for monitoring; and
- one round of ground gas and groundwater monitoring from the newly installed wells. Groundwater samples were submitted for a similar range of determinands as the soil samples.

4. FIELD OBSERVATIONS

4.1 Ground Conditions

Ground conditions are summarised in Table 4.1 below. The information provided below is a summary of both the window sample exploratory locations and also the deeper borehole exploratory locations. A full lithological description is recorded on the logs, which are provided as Appendix 2.

Table 4.1: Summary of Ground Conditions

Strata	Description	Depth to Base (m bgl)
Asphalt, concrete, and paved hardstanding	Land within the Installation boundary is predominantly surfaced in hardstanding and buildings. Hardstanding was recorded in five of the twelve drilling locations to a maximum thickness of 0.20m.	0.00 – 0.20
Gravel and soft landscaping	Areas of grass, gravel, and planted landscaping are present at the site, along with a lagoon and reed bed. Ground around the ETP is surfaced in grass, and ground around the chemical store tertiary containment bund is gravel dressed. Where present in drilling locations, grass was underlain by a firm brown gravelly topsoil to depths of up to 0.30m bgl.	0.00 – 0.30
Made Ground	Made ground was encountered at each drilling location; typically recorded as dark brown and black slightly ashy clayey gravel with occasional fragments of concrete, brick, and clinker, and rare fragments of metal, plastic, and fabric. Made Ground was recorded to a maximum depth of 1.20m bgl, where proven.	0.40 – 1.20
Alluvium	Deposits of Alluvium were encountered at each drilling location; typically recorded as grey-brown or orange-brown clayey sand or silt with an alluvial/organic odour. Alluvium was recorded to a maximum depth of 2.80m where encountered and proven.	1.50 – 2.80, where encountered and proven
River Terrace Deposits	River Terrace Deposits were encountered in each of the six cable percussion boreholes, and one window sample borehole (WS01); recorded as dense brown slightly silty sand and gravel with cobbles. It is anticipated that many of the window sample boreholes terminated on at the interface between Alluvium and River Terrace Deposits, without sample recovery to prove this. River Terrace Deposits were encountered to a maximum depth of 3.60m bgl; however, the base of the strata was not proven at this location.	4.00 - >6.50m
Mercia Mudstone Formation	Bedrock was encountered as very stiff red-brown clay in two cable percussion drilling locations, beneath the River Terrace Deposits, at depth of 4.00m and 4.80m bgl.	>5.00m

4.2 Groundwater

The depth to resting groundwater level was recorded during Ramboll's groundwater monitoring round on 14th July 2021. A summary of the groundwater levels is provided in Table 4.2.

Table 4.2: Summary of Groundwater Observations

Exploratory Hole	Borehole Level (m AOD)	Depth to groundwater (m bgl)	Depth to Groundwater (m AOD)	Inferred Horizon Containing Groundwater¹
PPCWS02	10.48	0.85	9.63	Alluvium / River Terrace Deposits
PPCWS03	10.30	Dry	N/A	N/A
PPCWS06	10.13	Dry	N/A	N/A
PPCBH01	10.33	2.27	8.06	River Terrace Deposits
PPCBH02	9.85	2.37	7.48	River Terrace Deposits
PPCBH03	10.08	2.41	7.67	River Terrace Deposits
PPCBH04	9.20	1.67	7.53	River Terrace Deposits
PPCBH05	9.67	1.59	8.08	River Terrace Deposits
PPCBH06	10.33	2.07	8.26	River Terrace Deposits
Notes: ¹ The inferred horizon has been identified by comparing the resting groundwater levels against the exploratory hole logs and monitoring well design.				

Groundwater was encountered in all six of the cable percussion boreholes during groundwater monitoring on the 14th July 2021, at depths between 1.59m bgl (8.08m AOD) at PPCBH05 and 2.37m (7.48m AOD) at PPCBH02. This gives a variation in groundwater elevation of 0.60m across the site declining from the north to the south. The groundwater flow plot presented as Figure 4 in Appendix 1 indicates an overall easterly groundwater flow direction, towards the Ebbw River.

Groundwater was recorded at a shallower depth in PPCWS02, groundwater was at this location and is considered to be present as perched groundwater within the Made Ground and/or underlying alluvium.

4.3 Field Evidence of Contamination

Visual and/or olfactory evidence of contamination was restricted to the presence of ash and construction/demolition type materials within shallow Made Ground.

5. BASELINE DATA

5.1 Soil Baseline Data

Twenty-four soil samples from Ramboll's 2021 site investigation were analysed; the results record the 'baseline' in soil. The results are summarised in Table 5.1 below, and the laboratory analysis certificates are presented in Appendix 3 (soil) and Appendix 4 (groundwater).

Fourteen soil samples were analysed during the 2006 investigation; these are presented in summary tables in Appendix 5; and have been summarised in Table 5.2 below.

For context, the results have been compared with generic assessment criteria (GAC) for the interpretation of soil chemical analyses. The GAC are threshold-based screening criteria below which a significant risk (to human health) is not considered to be present. Contaminants at concentrations above the GAC do not infer an unacceptable risk; rather that further assessment is required to more fully understand potential contamination risks. The soil analytical results have been screened against the Ramboll GAC for commercial/ industrial end use.

The following determinands were not detected above the laboratory method reporting limits and are therefore not presented in the table:

- total cyanide;
- monohydric phenols;
- hexavalent chromium;
- BTEX compounds;
- MTBE;
- total petroleum hydrocarbons – Aliphatic fractions C5-C10, and Aromatic fractions C5-C21;
- PAHs other than those listed in Tables 5.1 and 5.2;
- VOCs and SVOCs other than those listed in Tables 5.1 and 5.2; and
- Glycols.

Table 5.1: 2021 Soil Baseline Data

Determinand		No. of Samples	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg) and location (m bgl)	Ramboll GAC for Commercial / Industrial Use (mg/kg)	No. of GAC Exceedances	Location of Exceedance
Metals							
Arsenic		24	3.4	10 (PPCWS06, 0.5m)	640	0	N/A
Beryllium		24	<MRL	2.2 (PPCBH03, 0.3m)	12	0	N/A
Water Soluble Boron		24	<MRL	7.4 (PPCWS02, 0.5m)	240,000	0	N/A
Cadmium		24	<MRL	8.6 (PPCBH03, 0.3m)	410	0	N/A
Chromium III		24	9.5	1,100 (PPCWS02, 0.5m)	8,600	0	N/A
Chromium (total)		24	9.5	1,100 (PPCWS02, 0.5m)	8,600	0	N/A
Copper		24	9.2	80 (PPCWS02, 0.5m)	68,000	0	N/A
Lead		24	6.4	180 (PPCWS06, 1.0m)	2,300	0	N/A
Mercury		24	<MRL	0.5 (PPCWS04, 0.5m)	1,100	0	N/A
Nickel		24	4.6	32 (PPCBH02, 1.3m)	980	0	N/A
Selenium		24	<MRL	9.0 (PPCWS02, 0.5m)	12,000	0	N/A
Vanadium		24	8.1	160 (PPCWS02, 0.5m)	9,000	0	N/A
Zinc		24	45	740 (PPCWS02, 0.5m)	730,000	0	N/A
Total Petroleum Hydrocarbons							
Aliphatics	C10-C12	24	<MRL	2.4 (PPCWS04, 1.5m)	6,100	0	N/A
	C12-C16	24	<MRL	14 (PPCWS04, 1.5m)	43,000	0	N/A
	C16-C21	24	<MRL	14 (PPCWS04, 1.5m)	1,000,000	0	N/A
	C21-C35	24	<MRL	36 (PPCWS04, 1.5m)	1,000,000	0	N/A
Aromatics		24	<MRL	22 (PPCWS03, 0.5m)	29,000	0	N/A

Determinand	No. of Samples	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg) and location (m bgl)	Ramboll GAC for Commercial / Industrial Use (mg/kg)	No. of GAC Exceedances	Location of Exceedance
Polyaromatic Hydrocarbons						
Phenanthrene	24	<MRL	0.5 (PPCBH01, 0.5)	22,000	0	N/A
Fluoranthene	24	<MRL	0.67 (PPCBH01, 0.5)	23,000	0	N/A
Pyrene	24	<MRL	0.5 (PPCBH01, 0.5)	54,000	0	N/A
Benzo(a)anthracene	24	<MRL	0.45 (PPCBH01, 0.5)	See Benzo(a)pyrene	0	N/A
Chrysene	24	<MRL	0.39 (PPCBH01, 0.5)	See Benzo(a)pyrene	0	N/A
Benzo(b)fluoranthene	24	<MRL	0.47 (PPCBH01, 0.5)	See Benzo(a)pyrene	0	N/A
Benzo(k)fluoranthene	24	<MRL	0.21 (PPCBH01, 0.5)	See Benzo(a)pyrene	0	N/A
Benzo(a)pyrene	24	<MRL	0.29 (PPCBH01, 0.5)	76	0	N/A
Indeno(123cd)pyrene	24	<MRL	0.21 (PPCBH01, 0.5)	See Benzo(a)pyrene	0	N/A
Benzo(ghi)perylene	24	<MRL	0.23 (PPCBH01, 0.5)	See Benzo(a)pyrene	0	N/A
Additional Inorganics						
Sulphate as SO ₄	24	4	750 (PPCWS05, 0.3m)	N/A	N/A	N/A
Ammoniacal Nitrogen as N	13	<MRL	36 (PPCWS03, 0.5m)	N/A	N/A	N/A
Notes MRL – Method Reporting Limit						

Table 5.2: 2006 Soil Baseline Data

Determinand	No. of Samples	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg) and location (m bgl)	Ramboll GAC for Commercial / Industrial Use (mg/kg)	No. of GAC Exceedances	Location of Exceedance
Metals						
Arsenic	10	2.6	15 (BH2, 0.7m)	640	0	N/A
Cadmium	10	<MRL	24 (BH2, 0.7m)	410	0	N/A
Chromium (total)	10	12	2,700 (WS3, 0.4m)	8,600	0	N/A
Copper	10	3.3	220 (WS3, 0.3m)	68,000	0	N/A
Lead	10	5.3	490 (BH2, 0.7m)	2,300	0	N/A
Mercury	10	<MRL	1.9 (BH3, 0.8m)	1,100	0	N/A
Nickel	10	4.6	84 (WS2, 0.3m)	980	0	N/A
Selenium	10	<MRL	6.3 (WS3, 0.4m)	12,000	0	N/A
Zinc	10	43	1,300 (BH2, 0.7m)	730,000	0	N/A
Total Petroleum Hydrocarbons						
EPH (C10-C40)	14	<MRL	1,800 (WS03, 0.4m)	6,100 to 29,000	0	N/A
Polyaromatic Hydrocarbons						
Naphthalene	12	<MRL	0.1 (WS3, 0.4m)	110	0	N/A
Acenaphthylene	12	<MRL	0.5 (WS3, 0.4m)	76,000	0	N/A
Acenaphthene	12	<MRL	0.9 (WS3, 0.4m)	75,000	0	N/A
Fluorene	12	<MRL	1.2 (WS3, 0.4m)	60,000	0	N/A
Phenanthrene	12	<MRL	8.4 (WS3, 0.4m)	22,000	0	N/A
Anthracene	12	<MRL	0.79 (WS3, 0.4m)	520,000	0	N/A
Fluoranthene	12	<MRL	3.3 (WS3, 0.4m)	23,000	0	N/A

Determinand	No. of Samples	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg) and location (m bgl)	Ramboll GAC for Commercial / Industrial Use (mg/kg)	No. of GAC Exceedances	Location of Exceedance
Pyrene	12	<MRL	8.6 (WS3, 0.4m)	54,000	0	N/A
Benzo(a)anthracene	12	<MRL	9.1 (WS3, 0.4m)	See Benzo(a)pyrene	0	N/A
Chrysene	12	<MRL	31 (WS3, 0.4m)	See Benzo(a)pyrene	0	N/A
Benzo(b)fluoranthene	12	<MRL	5.3 (WS3, 0.4m)	See Benzo(a)pyrene	0	N/A
Benzo(k)fluoranthene	12	<MRL	2.3 (WS3, 0.4m)	See Benzo(a)pyrene	0	N/A
Benzo(a)pyrene	12	<MRL	3.8 (WS3, 0.4m)	76	0	N/A
Indeno(123cd)pyrene	12	<MRL	0.51 (WS3, 0.4m)	See Benzo(a)pyrene	0	N/A
Dibenzo(ah)anthracene	12	<MRL	0.7 (WS3, 0.4m)	See Benzo(a)pyrene	0	N/A
Benzo(ghi)perylene	12	<MRL	0.83 (WS3, 0.4m)	See Benzo(a)pyrene	0	N/A
Volatile Organic Compounds						
Cis-1,2-dichloroethene	23	<MRL	0.013 (BH1, 6.90m)	7.3	0	N/A
Dichloromethane	23	<MRL	0.029 (WS3, 0.4m)	130	0	N/A
Semi Volatile Organic Compounds						
2-Methylnaphthalene	23	<MRL	0.7 (WS3, 0.4m)	NC	N/A	N/A
Di-n-butyl phthalate	23	<MRL	0.19 (WS3, 0.4m)	15,000	0	N/A
Anthraquinone	23	<MRL	2 (WS3, 0.4m)	NC	N/A	N/A
Bis (2-ethylhexyl) phthalate	23	<MRL	1.4 (WS3, 0.4m)	85,000	0	N/A
Additional Inorganics						
Sulphate as SO4	38	4	5,100 (BH1, 0.4m)	N/A	N/A	N/A
Ammoniacal Nitrogen as N	21	<MRL	36 (PPCWS03, 0.5m)	N/A	N/A	N/A

Determinand	No. of Samples	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg) and location (m bgl)	Ramboll GAC for Commercial / Industrial Use (mg/kg)	No. of GAC Exceedances	Location of Exceedance
Notes MRL – Method Reporting Limit NC – No Criteria available						

5.2 Discussion of Soil Results

All determinands were detected at concentrations below their respective assessment criteria considering a commercial / industrial site use.

There is no evidence of contamination at the site based on the laboratory analysis undertaken by Ramboll (in 2021) and Environ (in 2006).

It is proposed that the maximum levels for the determinands presented in Table 5.1 form the soil baseline site data for future assessment of soil quality.

5.3 Groundwater Baseline Data

The groundwater analytical results from the 2021 groundwater sampling wells (PPCBH01 to PPCBH06) and window sample borehole PPCWS02; are presented in Table 5.3 below; and groundwater analytical data from the 2006 investigation (BH1 to BH3) is presented in Table 5.4 below. The results represent baseline data for the site; however, for context, the results have been compared with England and Wales Freshwater Environmental Quality Standards (EQS) where published. Where there is no published EQS the conservative UK Drinking Water Standards (DWS) have been used and for those determinands which do not have a corresponding UK screening criteria, reference is made to a hierarchy of international guidance in accordance with regulatory guidance.

The following determinands were not detected above the laboratory method reporting limits and are therefore not presented in the table:

- total cyanide;
- monohydric phenols;
- Speciated PAHs;
- hexavalent chromium;
- mercury;
- total petroleum hydrocarbons, other than EPH C5-C40 in boreholes sampled in 2006;
- BTEX compounds;
- MTBE
- total petroleum hydrocarbons other than those listed in Table 5.4;
- VOCs and SVOCs other than those listed in Table 5.4; and
- Glycols.

Table 5.3: 2021 Groundwater Baseline Data

Determinand	Conc. Range (µg/l)	Location of Max. Conc.	Ramboll Controlled Waters GAC (µg/l)	No. and Location of Exceedance
Metals				
Arsenic	0.2 – 52.1	PPCWS02	50	1 (PPCWS02)
Boron	30 – 87	PPCWS02	2,000	0
Chromium	1.5 – 16	PPCWS02	4.7	1 (PPCWS02)
Copper	1.1 – 140*	PPCWS02	1	1 (PPCWS02)
Lead	<MRL – 160	PPCWS02	1.2	1 (PPCWS02)
Nickel	0.8 – 9.6	PPCWS02	4	1 (PPCWS02)
Selenium	<MRL – 25	PPCWS02	10 (A)	1 (PPCWS02)
Vanadium	0.2 – 200	PPCWS02	60	1 (PPCWS02)
Zinc	2 – 220	PPCWS02	10.9	1 (PPCWS02)
Other Inorganics				
pH	6.9 – 10.5	PPCWS02	6 – 9	1 (PPCWS02)
Sulphate	25,900 – 96,800	PPCWS02	400,000	0
Ammoniacal Nitrogen	<MRL – 240	PPCWS02	600	0
Notes: MRL – Method reporting limit NC – No criteria available N/A – Not applicable *- Concentrations of copper are presented as bioavailable concentrations, which have been calculated using the Water Framework Directive mBAT tool. Environmental Quality Standards (EQS) based on Priority Substances (Directive 2008/105/EC) daughter directive of the Water Framework Directive (WFD) (2000/60/EC) Annex VIII. In the absence of an EQS the following criteria has been used: A – EU DWS; Directive 98/83/EC on the Quality of Water Intended for Human Consumption. B – Private Water Supplies Regulations SI 1991 No.2790.				

Table 5.4: 2006 Groundwater Baseline Data

Determinand	Conc. Range (µg/l)	Location of Max. Conc.	Ramboll Controlled Waters GAC (µg/l)	No. and Location of Exceedance
Metals				
Chromium	<MRL – 9	BH2	4.7	1 (BH2)
Zinc	<MRL – 59	BH2	10.9	1 (BH2)
Other Inorganics				
pH	7.0 – 7.5	BH1	6 – 9	0
Sulphate	61,000 – 140,000	BH1	400,000	0
Ammoniacal Nitrogen	60 – 100	BH1	600	0
Organics				
EPH (C10-C40)	<MRL – 260	BH3	10 (B)	3 (BH1, BH2, BH3)
Dichloromethane	<MRL – 420	BH3	20	1 (BH3)
Trichloromethane	<MRL – 15	BH3	2.5	2 (BH1, BH3)
Notes: MRL – Method reporting limit NC – No criteria available N/A – Not applicable *- Concentrations of copper are presented as bioavailable concentrations, which have been calculated using the Water Framework Directive mBAT tool. Environmental Quality Standards (EQS) based on Priority Substances (Directive 2008/105/EC) daughter directive of the Water Framework Directive (WFD) (2000/60/EC) Annex VIII. In the absence of an EQS the following criteria has been used: A – EU DWS; Directive 98/83/EC on the Quality of Water Intended for Human Consumption. B – Private Water Supplies Regulations SI 1991 No.2790.				

5.4 Discussion of Groundwater Results

5.4.1 2006 Baseline Data

With the exception of metals chromium and zinc (BH2), and organic compounds EPH (BH1 to BH3), dichloromethane (BH1), and trichloromethane (BH1 and BH3), all determinands were below their respective screening criteria. These exceedances are considered to be marginal; and are not indicative of significant contamination.

5.4.2 2021 Baseline Data

With the exception of metals and pH in the sample from PPCWS02, which was collected from a shallow window sample borehole located within the waste storage area, all determinands were recorded at concentrations below their respective screening criteria. No organic determinands, including hydrocarbon species, were detected above the laboratory method reporting limits in any of the 2021 groundwater samples.

Groundwater in PPCWS02 recorded much higher levels of contaminants than elsewhere on site; groundwater was recorded at a shallower depth at this location and is considered to be present as perched groundwater within the Made Ground and/or underlying alluvium. This well was not installed as a dedicated groundwater sampling well. All other samples were collected from the underlying groundwater aquifer within the River Terrace Deposits.

There is currently no evidence of contamination in groundwater within the River Terrace Deposits underlying the site.

It is proposed that the concentrations recorded in the 2021 boreholes (PPCBH01 – PPCBH06) presented in analytical certificates in Appendix 4 of this report form the groundwater baseline data for future monitoring of groundwater quality.

6. GROUND GAS MONITORING

A summary of the ground gas concentrations recorded during a single monitoring round, undertaken on 14th July 2021, is provided in Table 6.1 below. Results are presented for information only, and are not considered as baseline data. Ground gas concentrations are not considered to be elevated; and are not indicative of ground gas generation beneath the site.

Table 6.1: Ground Gas Monitoring Results

Monitoring Well	Response Zone (m)	Steady State Flow Rate (l/hr)	Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Groundwater Level (m bgl)
PPCWS02	1.0 – 2.0	<0.1	<0.1	<0.1	19.8	0.85*
PPCWS03	1.0 – 2.0	0.2	<0.1	5.8	0.7	Dry
PPCWS06	0.5 – 1.0	0.1	<0.1	1.2	19.3	Dry
PPCBH01	2.0 – 6.5	<0.1	<0.1	0.5	19.6	2.27
PPCBH02	2.0 – 6.0	<0.1	<0.1	0.5	20.2	2.37
PPCBH03	2.0 – 6.0	<0.1	<0.1	1.0	18.4	2.41
PPCBH04	2.0 – 5.0	<0.1	<0.1	2.5	14.4	1.67*
PPCBH05	2.0 – 4.0	<0.1	<0.1	0.7	19.1	1.59*
PPCBH06	2.0 – 5.0	<0.1	<0.1	0.3	20.7	2.07
Notes:						
* Groundwater level was recorded to be above the response zone (i.e. the well was flooded).						

7. CONCLUSIONS

The purpose of this baseline data collection report is to establish a 'baseline' in terms of soil and groundwater quality, and to provide groundwater monitoring points so that the site can comply with the requirements of the Industrial Emissions Directive going forwards.

Soil and groundwater data were collected in 2006 which represents the original baseline at the start of the Permit. Updated baseline data on soil and groundwater has been collected by Ramboll, to establish conditions in areas not previously investigated, i.e. new chemical store. Some of the original boreholes had been lost and accordingly these were replaced to allow ongoing groundwater sampling under the Permit.

The baseline data presented in this report (for both 2006 and 2021) will enable a quantified comparison at cessation of the permitted activity.

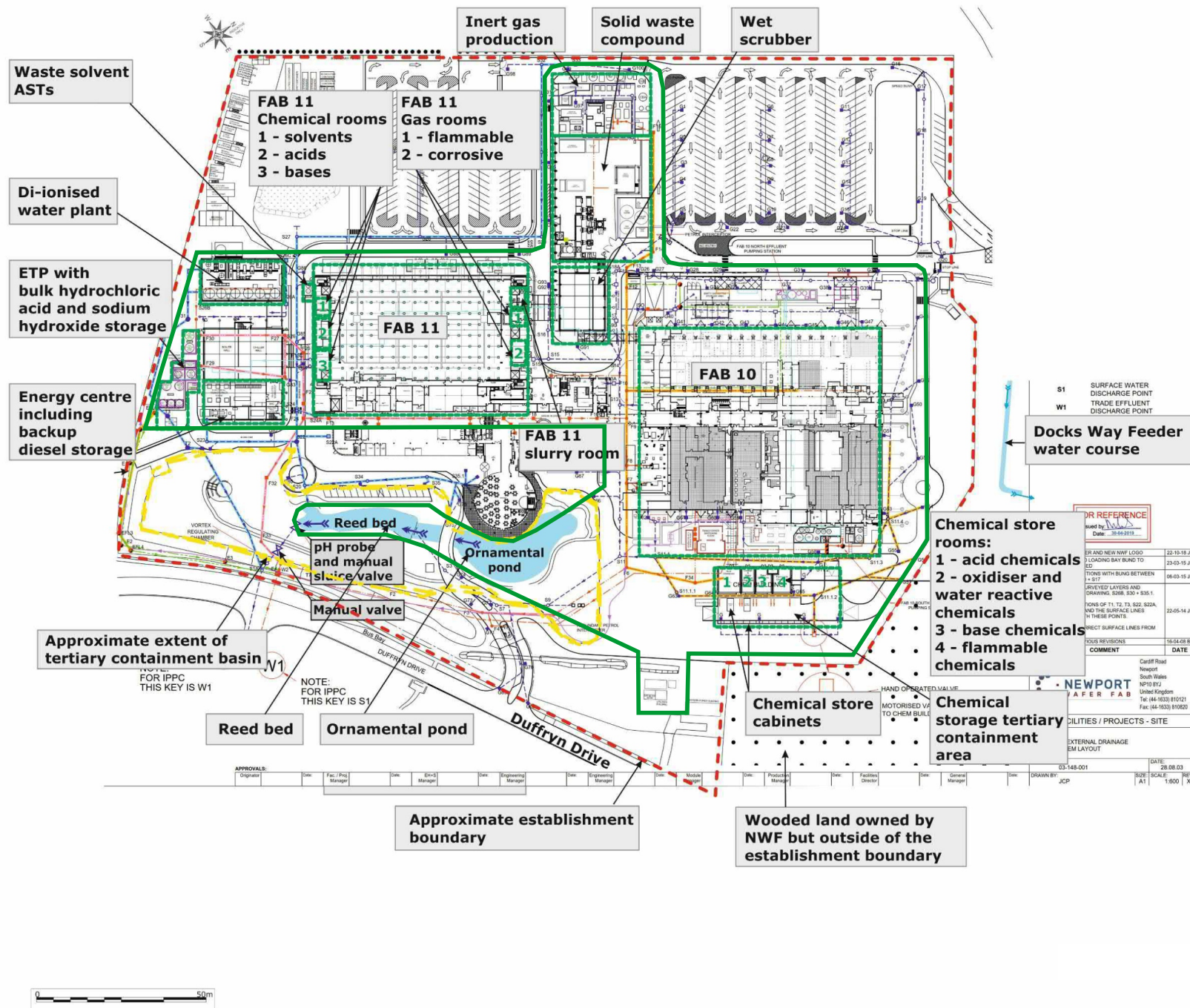
Although not a requirement of baseline data reporting, for context the results have been compared with appropriate criteria to establish whether or not there were any significantly elevated concentrations. With the exception of elevated concentrations of metals in a sample of shallow/perched groundwater at location PPCWS02, no elevated concentrations were detected in soil or groundwater in 2021. With the exception of metals chromium and zinc, and some organic compounds (EPH, dichloromethane, and trichloromethane), all determinands in the 2006 data were below their respective screening criteria.

The permitted activity involves the storage, use, and handling of liquid chemicals, effluent production and the production of solid wastes. Theoretical pollutant linkages exist; however, these are mitigated through a robust Environmental Management System (EMS).

Going forward, NWF will continue to take precautions to prevent the emission of any potentially polluting substance to land. This will be achieved through periodic monitoring, maintenance and training, as stipulated in the EMS. The EMS is intended to identify potential risks to the environment as a result of its activity and ensure that controls are in place to eliminate or minimise these risks.

Six groundwater monitoring wells were installed during the 2021 site investigation for baseline data collection (PPCBH01 to PPCBH06). It is anticipated that the Environmental Permit will require monitoring of groundwater every five years and soil every ten years, in line with the requirements of the Industrial Emissions Directive (2010/75/EU). There are six groundwater sampling wells installed within the aquifer underlying the site (PPCBH01 to PPCBH06). In the event of an environmental incident, e.g. spillage or leakage, a period of more frequent monitoring may be required from the network of installed boreholes.

APPENDIX 1 FIGURES



Legend

Installation Boundary

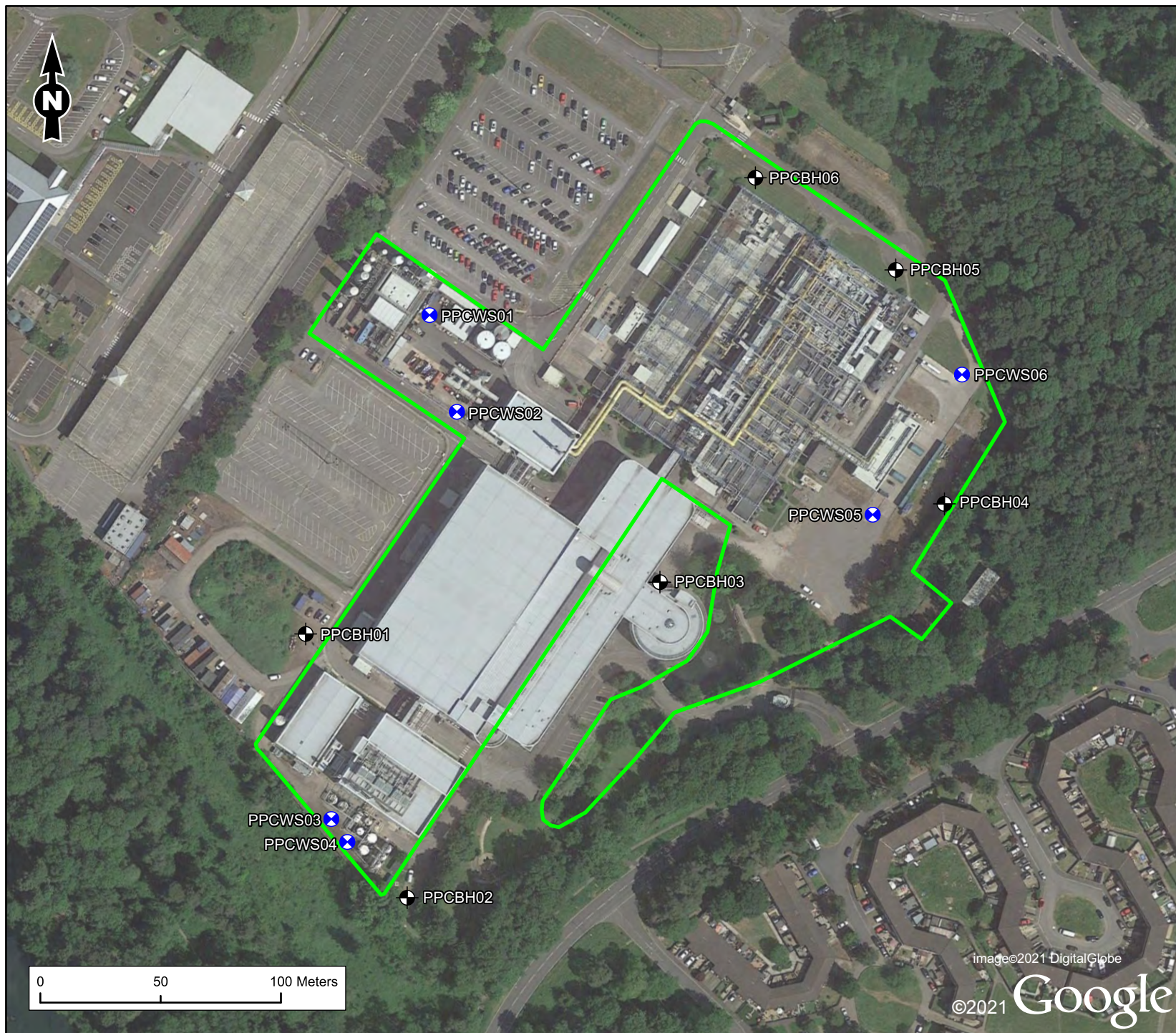
Figure Title
Installation Layout

Project Name
Site Condition Report

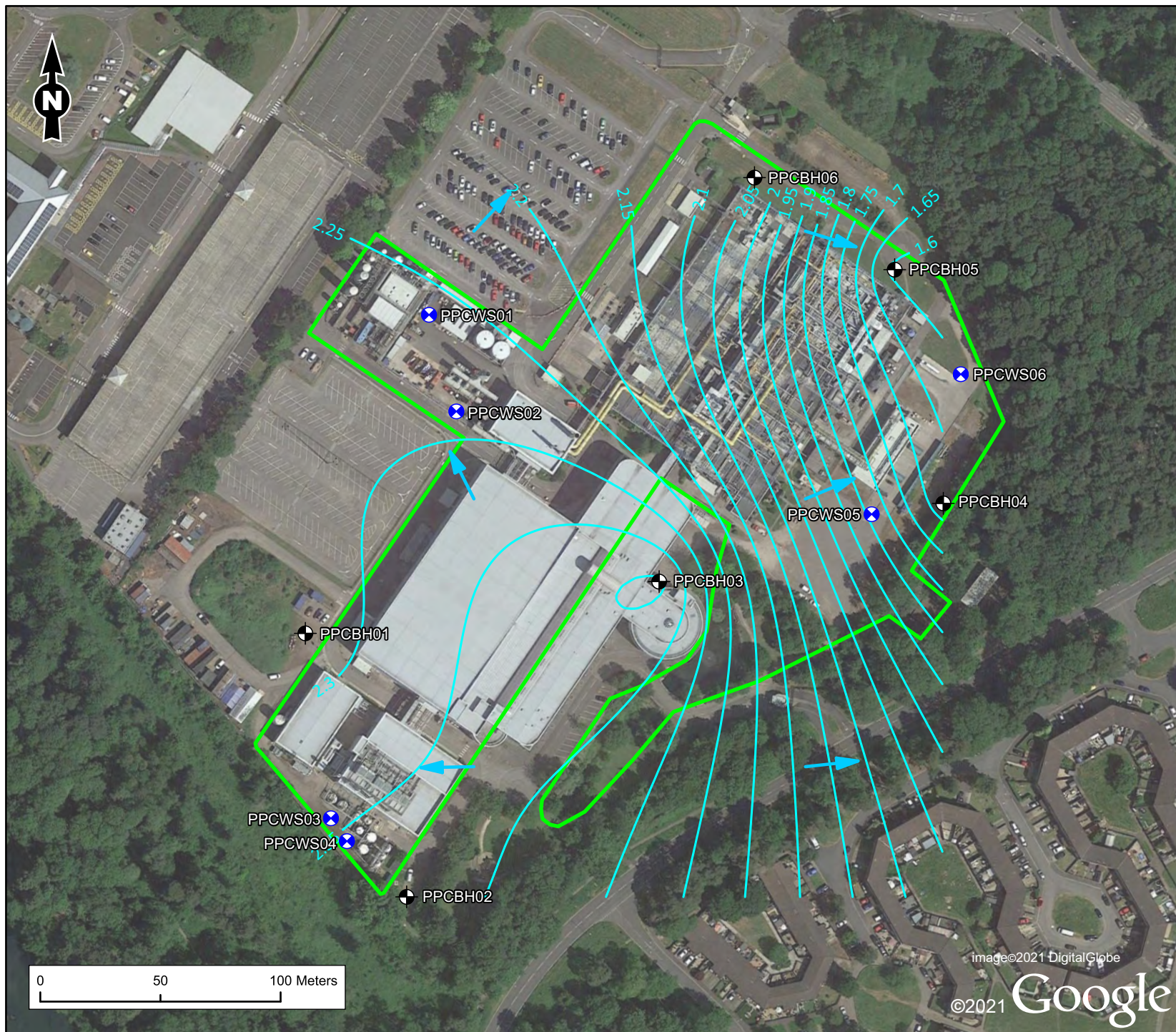
Project Number 1620003887	Figure No. 2
Date March 2020	Prepared By JC
Scale NTS	Issue 1

Client
Newport Wafer Fab Ltd

RAMBOLL



Legend	
	Installation Boundary
	Borehole Location
	Window Sample Location
Figure Title	
Figure 3: Borehole Location Plan	
Project Name	
Baseline Data Collection, Cardiff Road, Duffryn, Newport NP10 8YJ	
Project Number	Figure No.
1620010149-003	3
Date	Prepared By
August 2021	BVK
Scale	Issue
1:2,250 @ A4	1
Client	
Newport Wafer Fab Ltd	
	



Legend

- Installation Boundary
- + Borehole Location
- + Window Sample Location
- 1.7 Inferred Groundwater Contour (m bgl)
- Inferred Groundwater Contour Flow Direction

Figure Title

Figure 4: Groundwater Flow Plot

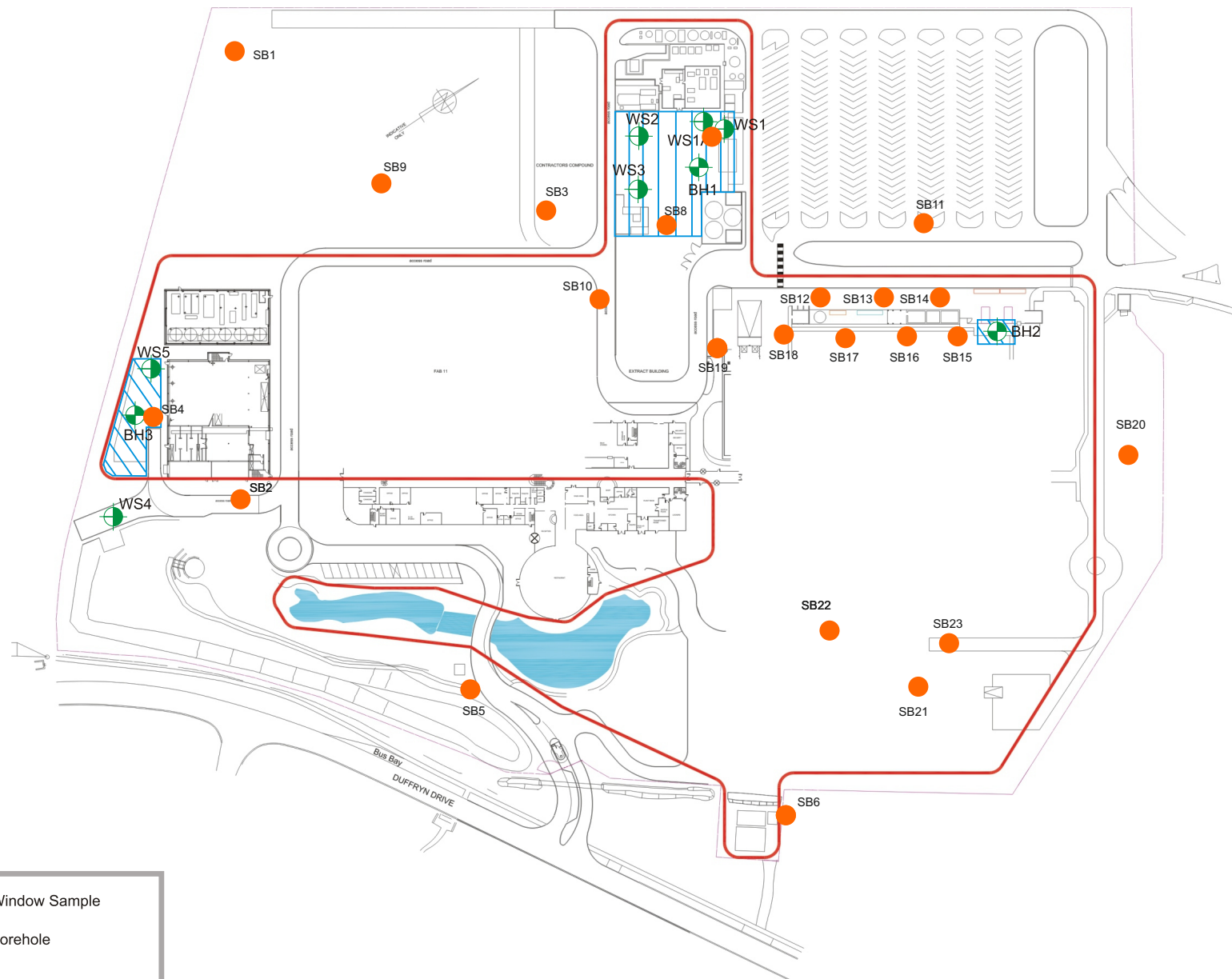
Project Name

Baseline Data Collection, Cardiff Road, Duffryn, Newport NP10 8YJ

Project Number	Figure No.
1620010149-003	4
Date	Prepared By
August 2021	BVK
Scale	Issue
1:2,250 @ A4	1

Client

Newport Wafer Fab Ltd



Window Sample

Borehole

Zone 2

Zone 1

Installation Boundary

Legend

Installation Boundary

2006 window sample location (Environ)

2006 borehole location (Environ)

2002 soil bore location (ERM)

Figure Title

Previous intrusive investigation locations

Project Name

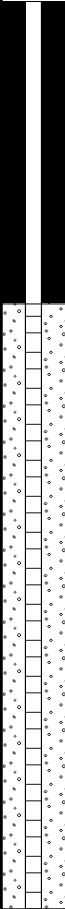
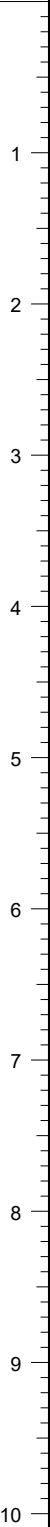
Site Condition Report

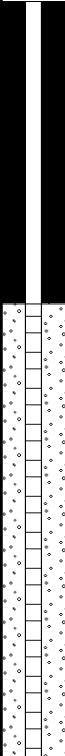
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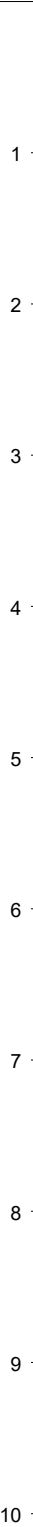
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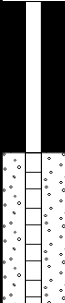
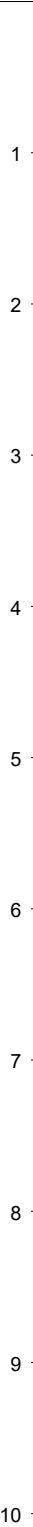
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APPENDIX 3 BOREHOLE LOGS

					Borehole Log			Borehole No. BH02 Sheet 1 of 1			
Project Name: Baseline Data Collection					Project No. 1620010149-003		Co-ords: 329082.18 - 185494.76		Hole Type CP		
Location: Newport					Level: 9.85		Scale 1:50		Logged By RH		
Client: Newport Wafer Fab					Dates: 05/07/2021 - 06/07/2021						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.20	ES	PID=0	0.20	9.65		MADE GROUND: Grass Crete paving.			
		0.40			9.45		MADE GROUND: Dark brown slightly silty sandy angular and subangular gravel of limestone. Sand is fine to coarse.				
		0.60			9.25		MADE GROUND: Brown slightly gravelly sandy silt with occasional fragments of concrete clinker and textile.				
		1.30	ES	PID=0	1.50	8.35		Orange-brown slightly gravelly silty fine and medium SAND with a slight alluvial odour. (ALLUVIUM)			
							Dense brown slightly silty SAND and GRAVEL with occasional subrounded cobbles and boulders of sandstone. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone and flint. (RIVER TERRACE DEPOSITS)				
							End of borehole at 6.00 m				
Remarks											
											

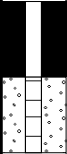
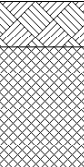
					Borehole Log			Borehole No. BH04 Sheet 1 of 1			
Project Name: Baseline Data Collection					Project No. 1620010149-003		Co-ords: 329304.28 - 185659.62		Hole Type CP		
Location: Newport					Level: 9.20		Scale 1:50		Logged By RH		
Client: Newport Wafer Fab					Dates: 06/07/2021 - 06/07/2021						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.50	ES	PID=0	0.30	8.90		MADE GROUND: Grass over dark brown slightly sandy slightly gravelly clay topsoil with occasional roots. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse flint.		1	
		1.00	ES	PID=0							
					1.50	7.70		Dense brown slightly silty SAND and GRAVEL with occasional subrounded cobbles and boulders of sandstone. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse sandstone and flint. (RIVER TERRACE DEPOSITS)		2 3 4	
				PID=0							
				PID=0							
		PID=0	5.00	4.20	End of borehole at 5.00 m		5 6 7 8 9 10				
Remarks											
											

					Borehole Log			Borehole No. WS01 Sheet 1 of 1			
Project Name: Baseline Data Collection					Project No. 1620010149-003		Co-ords: 329089.80 - 185735.29		Hole Type WLS		
Location: Newport					Level: 10.48		Scale 1:50		Logged By RH		
Client: Newport Wafer Fab					Dates: 05/07/2021 - 05/07/2021						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.50	ES	PID=0	0.15	10.33		Asphalt over concrete.			
				PID=0	0.30	10.18		MADE GROUND: Light grey slightly clayey angular and subangular fine to coarse gravel of limestone.			
				PID=0	0.55	9.93		Medium dense dark brown slightly clayey sandy angular to subrounded fine to coarse gravel of sandstone and mudstone with occasional fragments of clinker.			
		1.30	ES		1.50	8.98		Geotextile membrane at 0.55m bgl.			
					1.80	8.68		Brown and light brown silty fine and medium SAND with pockets of sandy clay and a slight alluvial odour. (ALLUVIUM)			
		2.50	ES	PID=0	2.80	7.68		Dark grey-brown silty fine and medium SAND. (ALLUVIUM)			
								Dark grey-brown slightly gravelly silty fine and medium SAND with occasional subrounded cobbles of sandstone. Gravel is subangular and subrounded fine and medium sandstone. (ALLUVIUM)			
								Orange-brown silty sandy angular to subrounded fine to coarse GRAVEL of sandstone. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)			
			4.00	6.48	End of borehole at 4.00 m						
Remarks											

				Borehole Log				Borehole No. WS03 Sheet 1 of 1	
Project Name: Baseline Data Collection				Project No. 1620010149-003		Co-ords: 329050.38 - 185526.07		Hole Type WLS	
Location: Newport				Level: 10.30		Scale 1:50		Logged By RH	
Client: Newport Wafer Fab				Dates: 05/07/2021 - 05/07/2021					
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES	PID=0	0.40	9.90		MADE GROUND: Grass over light brown slightly gravelly clay topsoil with occasional subangular cobbles and boulders of sandstone.	
				PID=0	0.80	9.50		Dark grey-brown silty fine and medium SAND. (ALLUVIUM)	
		1.50	ES	PID=0	1.80	8.50		Grey-brown very sandy SILT. Sand is fine and medium. (ALLUVIUM)	
					2.10	8.20		Grey-brown silty fine and medium SAND. (ALLUVIUM)	
					End of borehole at 2.00 m				
Remarks									
									

					Borehole Log			Borehole No. WS04 Sheet 1 of 1			
Project Name: Baseline Data Collection					Project No. 1620010149-003		Co-ords: 329057.70 - 185516.93		Hole Type WLS		
Location: Newport					Level: 10.26		Scale 1:50		Logged By RH		
Client: Newport Wafer Fab					Dates: 06/07/2021 - 06/07/2021						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.50	ES	PID=0 PID=0	0.40	9.86		MADE GROUND: Grass over slightly sandy gravelly clay with occasional fragments of concrete and occasional subangular cobbles of sandstone.		1	
								Orange-brown and grey-brown very sandy SILT with occasional roots and a slight alluvial odour. (ALLUVIUM)			
		1.50	ES	PID=0	1.40	8.86		Grey-brown silty fine and medium SAND. (ALLUVIUM)			
					2.40	7.86		End of borehole at 2.40 m		2	
										3	
										4	
										5	
										6	
										7	
										8	
										9	
										10	
Remarks											

					Borehole Log			Borehole No. WS05 Sheet 1 of 1			
Project Name: Baseline Data Collection					Project No. 1620010149-003		Co-ords: 329274.33 - 185654.81		Hole Type WLS		
Location: Newport					Level: 9.89		Scale 1:50		Logged By RH		
Client: Newport Wafer Fab					Dates: 06/07/2021 - 06/07/2021						
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.30	ES	PID=0	0.20	9.69		MADE GROUND: Gravel over sightly sandy angular and subangular gravel of limestone.	1		
					0.50	9.39		MADE GROUND: Firm dark brown and black slightly sandy gravelly silt with many fragments of concrete and rare fragments of fabric and plastic.			
End of borehole at 0.50 m											
										2	
										3	
										4	
										5	
										6	
										7	
										8	
										9	
										10	
Remarks											

					Borehole Log			Borehole No. WS06 Sheet 1 of 1		
Project Name: Baseline Data Collection					Project No. 1620010149-003		Co-ords: 329311.92 - 185714.44		Hole Type WLS	
Location: Newport					Level: 10.13		Scale 1:50		Logged By RH	
Client: Newport Wafer Fab					Dates: 06/07/2021 - 06/07/2021					
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.50	ES	PID=0	0.30	9.83		MADE GROUND: Grass over firm brown slightly sandy slightly gravelly clay topsoil.	1	
				PID=0	1.10	9.03		MADE GROUND: Form brown slightly sandy slightly gravelly clay with many subangular and subrounded cobbles of sandstone.		
End of borehole at 1.10 m									2	
									3	
									4	
									5	
									6	
									7	
									8	
									9	
									10	
Remarks										

APPENDIX 4

SOIL LABORATORY ANALYSIS RESULTS

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WD18 8YS
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Analytical Report Number : 21-85393

Project / Site name:	Newport Water Fab	Samples received on:	07/07/2021
Your job number:	1620010144-003	Samples instructed on/ Analysis started on:	07/07/2021
Your order number:	1620041881	Analysis completed by:	13/07/2021
Report Issue Number:	1	Report issued on:	13/07/2021
Samples Analysed:	11 soil samples		

Signed: *Karolina Marek*

Karolina Marek
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 21-85393
Project / Site name: Newport Water Fab
Your Order No: 1620041881

Lab Sample Number				1929335	1929336	1929337	1929338	1929339
Sample Reference				WS01	WS01	WS02	WS02	WS03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	2.50	0.50	1.50	0.50
Date Sampled				05/07/2021	05/07/2021	05/07/2021	05/07/2021	05/07/2021
Time Taken				1100	1145	1300	1330	1555
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	10	16	5.6	18	19
Total mass of sample received	kg	0.001	NONE	1.2	0.50	1.3	0.50	1.1

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.5	8.0	10.7	9.3	7.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	150	180	220	23	79
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.074	0.092	0.11	0.011	0.039
Ammoniacal Nitrogen as NH ₃	mg/kg	0.5	MCERTS	4.7	0.6	< 0.5	-	36
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	0.8	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.4	6.0	7.8	5.9	9.1
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.70	0.72	1.7	0.73	0.78
Boron (water soluble)	mg/kg	0.2	MCERTS	2.0	0.5	7.4	0.6	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7	0.3	8.2	0.2	0.4
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	190	18	1100	18	17
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	190	18	1100	19	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	12	80	12	14
Lead (aqua regia extractable)	mg/kg	1	MCERTS	36	15	130	13	34
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	29	17	21	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	9.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	44	18	160	21	25
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	72	740	66	82

Analytical Report Number: 21-85393
Project / Site name: Newport Water Fab
Your Order No: 1620041881

Lab Sample Number				1929335	1929336	1929337	1929338	1929339
Sample Reference				WS01	WS01	WS02	WS02	WS03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	2.50	0.50	1.50	0.50
Date Sampled				05/07/2021	05/07/2021	05/07/2021	05/07/2021	05/07/2021
Time Taken				1100	1145	1300	1330	1555
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	22
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	25

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0

Analytical Report Number: 21-85393
Project / Site name: Newport Water Fab
Your Order No: 1620041881

Lab Sample Number				1929335	1929336	1929337	1929338	1929339
Sample Reference				WS01	WS01	WS02	WS02	WS03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	2.50	0.50	1.50	0.50
Date Sampled				05/07/2021	05/07/2021	05/07/2021	05/07/2021	05/07/2021
Time Taken				1100	1145	1300	1330	1555
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0

1,2,3-Trichloropropane	µg/kg	1	NONE	-	-	-	-	-
1,3,5-Trichlorobenzene	µg/kg	1	NONE	-	-	-	-	-
Carbon Disulphide	µg/kg	1	NONE	-	-	-	-	-
Dichlorodifluoromethane	µg/kg	1	NONE	-	-	-	-	-
Dichloromethane	µg/kg	3	NONE	-	-	-	-	-
1,2,3,4-Tetrachlorobenzene	µg/kg	1	NONE	-	-	-	-	-
1,2,3,5-Tetrachlorobenzene	µg/kg	1	NONE	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	µg/kg	1	NONE	-	-	-	-	-
Pentachlorobenzene	µg/kg	1	NONE	-	-	-	-	-

Ketones by headspace GC-MS

Acetone	mg/kg	0.1	NONE	-	-	< 0.10	-	< 0.10
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SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	< 0.2	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2

Analytical Report Number: 21-85393
 Project / Site name: Newport Water Fab
 Your Order No: 1620041881

Lab Sample Number				1929335	1929336	1929337	1929338	1929339
Sample Reference				WS01	WS01	WS02	WS02	WS03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	2.50	0.50	1.50	0.50
Date Sampled				05/07/2021	05/07/2021	05/07/2021	05/07/2021	05/07/2021
Time Taken				1100	1145	1300	1330	1555
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	< 0.2	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	< 0.3	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	< 0.3	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05

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Lab Sample Number				1929335	1929336	1929337	1929338	1929339
Sample Reference				WS01	WS01	WS02	WS02	WS03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	2.50	0.50	1.50	0.50
Date Sampled				05/07/2021	05/07/2021	05/07/2021	05/07/2021	05/07/2021
Time Taken				1100	1145	1300	1330	1555
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Glycols

1,2-Butanediol	mg/kg	10	NONE	-	-	< 10	-	< 10
1,2-Propanediol	mg/kg	10	NONE	-	-	< 10	-	< 10
1,3-Butanediol	mg/kg	10	NONE	-	-	< 10	-	< 10
1,3-Propanediol	mg/kg	10	NONE	-	-	< 10	-	< 10
1,4-Butanediol	mg/kg	10	NONE	-	-	< 10	-	< 10
1,5-Pentanediol	mg/kg	10	NONE	-	-	< 10	-	< 10
Diethylene Glycol	mg/kg	10	NONE	-	-	< 10	-	< 10
Ethylene Glycol	mg/kg	10	NONE	-	-	< 10	-	< 10
Triethylene Glycol	mg/kg	10	NONE	-	-	< 10	-	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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Lab Sample Number				1929340	1929341	1929342	1929343	1929344
Sample Reference				WS03	WS04	WS04	WS05	WS06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.50	1.50	0.30	0.50
Date Sampled				05/07/2021	05/07/2021	06/07/2021	06/07/2021	06/07/2021
Time Taken				1600	1630	0930	1000	1130
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	8.0	11	15	7.0
Total mass of sample received	kg	0.001	NONE	0.50	1.2	0.50	1.4	1.2

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7	8.4	8.2	9.3	9.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	28	300	37	750	440
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.014	0.15	0.018	0.37	0.22
Ammoniacal Nitrogen as NH ₃	mg/kg	0.5	MCERTS	-	< 0.5	-	20	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	< 0.1	-	1.0

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3.4	7.6	8.0	4.5	10
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.66	1.8	1.9	0.40	0.84
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.7	< 0.2	2.5	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	1.4	2.0	< 0.2	5.4
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	12	19	16	9.5	15
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	13	20	17	9.8	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11	22	38	11	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	11	61	66	6.4	140
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.5	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	15	16	15	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	2.2	2.8	< 1.0	1.5
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	14	18	19	11	21
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	58	170	180	45	290

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Lab Sample Number				1929340	1929341	1929342	1929343	1929344
Sample Reference				WS03	WS04	WS04	WS05	WS06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.50	1.50	0.30	0.50
Date Sampled				05/07/2021	05/07/2021	06/07/2021	06/07/2021	06/07/2021
Time Taken				1600	1630	0930	1000	1130
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	3.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	14	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	14	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	36	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	66	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

VOCs

Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Chloroethane	µg/kg	1	NONE	-	< 1.0	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	-
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-	-

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Lab Sample Number				1929340	1929341	1929342	1929343	1929344
Sample Reference				WS03	WS04	WS04	WS05	WS06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.50	1.50	0.30	0.50
Date Sampled				05/07/2021	05/07/2021	06/07/2021	06/07/2021	06/07/2021
Time Taken				1600	1630	0930	1000	1130
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Styrene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Tribromomethane	µg/kg	1	NONE	-	< 1.0	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	-

1,2,3-Trichloropropane	µg/kg	1	NONE	-	-	-	< 1.0	-
1,3,5-Trichlorobenzene	µg/kg	1	NONE	-	-	-	< 1.0	-
Carbon Disulphide	µg/kg	1	NONE	-	-	-	< 1.0	-
Dichlorodifluoromethane	µg/kg	1	NONE	-	-	-	< 1.0	-
Dichloromethane	µg/kg	3	NONE	-	-	-	< 3.0	-
1,2,3,4-Tetrachlorobenzene	µg/kg	1	NONE	-	-	-	< 1.0	-
1,2,3,5-Tetrachlorobenzene	µg/kg	1	NONE	-	-	-	< 1.0	-
1,2,4,5-Tetrachlorobenzene	µg/kg	1	NONE	-	-	-	< 1.0	-
Pentachlorobenzene	µg/kg	1	NONE	-	-	-	< 1.0	-

Ketones by headspace GC-MS

Acetone	mg/kg	0.1	NONE	-	-	-	< 0.10	< 0.10
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SVOCs

Aniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-

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Lab Sample Number				1929340	1929341	1929342	1929343	1929344
Sample Reference				WS03	WS04	WS04	WS05	WS06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.50	1.50	0.30	0.50
Date Sampled				05/07/2021	05/07/2021	06/07/2021	06/07/2021	06/07/2021
Time Taken				1600	1630	0930	1000	1130
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-

Analytical Report Number: 21-85393
 Project / Site name: Newport Water Fab
 Your Order No: 1620041881

Lab Sample Number				1929340	1929341	1929342	1929343	1929344
Sample Reference				WS03	WS04	WS04	WS05	WS06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.50	1.50	0.30	0.50
Date Sampled				05/07/2021	05/07/2021	06/07/2021	06/07/2021	06/07/2021
Time Taken				1600	1630	0930	1000	1130
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Glycols								
1,2-Butanediol	mg/kg	10	NONE	-	-	-	< 10	< 10
1,2-Propanediol	mg/kg	10	NONE	-	-	-	< 10	< 10
1,3-Butanediol	mg/kg	10	NONE	-	-	-	< 10	< 10
1,3-Propanediol	mg/kg	10	NONE	-	-	-	< 10	< 10
1,4-Butanediol	mg/kg	10	NONE	-	-	-	< 10	< 10
1,5-Pentanediol	mg/kg	10	NONE	-	-	-	< 10	< 10
Diethylene Glycol	mg/kg	10	NONE	-	-	-	< 10	< 10
Ethylene Glycol	mg/kg	10	NONE	-	-	-	< 10	< 10
Triethylene Glycol	mg/kg	10	NONE	-	-	-	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-85393
Project / Site name: Newport Water Fab
Your Order No: 1620041881

Lab Sample Number				1929345
Sample Reference				WS06
Sample Number				None Supplied
Depth (m)				1.00
Date Sampled				06/07/2021
Time Taken				1145
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	10
Total mass of sample received	kg	0.001	NONE	1.1

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	79
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.039
Ammoniacal Nitrogen as NH ₃	mg/kg	0.5	MCERTS	< 0.5
Total Organic Carbon (TOC)	%	0.1	MCERTS	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.0
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.86
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	5.1
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2
Chromium (III)	mg/kg	1	NONE	16
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	180
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	19
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	570

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Lab Sample Number				1929345
Sample Reference				WS06
Sample Number				None Supplied
Depth (m)				1.00
Date Sampled				06/07/2021
Time Taken				1145
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Monoaromatics & Oxygenates				
Benzene	µg/kg	1	MCERTS	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0

Analytical Report Number: 21-85393
Project / Site name: Newport Water Fab
Your Order No: 1620041881

Lab Sample Number				1929345
Sample Reference				WS06
Sample Number				None Supplied
Depth (m)				1.00
Date Sampled				06/07/2021
Time Taken				1145
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0
1,1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0

1,2,3-Trichloropropane	µg/kg	1	NONE	-
1,3,5-Trichlorobenzene	µg/kg	1	NONE	-
Carbon Disulphide	µg/kg	1	NONE	-
Dichlorodifluoromethane	µg/kg	1	NONE	-
Dichloromethane	µg/kg	3	NONE	-
1,2,3,4-Tetrachlorobenzene	µg/kg	1	NONE	-
1,2,3,5-Tetrachlorobenzene	µg/kg	1	NONE	-
1,2,4,5-Tetrachlorobenzene	µg/kg	1	NONE	-
Pentachlorobenzene	µg/kg	1	NONE	-

Ketones by headspace GC-MS

Acetone	mg/kg	0.1	NONE	< 0.10
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SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2

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Project / Site name: Newport Water Fab
Your Order No: 1620041881

Lab Sample Number				1929345
Sample Reference				WS06
Sample Number				None Supplied
Depth (m)				1.00
Date Sampled				06/07/2021
Time Taken				1145
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Analytical Report Number: 21-85393
 Project / Site name: Newport Water Fab
 Your Order No: 1620041881

Lab Sample Number					1929345
Sample Reference					WS06
Sample Number					None Supplied
Depth (m)					1.00
Date Sampled					06/07/2021
Time Taken					1145
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Glycols					
1,2-Butanediol	mg/kg	10	NONE	< 10	
1,2-Propanediol	mg/kg	10	NONE	< 10	
1,3-Butanediol	mg/kg	10	NONE	< 10	
1,3-Propanediol	mg/kg	10	NONE	< 10	
1,4-Butanediol	mg/kg	10	NONE	< 10	
1,5-Pentanediol	mg/kg	10	NONE	< 10	
Diethylene Glycol	mg/kg	10	NONE	< 10	
Ethylene Glycol	mg/kg	10	NONE	< 10	
Triethylene Glycol	mg/kg	10	NONE	< 10	

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 21-85393
Project / Site name: Newport Water Fab

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1929335	WS01	None Supplied	0.5	Brown clay and sand with gravel and vegetation.
1929336	WS01	None Supplied	2.5	Brown clay and sand with gravel and vegetation.
1929337	WS02	None Supplied	0.5	Brown clay and sand with gravel.
1929338	WS02	None Supplied	1.5	Brown clay and sand.
1929339	WS03	None Supplied	0.5	Brown clay and loam.
1929340	WS03	None Supplied	1.5	Light brown clay and sand.
1929341	WS04	None Supplied	0.5	Brown loam with gravel and vegetation.
1929342	WS04	None Supplied	1.5	Brown sand.
1929343	WS05	None Supplied	0.3	Brown clay and sand with gravel and vegetation.
1929344	WS06	None Supplied	0.5	Brown loam with gravel and vegetation.
1929345	WS06	None Supplied	1	Brown clay and sand with gravel and vegetation.

Analytical Report Number : 21-85393
Project / Site name: Newport Water Fab

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Ammonia as NH3 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Volatile organic compounds in soil extended	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE

Analytical Report Number : 21-85393
Project / Site name: Newport Water Fab

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Ketones in soil by HS-GC-MS	Determination of ketones in soil by headspace GC-MS.	In house method	L053B-PL	W	NONE
Determination of glycols in soil by GC-MS.	Determination of glycols in soil by GC-MS.	In-house method	L059B-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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Analytical Report Number : 21-85378

Project / Site name:	Newport Water Fab	Samples received on:	07/07/2021
Your job number:	1620010149-003	Samples instructed on/ Analysis started on:	07/07/2021
Your order number:	1620041881	Analysis completed by:	13/07/2021
Report Issue Number:	1	Report issued on:	13/07/2021
Samples Analysed:	6 soil samples		

Signed: *Karolina Marek*

Karolina Marek
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 21-85378
Project / Site name: Newport Water Fab
Your Order No: 1620041881

Lab Sample Number				1929220	1929221	1929222	1929223	1929224
Sample Reference				BH01	BH01	BH02	BH02	BH04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	1.30	0.50
Date Sampled				05/07/2021	05/07/2021	06/07/2021	06/07/2021	06/07/2021
Time Taken				1500	1515	1245	1300	1400
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	5.7	12	9.9	11	16
Total mass of sample received	kg	0.001	NONE	1.2	0.50	1.3	0.50	1.0

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.9	8.3	8.7	7.4	7.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	150	62	320	53	4.0
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.077	0.031	0.16	0.027	0.0020
Ammoniacal Nitrogen as NH ₃	mg/kg	0.5	MCERTS	< 0.5	-	< 0.5	-	< 0.5
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.50	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.67	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.50	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.45	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.39	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.47	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.21	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.29	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.21	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.23	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	3.92	< 0.80	< 0.80	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.7	9.8	6.2	4.5	7.6
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.78	0.60	0.82	0.52	0.85
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.3	1.5	0.4	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	6.5	< 0.2	2.7	0.3	0.3
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	140	31	11	9.7	15
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	140	32	12	10	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	55	12	14	13	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	160	17	61	32	18
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	25	17	14	18	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	2.3	< 1.0	1.6	< 1.0	1.7
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	41	18	14	13	22
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	350	71	210	76	71

Analytical Report Number: 21-85378
 Project / Site name: Newport Water Fab
 Your Order No: 1620041881

Lab Sample Number				1929220	1929221	1929222	1929223	1929224
Sample Reference				BH01	BH01	BH02	BH02	BH04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	1.30	0.50
Date Sampled				05/07/2021	05/07/2021	06/07/2021	06/07/2021	06/07/2021
Time Taken				1500	1515	1245	1300	1400
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	2.4
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0

Analytical Report Number: 21-85378
 Project / Site name: Newport Water Fab
 Your Order No: 1620041881

Lab Sample Number				1929220	1929221	1929222	1929223	1929224
Sample Reference				BH01	BH01	BH02	BH02	BH04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	1.30	0.50
Date Sampled				05/07/2021	05/07/2021	06/07/2021	06/07/2021	06/07/2021
Time Taken				1500	1515	1245	1300	1400
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	< 1.0	-	< 1.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	< 0.2	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	< 0.2	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3

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Lab Sample Number				1929220	1929221	1929222	1929223	1929224
Sample Reference				BH01	BH01	BH02	BH02	BH04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	0.50	1.30	0.50
Date Sampled				05/07/2021	05/07/2021	06/07/2021	06/07/2021	06/07/2021
Time Taken				1500	1515	1245	1300	1400
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	< 0.3	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	0.50	-	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	0.67	-	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.50	-	< 0.05	-	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	< 0.3	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.45	-	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.39	-	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.47	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.21	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.29	-	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.21	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.23	-	< 0.05	-	< 0.05

U/S = Unsuitable Sample I/S = Insufficient Sample

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Lab Sample Number				1929225
Sample Reference				BH04
Sample Number				None Supplied
Depth (m)				2.00
Date Sampled				06/07/2021
Time Taken				1500
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	15
Total mass of sample received	kg	0.001	NONE	0.50

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	7.4
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0037
Ammoniacal Nitrogen as NH ₃	mg/kg	0.5	MCERTS	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.3
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.88
Boron (water soluble)	mg/kg	0.2	MCERTS	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2
Chromium (III)	mg/kg	1	NONE	15
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	20
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	70

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Lab Sample Number				1929225
Sample Reference				BH04
Sample Number				None Supplied
Depth (m)				2.00
Date Sampled				06/07/2021
Time Taken				1500
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Monoaromatics & Oxygenates				
Benzene	µg/kg	1	MCERTS	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10

VOCs

Chloromethane	µg/kg	1	ISO 17025	-
Chloroethane	µg/kg	1	NONE	-
Bromomethane	µg/kg	1	ISO 17025	-
Vinyl Chloride	µg/kg	1	NONE	-
Trichlorofluoromethane	µg/kg	1	NONE	-
1,1-Dichloroethene	µg/kg	1	NONE	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-
Trichloromethane	µg/kg	1	MCERTS	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-
Benzene	µg/kg	1	MCERTS	-
Tetrachloromethane	µg/kg	1	MCERTS	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-
Trichloroethene	µg/kg	1	MCERTS	-
Dibromomethane	µg/kg	1	MCERTS	-
Bromodichloromethane	µg/kg	1	MCERTS	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-

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Lab Sample Number				1929225
Sample Reference				BH04
Sample Number				None Supplied
Depth (m)				2.00
Date Sampled				06/07/2021
Time Taken				1500
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Toluene	µg/kg	1	MCERTS	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-
Dibromochloromethane	µg/kg	1	ISO 17025	-
Tetrachloroethene	µg/kg	1	NONE	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-
Chlorobenzene	µg/kg	1	MCERTS	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-
Ethylbenzene	µg/kg	1	MCERTS	-
p & m-Xylene	µg/kg	1	MCERTS	-
Styrene	µg/kg	1	MCERTS	-
Tribromomethane	µg/kg	1	NONE	-
o-Xylene	µg/kg	1	MCERTS	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-
Isopropylbenzene	µg/kg	1	MCERTS	-
Bromobenzene	µg/kg	1	MCERTS	-
n-Propylbenzene	µg/kg	1	ISO 17025	-
2-Chlorotoluene	µg/kg	1	MCERTS	-
4-Chlorotoluene	µg/kg	1	MCERTS	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-
tert-Butylbenzene	µg/kg	1	MCERTS	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-
sec-Butylbenzene	µg/kg	1	MCERTS	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-
Butylbenzene	µg/kg	1	MCERTS	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-

SVOCs

Aniline	mg/kg	0.1	NONE	-
Phenol	mg/kg	0.2	ISO 17025	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-
2-Methylphenol	mg/kg	0.3	MCERTS	-
Hexachloroethane	mg/kg	0.05	MCERTS	-
Nitrobenzene	mg/kg	0.3	MCERTS	-
4-Methylphenol	mg/kg	0.2	NONE	-
Isophorone	mg/kg	0.2	MCERTS	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-

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Lab Sample Number				1929225
Sample Reference				BH04
Sample Number				None Supplied
Depth (m)				2.00
Date Sampled				06/07/2021
Time Taken				1500
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Naphthalene	mg/kg	0.05	MCERTS	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-
4-Chloroaniline	mg/kg	0.1	NONE	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-
Acenaphthylene	mg/kg	0.05	MCERTS	-
Acenaphthene	mg/kg	0.05	MCERTS	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-
Dibenzofuran	mg/kg	0.2	MCERTS	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-
Fluorene	mg/kg	0.05	MCERTS	-
Azobenzene	mg/kg	0.3	MCERTS	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-
Phenanthrene	mg/kg	0.05	MCERTS	-
Anthracene	mg/kg	0.05	MCERTS	-
Carbazole	mg/kg	0.3	MCERTS	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-
Anthraquinone	mg/kg	0.3	MCERTS	-
Fluoranthene	mg/kg	0.05	MCERTS	-
Pyrene	mg/kg	0.05	MCERTS	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-
Chrysene	mg/kg	0.05	MCERTS	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 21-85378
Project / Site name: Newport Water Fab

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1929220	BH01	None Supplied	0.5	Brown clay and sand with gravel and vegetation.
1929221	BH01	None Supplied	1	Brown clay and sand with vegetation and gravel
1929222	BH02	None Supplied	0.5	Brown sand with gravel and vegetation.
1929223	BH02	None Supplied	1.3	Brown sand with gravel.
1929224	BH04	None Supplied	0.5	Brown clay and sand with gravel and vegetation.
1929225	BH04	None Supplied	2	Brown clay and sand with vegetation and gravel

Analytical Report Number : 21-85378
Project / Site name: Newport Water Fab

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Ammonia as NH3 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS



Analytical Report Number : 21-85378
Project / Site name: Newport Water Fab

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

APPENDIX 5

GROUNDWATER LABORATORY ANALYSIS RESULTS



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Analytical Report Number : 21-86974-2A

Replaces Analytical Report Number: 21-86974, issue no. 1
Report format change.

Project / Site name:	Newport Water Fab	Samples received on:	15/07/2021
Your job number:	1620010149 003	Samples instructed on/ Analysis started on:	15/07/2021
Your order number:	1620041881	Analysis completed by:	21/07/2021
Report Issue Number:	2A	Report issued on:	22/07/2021
Samples Analysed:	7 water samples		

Signed:

Joanna Wawrzeczek
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 21-86974-2A
Project / Site name: Newport Water Fab

Your Order No: 1620041881

Lab Sample Number				1938257	1938258	1938259	1938260	1938261
Sample Reference				WS02	BH01	BH02	BH03	BH04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				14/07/2021	14/07/2021	14/07/2021	14/07/2021	14/07/2021
Time Taken				1330	1345	1400	1415	1430
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	10.5	7.2	6.9	7.0	7.0
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	ISO 17025	96800	30800	25900	40600	36100
Sulphate as SO ₄	mg/l	0.045	ISO 17025	96.8	30.8	25.9	40.6	36.1
Chloride	mg/l	0.15	ISO 17025	44	34	-	36	-
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	240	29	< 15	< 15	160
Ammoniacal Nitrogen as NH ₃	µg/l	15	ISO 17025	290	36	< 15	< 15	200
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	57.5	1.16	0.89	2.49	-

Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	1050	163	167	231	181
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Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
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Analytical Report Number: 21-86974-2A
Project / Site name: Newport Water Fab

Your Order No: 1620041881

Lab Sample Number				1938257	1938258	1938259	1938260	1938261
Sample Reference				WS02	BH01	BH02	BH03	BH04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				14/07/2021	14/07/2021	14/07/2021	14/07/2021	14/07/2021
Time Taken				1330	1345	1400	1415	1430
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Boron (dissolved)	µg/l	10	ISO 17025	1100	50	45	49	60
Calcium (dissolved)	mg/l	0.012	ISO 17025	110	45	49	73	52
Chromium (hexavalent)	µg/l	5	ISO 17025	U/S*	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	U/S*	2.5	1.5	1.6	1.9
Magnesium (dissolved)	mg/l	0.005	ISO 17025	190	12	11	12	12

Arsenic (dissolved)	µg/l	0.15	ISO 17025	52.1	0.41	0.20	0.21	0.49
Beryllium (dissolved)	µg/l	0.1	ISO 17025	0.9	< 0.1	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.10	0.05	< 0.02	0.07	0.06
Chromium (dissolved)	µg/l	0.2	ISO 17025	16	2.5	1.5	1.6	1.9
Copper (dissolved)	µg/l	0.5	ISO 17025	140	1.3	1.7	1.9	1.1
Lead (dissolved)	µg/l	0.2	ISO 17025	160	0.2	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	9.6	1.0	0.8	1.0	1.5
Selenium (dissolved)	µg/l	0.6	ISO 17025	25	0.6	< 0.6	1.5	< 0.6
Vanadium (dissolved)	µg/l	0.2	ISO 17025	200	1.8	0.2	0.4	0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	220	2.0	3.0	12	5.0

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



Analytical Report Number: 21-86974-2A
Project / Site name: Newport Water Fab

Your Order No: 1620041881

Lab Sample Number				1938257	1938258	1938259	1938260	1938261
Sample Reference				WS02	BH01	BH02	BH03	BH04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				14/07/2021	14/07/2021	14/07/2021	14/07/2021	14/07/2021
Time Taken				1330	1345	1400	1415	1430
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Ketones by headspace GC-MS

Acetone	mg/l	0.1	NONE	< 0.10	< 0.10	-	< 0.10	-
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Analytical Report Number: 21-86974-2A

Project / Site name: Newport Water Fab

Your Order No: 1620041881

Lab Sample Number				1938257	1938258	1938259	1938260	1938261
Sample Reference				WS02	BH01	BH02	BH03	BH04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				14/07/2021	14/07/2021	14/07/2021	14/07/2021	14/07/2021
Time Taken				1330	1345	1400	1415	1430
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01



Analytical Report Number: 21-86974-2A
Project / Site name: Newport Water Fab

Your Order No: 1620041881

Lab Sample Number				1938257	1938258	1938259	1938260	1938261
Sample Reference				WS02	BH01	BH02	BH03	BH04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				14/07/2021	14/07/2021	14/07/2021	14/07/2021	14/07/2021
Time Taken				1330	1345	1400	1415	1430
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
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Glycols

1,2-Butanediol	mg/l	10	NONE	< 10	< 10	-	< 10	-
1,2-Propanediol	mg/l	10	NONE	< 10	< 10	-	< 10	-
1,3-Butanediol	mg/l	10	NONE	< 10	< 10	-	< 10	-
1,3-Propanediol	mg/l	10	NONE	< 10	< 10	-	< 10	-
1,4-Butanediol	mg/l	10	NONE	< 10	< 10	-	< 10	-
1,5-Pentanediol	mg/l	10	NONE	< 10	< 10	-	< 10	-
Diethylene Glycol	mg/l	10	NONE	< 10	< 10	-	< 10	-
Ethylene Glycol	mg/l	10	NONE	< 10	< 10	-	< 10	-
Triethylene Glycol	mg/l	10	NONE	< 10	< 10	-	< 10	-

U/S = Unsuitable Sample I/S = Insufficient Sample

*U/S due to high variances between chromium (hexavalent) and chromium (dissolved) caused by method differences.



Analytical Report Number: 21-86974-2A
Project / Site name: Newport Water Fab

Your Order No: 1620041881

Lab Sample Number				1938262	1938263
Sample Reference				BH05	BH06
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				14/07/2021	14/07/2021
Time Taken				1445	1500
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.2	7.0
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10
Sulphate as SO ₄	µg/l	45	ISO 17025	34700	37900
Sulphate as SO ₄	mg/l	0.045	ISO 17025	34.7	37.9
Chloride	mg/l	0.15	ISO 17025	21	-
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	< 15	21
Ammoniacal Nitrogen as NH ₃	µg/l	15	ISO 17025	< 15	25
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	2.00	3.19

Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	187	235
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Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16
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Analytical Report Number: 21-86974-2A
Project / Site name: Newport Water Fab

Your Order No: 1620041881

Lab Sample Number				1938262	1938263
Sample Reference				BH05	BH06
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				14/07/2021	14/07/2021
Time Taken				1445	1500
Analytical Parameter (Water Analysis)				Units	Limit of detection
				Accreditation Status	

Heavy Metals / Metalloids

Boron (dissolved)	µg/l	10	ISO 17025	39	30
Calcium (dissolved)	mg/l	0.012	ISO 17025	47	63
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	2.3	2.3
Magnesium (dissolved)	mg/l	0.005	ISO 17025	17	19

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.26	0.50
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.11	0.03
Chromium (dissolved)	µg/l	0.2	ISO 17025	2.3	2.3
Copper (dissolved)	µg/l	0.5	ISO 17025	2.6	1.9
Lead (dissolved)	µg/l	0.2	ISO 17025	0.3	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.0	1.8
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.9	< 0.6
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.9	0.3
Zinc (dissolved)	µg/l	0.5	ISO 17025	12	4.2

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0



Analytical Report Number: 21-86974-2A

Project / Site name: Newport Water Fab

Your Order No: 1620041881

Lab Sample Number				1938262	1938263
Sample Reference				BH05	BH06
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				14/07/2021	14/07/2021
Time Taken				1445	1500
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0

Ketones by headspace GC-MS

Acetone	mg/l	0.1	NONE	< 0.10	-
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Analytical Report Number: 21-86974-2A

Project / Site name: Newport Water Fab

Your Order No: 1620041881

Lab Sample Number				1938262	1938263
Sample Reference				BH05	BH06
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				14/07/2021	14/07/2021
Time Taken				1445	1500
Analytical Parameter (Water Analysis)				Units	Limit of detection
				Accreditation Status	

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01



Analytical Report Number: 21-86974-2A
Project / Site name: Newport Water Fab

Your Order No: 1620041881

Lab Sample Number				1938262	1938263
Sample Reference				BH05	BH06
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				14/07/2021	14/07/2021
Time Taken				1445	1500
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01

3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10
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Glycols

1,2-Butanediol	mg/l	10	NONE	< 10	-
1,2-Propanediol	mg/l	10	NONE	< 10	-
1,3-Butanediol	mg/l	10	NONE	< 10	-
1,3-Propanediol	mg/l	10	NONE	< 10	-
1,4-Butanediol	mg/l	10	NONE	< 10	-
1,5-Pentanediol	mg/l	10	NONE	< 10	-
Diethylene Glycol	mg/l	10	NONE	< 10	-
Ethylene Glycol	mg/l	10	NONE	< 10	-
Triethylene Glycol	mg/l	10	NONE	< 10	-

U/S = Unsuitable Sample I/S = Insufficient Sample

*U/S due to high variances between chromium (hexavalent) and chromium (dissolved) caused by method differences.



Analytical Report Number : 21-86974-2A
Project / Site name: Newport Water Fab

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Ammonia as NH3 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE



Analytical Report Number : 21-86974-2A
Project / Site name: Newport Water Fab

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
ketones in water by HS-GC-MS	Determination of ketones in water by headspace GC-MS.	In house method	L053B-PL	W	NONE
Determination of glycols in water by GC-MS.	Determination of glycols in water by GC-MS.	In-house method	L059B-PL	W	NONE
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

APPENDIX 6

SOIL AND GROUNDWATER SUMMARY TABLES (2006)

Summary of 2006 Baseline Data - Soils

		WS1A	WS1A	WS1A	WS2	WS3	WS4	WS4	WS5	WS5	BH1	BH1	BH2	BH2	BH3	BH3			
		Not stated	0.3	1.5	0.3	0.4	0.7	1.4	0.5	1.8	0.40-0.50	6.90	0.7-0.9	4	0.80-1.00	8.5	MIN	MAX	AVE
Inorganics																			
Arsenic	mg/kg				13	4.4	2.6	3.4			5.8	9.8	15	7.8	5.3	7.8	2.6	15	7.7
Cadmium	mg/kg				5.2	4.4	< 0.5	< 0.5			3.7	0.6	24	2.2	0.5	< 0.5	0.5	24	7.2
Chromium	mg/kg				190	2700	12	14			1200	46	34	26	14	32	12	2700	581.7
Copper	mg/kg				14	220	3.3	5.6			91	28	52	22	7.7	19	3.3	220	57.2
Lead	mg/kg				200	200	5.3	9.1			200	30	490	190	27	18	5.3	490	155.4
Mercury	mg/kg				< 0.3	< 0.3	< 0.3	< 0.3			0.5	0.7	0.4	< 0.3	1.9	0.4	0.4	1.9	0.9
Nickel	mg/kg				84	49	19	24			14	39	19	20	17	25	14	84	34.0
Selenium	mg/kg				< 1	6.3	< 1	< 1			2.9	< 1	< 1	< 1	< 1	< 1	2.9	6.3	4.6
Sulphate (Total Acid Soluble) as SO4	mg/kg				2600	4100	< 200	210			5100	< 200	5000	3100	520	230	210	5100	2617.0
Zinc	mg/kg				340	1100	43	67			610	180	1300	250	65	91	43	1300	449.1
Exchangeable Ammonium as N	mg/kg						< 40	< 40	< 40	< 40			< 40	< 40	< 40	< 40	0	0	0.0
Total Cyanide	mg/kg				< 5	< 5	< 5	< 5			< 5	< 5	< 5	< 5	< 5	< 5	0	0	0.0
W/S Fluoride	mg/kg						< 1	< 1	< 1	< 1			< 1	1.1	3	< 1	1.1	3	2.1
pH	pH Units		11.2	6.5	9.6	11.4	7.6	7.6	10	7.2	10.6	7.5	8.4	8.3	8.2	8.4	6.5	11.4	8.8
Organics																			
EPH (C10-C40)	mg/kg		50	9	170	1800	7	1400	150	14	24	< 5	26	17	20	7	7	1800	366.7
Phenol	mg/kg				< 0.1	< 0.1	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0	0	0.0
Total Monohydric Phenols	mg/kg				< 1	< 1	< 1	< 1			< 1	< 1	< 1	< 1	< 1	< 1	0	0	0.0
Alcohol/Acetate Suite	mg/kg	<1			<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	0	0	0.0
PAHs																			
Napthalene	mg/kg		< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.1	
Acenaphthylene	mg/kg		< 0.1	< 0.1	< 0.1	0.5	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5	0.5	
Acenaphthene	mg/kg		< 0.1	< 0.1	< 0.1	0.9	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.9	0.9	
Fluorene	mg/kg		< 0.1	< 0.1	< 0.1	1.2	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.2	1.2	
Phenanthrene	mg/kg		< 0.1	< 0.1	< 0.1	8.4	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	8.4	8.4	
Anthracene	mg/kg		< 0.1	< 0.1	< 0.1	0.79	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.79	0.79	
Fluoranthene	mg/kg		< 0.1	< 0.1	< 0.1	3.3	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.3	3.3	
Pyrene	mg/kg		< 0.1	< 0.1	< 0.1	8.6	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	8.6	8.6	
Benzo(a)anthracene	mg/kg		< 0.1	< 0.1	< 0.1	9.1	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	9.1	9.1	
Chrysene	mg/kg		< 0.1	< 0.1	< 0.1	31	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	31	31	
Benzo(b)fluoranthene	mg/kg		< 0.1	< 0.1	< 0.1	5.3	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	5.3	5.3	
Benzo(k)fluoranthene	mg/kg		< 0.1	< 0.1	< 0.1	2.3	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.3	2.3	
Benzo(a)pyrene	mg/kg		< 0.1	< 0.1	< 0.1	3.8	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.8	3.8	
Indeno(1,2,3-cd)pyrene	mg/kg		< 0.1	< 0.1	< 0.1	0.51	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.51	0.51	
Dibenzo(a,h)anthracene	mg/kg		< 0.1	< 0.1	< 0.1	0.7	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.7	0.7	
Benzo(g,h,i)perylene	mg/kg		< 0.1	< 0.1	< 0.1	0.83	< 0.1	< 0.1			< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.83	0.83	
SVOCs (only those above LOD listed)																			
Di-n-butyl phthalate	µg/kg		< 150	< 150	< 150	190	< 150	< 150			< 150	< 150	< 150	< 150	< 150	< 150	190	190	
Anthraquinone	µg/kg		< 150	< 150	< 150	2000	< 150	< 150			< 150	< 150	< 150	< 150	< 150	< 150	2000	2000	
Bis (2-ethylhexyl) phthalate	µg/kg		< 300	< 300	< 300	1400	< 300	< 300			< 300	360	< 300	< 300	330	860	330	1400	
2-Methylnaphthalene	µg/kg		< 150	< 150	< 150	700	< 150	< 150			< 150	< 150	< 150	< 150	< 150	< 150	700	700	
VOCs (only those above LOD listed)																			
Dichloromethane	µg/kg		< 25	< 25	< 25	29	< 25	< 25			26	< 25	< 25	< 25	< 25	< 25	26	29	
Cis-1,2 Dichloroethene	µg/kg		<20	<20	<20	<20	<20	<20			<20	13	<20	<20	<20	<20	13	13	

Summary of 2006 Baseline Data - Groundwater

		BH1	BH2	BH3	MIN	MAX	AVE
Inorganics							
Arsenic (Dissolved)	mg/l	< 0.005	< 0.005	< 0.005	0	0	0
Boron (Dissolved)	mg/l	0.087	0.037	0.034	0.034	0.087	0.0558
Cadmium (Dissolved)	mg/l	< 0.001	< 0.001	< 0.001	0	0	0
Chromium (Dissolved)	mg/l	< 0.005	0.009	< 0.005	0.009	0.009	0.009
Copper (Dissolved)	mg/l	< 0.005	< 0.005	< 0.005	0	0	0
Lead (Dissolved)	mg/l	< 0.005	< 0.005	< 0.005	0	0	0
Mercury (Dissolved)	mg/l	< 0.00005	< 0.00005	< 0.00005	0	0	0
Nickel (Dissolved)	mg/l	< 0.005	< 0.005	< 0.005	0	0	0
Selenium (Dissolved)	mg/l	< 0.005	< 0.005	< 0.005	0	0	0
Zinc (Dissolved)	mg/l	< 0.005	0.059	0.022	0.022	0.059	0.0405
Ammoniacal Nitrogen as NH ₄	mg/l	0.12	0.1	0.07	0.07	0.12	0.096
Ammoniacal Nitrogen as N	mg/l	0.1	0.08	0.06	0.06	0.1	0.08
Total Cyanide	mg/l	< 0.03	< 0.03	< 0.03	0	0	0
Fluoride	mg/l	0.16	0.18	0.17	0.16	0.18	0.17
Dissolved Oxygen	mg/l	4	7.8	5.5	4	7.8	5.82
pH	pH Units	7.5	7.1	7	7	7.5	7.22
Sulphate as SO ₄	mg/l	140	78	61	61	140	96
Organics							
EPH (C10-C40)	mg/l	0.26	0.14	0.05	0.05	0.26	0.152
Phenol	mg/l	< 0.01	< 0.01	< 0.01	0	0	0
Total Monohydric Phenols	mg/l	< 0.01	< 0.01	< 0.01	0	0	0
Glycols	mg/l	<1	<1	<1	0	0	0
Alcohols/Acetates	ug/l	<100	<100	<100	0	0	0
PAHs							
Naphthalene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Acenaphthylene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Acenaphthene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Fluorene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Phenanthrene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Anthracene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Fluoranthene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Pyrene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Benzo(a)anthracene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Chrysene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Benzo(b)fluoranthene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Benzo(k)fluoranthene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Benzo(a)pyrene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Indeno(1,2,3-cd)pyrene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Dibenzo(a,h)anthracene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
Benzo(g,h,i)perylene	mg/l	< 0.0001	< 0.0001	< 0.0001	0	0	0
No SVOCs recorded above the LOD							
VOCs (only those above LOD listed)							
Dichloromethane	mg/l	< 0.025	< 0.025	4.2	4.2	4.2	
Chloroform	mg/l	0.003	< 0.001	0.015	0.003	0.015	