

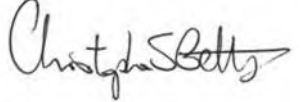
Water Quality and Quantity Monitoring and Contingency Plan

Bryn Quarry, Gelliargwelt Uchaf, Gelligaer, Hengoed

On Behalf of

Bryn Group Ltd

Quality Management

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1 Introduction

Hydrogeo were commissioned by Bryn Quarry in order to update the existing Water Quality and Quantity Monitoring and Contingency Plan Report prepared by JPCE Limited (January 2021) Document Reference: BRL-BQ-WQQMCP.

This report provides an update following formal consultation review and response from Natural Resources Wales (NRW) in relation to **Application number: PAN-023528 dated 29th August 2024**. The NRW response relevant to the Water Quality and Quantity Monitoring and Contingency Plan Report are detailed as follows.

Contingency Actions

“There is no leachate monitoring proposed at the site with only groundwater and surface waters monitoring (both flows, levels and quality) being proposed, This would be on a monthly based from a number of locations around the site – we accept this monitoring plan with frequency and locations (pending the above point on leachate generation being resolved).

References in Section 4 of the Water Quality & Quantity Monitoring Scheme & Contingency Plan have been made to “existing baseline monitoring data/compliance levels”, but does not provide there or any further information.

6.4Action: confirm the baseline levels, and if these have already been agreed by NRW.

6.5Action: confirm what percentage for exceedance over the baseline levels has to occur to trigger an action?

The contingency details as outlined in Table 3 of the Water Quality & Quantity Monitoring Scheme & Contingency Plan are lacking detail.

6.6Action: what are the potential corrective actions that could be employed on site? As above given the type of activity this is, once a deviation from agreed baseline levels has occurred, there may be little action that can be taken.

This updated water quality and quantity monitoring and contingency plan details the regular environmental monitoring which takes place at and around Bryn Quarry, together with a suggested contingency plan once compliance limits have been set for the site.

Bryn Quarry is located within a large tract of land owned by the Applicant; surrounding the quarry are the applicant's other business activities such as farming, waste recovery and recycling, and an Anaerobic Digestion facility.

The existing quarry extracts sandstone beds from the Carboniferous Grovesend Formation. The quarry has been operational since 2008 and currently benefits from planning permission to extract mineral and import fill material to restore the quarry back to agricultural use (reference 08/0055/FULL).

The application establishes the principle that it is the Applicant's intention to restore the whole of the current extended quarry void.

Site Setting

The geological, hydrogeological and hydrological setting for the site is discussed in detail in the Hydrogeological Impact Appraisal prepared by Hydrogeo Ltd dated January 2021. There are several watercourses surrounding the current operational quarry, the extension area and the screening bund. The natural topography of the Applicant's land is such that most of the existing watercourses flow towards Nelson Bog, which is a SSSI, which acts as a natural attenuation system long before run-off enters the main river system (River Rhymney) and its tributaries.

Within the quarry there is a large ground and surface water collection sump, at times, more than one sump is used. These are located generally at the base of the worked-out quarry faces, the water level of these is freely able to vary depending on the inflows. Discharge from the sumps is controlled either by means of pumping or by gravity through a sub-surface pipe system to the quarry entrance in the north west. At the quarry entrance the water leaves the site via 300mm diameter pipe which directs the flow to a settlement lagoon system to the south and west of the quarry. Following treatment within the lagoons the treated water is discharged via a pipe to the adjacent stream.

During the both the extraction and restoration phases of the proposed quarry extension groundwater and surface water runoff will continue to be collected in sumps within the quarry and discharged to the stream via the upgraded settlement lagoons.

2 Groundwater Monitoring

Groundwater monitoring will continue to be progressed every month with levels recorded, and groundwater samples collected, where possible, from each monitoring borehole as detailed in Table 2-1. Each monitoring borehole is inspected visually during each monitoring visit and any defects are recorded. The monitoring borehole locations are depicted on Drawing BAL-SI-2020-001revC attached in Appendix A. Borehole logs detailing the installations carried out in 2020 are attached at Appendix B.

All monitoring will be carried out by suitably trained personnel with dedicated and clean sampling equipment. The water samples collected will be analysed at a suitably accredited laboratory.

Table 2-1 Groundwater Monitoring Wells

Borehole	Easting	Northing	Ground Elevation (mAOD)	Depth to Base of Borehole mbgl (Level mAOD)
BH101A	312717	196221	213.82	24.51 (189.15)
BH102A	312890	196028	216.44	25.81 (191.02)
BH103	312678	196511	217.00	18.41 (198.95)
BH104A	312891	196577	217.08	28.42 (189.07)
BH110	312570	196897	225.71	16.29 (209.86)
BH110A	312652	196724	222.07	24.30 (198.19)
BH111	313221	196118	218.16	29.23 (189.32)
BH112	313024	195927	216.44	14.12 (202.79)

Data collected:

- Depth to groundwater level measured by an electronic water level meter.
- Depth to base of monitoring borehole.
- Monitoring borehole defects.

Methodology

The methodology for the groundwater level monitoring and groundwater sampling to be carried out is outlined below:

- Record the time, date and weather conditions before each measurement is obtained from the monitoring boreholes;
- Check for any visible signs of damages or deterioration of the borehole inner/outer casing;
- Record the depth to groundwater level using an electronic water level meter and depth to base of the borehole;

Groundwater Quality Sampling

- Groundwater samples will be collected from each borehole using best environmental practices to minimise cross contamination risks and will be placed inside laboratory supplied containers. Samples will be kept in a cool box with freezer packs to preserve their integrity;
- Groundwater samples are then forwarded to an accredited laboratory on the day of collection for scheduled analysis.

Groundwater Analysis

Groundwater quality samples collected will be scheduled for the following suite for analysis as follows:

- pH;
- Electrical Conductivity;
- Biological Oxygen Demand;
- Chemical Oxygen Demand;
- Dissolved Oxygen;
- Total Organic Carbon;
- Alkalinity;
- Ammonia;
- Chloride;
- Fluoride;

- Nitrate;
- Sulphate, sulphide and total sulphur;
- Metals: Al, As, B, Ca, Cd, Cr, Cu, Fe, Hg, K, Mg, Mn, Na, Ni, Pb, Zn;
- Total Petroleum Hydrocarbons by GC-FID;
- Speciated Polyaromatic Hydrocarbons (PAH) by GC-MS

Monitoring borehole maintenance

Insofar as it is practicable maintenance is carried out at the time of the routine monitoring visit. If it is not practicable to carry out maintenance at the time of the routine monitoring visit the maintenance will be carried out before the next routine monitoring visit is due. If it is determined that the condition of a borehole is such that it is not fit for purpose and it is not practicable to rehabilitate the borehole a replacement borehole will be drilled in proximity to the original borehole. Drilling and installation of a replacement borehole will include a survey of the location and cover level of the new borehole which will be recorded in metres above Ordnance Datum (mAOD).

3 Surface Water Monitoring

Surface water monitoring will continue to be progressed every month with levels, and flow rates manually measured and recorded, with water samples collected, where possible, from each monitoring position as detailed in Table 3-1. Additionally, data will be collected from the 2no. Teledyne ISCO 2150 flow meters installed in the identified streams across the Site. The monitoring locations and the installed flow meter positions are shown on Drawing BAL-SI-2020-001revC.

All monitoring will be carried out by suitably trained personnel with dedicated and clean sampling equipment. The water samples collected will be analysed at a suitably accredited laboratory.

Table 3-1 Surface Water Quality Monitoring Positions

Monitoring Location	Easting	Northing	Ground Elevation (mAOD)	Description
SW1	312656	196153	197	Natural spring located at boundary between SST & shale beds
SW2	312899	195952	203	Natural spring located at boundary between SST & shale beds
SW4	312348	195754	151	High flow discharge from mine working entry point, outflow to Nelson Bog SSSI
SW5	312479	196193	179	Piped inflow to settlement lagoons from quarry floor water management system
SW-UP	312612	196313	204	Up-gradient point from the discharge point of the settlement ponds (SW5)
SW-DOWN	312724	196470	215	Down-gradient point from the discharge point of the settlement ponds (SW5)
SW DIS	312524	196431	174	Discharge from the water management system captured along the "french drain" at southern extent of quarry void
SW QDIS	312479	196470	170	Discharge from the artificial drainage channel DW1 into Stream 2

Manual Data to be collected:

- Depth of surface water measured by an electronic water level meter or hand tape as appropriate;
- Approximate channel shape;
- Channel top width (m);
- Channel base width (m);
- Flow rate (m/s);
- Silt level (m) at base of channel.

Methodology

The methodology for the surface water monitoring and sampling to be carried out is outlined below:

Surface Water Monitoring:

- Record the time, date and weather conditions before each measurement is obtained from the monitoring boreholes;
- Record the channel shape and widths at top and base, and depth of surface water using an electronic water level meter;
- Record the silt level, if present, at the base of the channel;
- Measure and record flow rate using a combination of the following equipment:

2 no. permanently installed “Teledyne ISCO 2150” flow monitoring devices. These are sited within the channel of the watercourse being monitored and provide continuous data on the flow in that channel. (See further details below). These will be visited each month and the data collected in the intervening period collected for subsequent analysis.

A portable hand held stream flow monitor ref GP-SFM01, this comprises a pole mounted calibrated rotating impellor which records the rate of flow at any point in the stream. Simple measurements of the channel dimensions and water depth will allow an estimation of the flow quantity at the time of sampling.

Surface Water Quality Sampling:

- Surface water samples will be collected at each monitoring point using best environmental practices to minimise cross contamination risks and will be placed inside laboratory supplied containers. Samples will be kept in a cool box with freezer packs to preserve their integrity;
- Surface water samples are then forwarded to an accredited laboratory on the day of collection for scheduled analysis;

Surface Water Analysis

Surface water quality samples collected will be scheduled for the following suite for analysis as follows:

- pH;
- Electrical Conductivity;
- Biological Oxygen Demand;
- Chemical Oxygen Demand;
- Dissolved Oxygen;
- Total Organic Carbon;
- Alkalinity;
- Ammonia;
- Chloride;
- Fluoride;
- Nitrate;
- Sulphate, sulphide and total sulphur;
- Suspended Solids;
- Metals: Al, As, B, Ca, Cd, Cr, Cu, Fe, Hg, K, Mg, Mn, Na, Ni, Pb, Zn;
- Total Petroleum Hydrocarbons by GC-FID;
- Speciated Polyaromatic Hydrocarbons (PAH) by GC-MS

Teledyne ISCO 2150 Flow Meter

The Teledyne ISCO 2150 is a battery powered area velocity flow meter that uses a submerged pressure transducer to measure mean level above the sensor as well as using continuous wave Doppler technology to measure mean velocity within a channel.

The level measurement range between 0.010 to 3.05m, with an accuracy of $\pm 0.003\text{m}$; and velocity measurement range between -1.5 metres per second (m/s) to 6.1m/s, with an accuracy of $\pm 0.03\text{m/s}$. The ISCO 2150 also has the capability for built-in conversions from the level and velocity measurement into flow rate; and total flow readings provided channel shape dimensions input.

The 2 no. ISCO 2150 flow meters are to be mounted on heavy-duty steel plates and installed in the channel bases at the bottom of Stream 2, down-gradient of SW-DOWN, and down- gradient of SW4, the mine adit discharge stream. The flow meters are to be set to record flows on the hour and at 15-minute intervals.

Both flow meters are to be checked as part of the monthly monitoring rounds, to ensure the flow meters remain suitably installed; no detritus is covering the probe or disrupting the true level or flow of the stream locally to the probe. Additionally, the dimensions of the stream channel and the silt level should be measured to amend the flow meter inputs. The stream flow meter data should be retrieved, and a separate stream level and flow rate measurement also taken as a check on the flow meter readings.

4 Data Screening and Reporting

Surface Water Quality Baseline

The surface water quality baseline has been determined following review of all surface water quality data at each of the 7 no. monitoring positions (SW1, SW2, SW4, SW5 SWDis, SWUp and SWDown) across the time period May 2020 – July 2024). The baseline has been provided for all chemical determinants as set out in the above surface water quality analysis section of this report.

The site currently operates under an NRW Permit – Permit number EPR/CB3391ZY which relates to the discharge of surface water from the settlement lagoon treatment system which serves Bryn Quarry. The NRW Permit restricts the discharge to 88.40l/s, which 80mg/l suspended solid concentration, pH ranging 6 to 9 and no visible oil or grease.

Summary statistics for each of the determinants, including minimum and maximum concentrations, average concentrations and proposed exceedance limits have been provided in Appendix C which provides a baseline of the surface water quality.

All of the historical data has been reviewed and the maximum reading per chemical determinant +10% is set as the exceedance limit.

Hydrogeo propose that discussion should be opened with Natural Resources Wales (NRW), and agreement sort for the confirmation of the above methodology for the determination of trigger concentrations, or if a preferred methodology is required.

Groundwater Quality Baseline

The Groundwater Quality baseline is determined following review of all available groundwater data obtained from 8 no. groundwater monitoring wells (BH101A, BH102A, BH103, BH104A, BH110, BH111 & BH112). Groundwater quality data has been collected monthly across the period May 2020 – July 2024. The baseline has been progressed for all chemical determinants as set out in the groundwater analysis section of this report.

Summary statistics for each of the determinants, including minimum and maximum concentrations, average concentrations and proposed exceedance limit have been provided in Appendix D which provides a baseline of the surface water quality.

It is proposed that all of the historical data is reviewed and the maximum reading per chemical determinant +10% is set as the exceedance limit.

Hydrogeo recommend that discussion should be opened with Natural Resources Wales (NRW), and agreement sort for the confirmation of the above methodology for the determination of trigger concentrations, or if a preferred methodology is required.

5 Contingency Plan

The surface water and groundwater monitoring data will be recorded into a database and reviewed on receipt by a suitably qualified person. The results from the surface and ground water quality results will be screened against existing baseline monitoring data/compliance levels.

Where baseline conditions/compliance levels are shown to have changed/exceeded, the number and frequency of monitoring rounds will be re-evaluated in consultation between Caerphilly Borough County Council and Natural Resources Wales. Further contingency actions may be applied if required (e.g. review site practices and continued monitoring).

Where any breach of a set concentration limit occurs, it is proposed that repeat monitoring / sampling is progressed to ensure that the breach is not on-going. Where a repeated breach of a concentration limit is noted, a suitably qualified environmental consultant should be notified, risk assessments should be reviewed, and correspondence opened with NRW.

It is proposed that surface water monitoring across the site is continued following the completion of the infilling of the quarry void. The period of continued monitoring following infilling should be discussed and agreed with Natural Resources Wales (NRW).

The proposed contingency actions are highlighted in Table 5-1 it is recommended that these contingency plans are discussed as part of any formal correspondence with Natural Resources Wales (NRW).

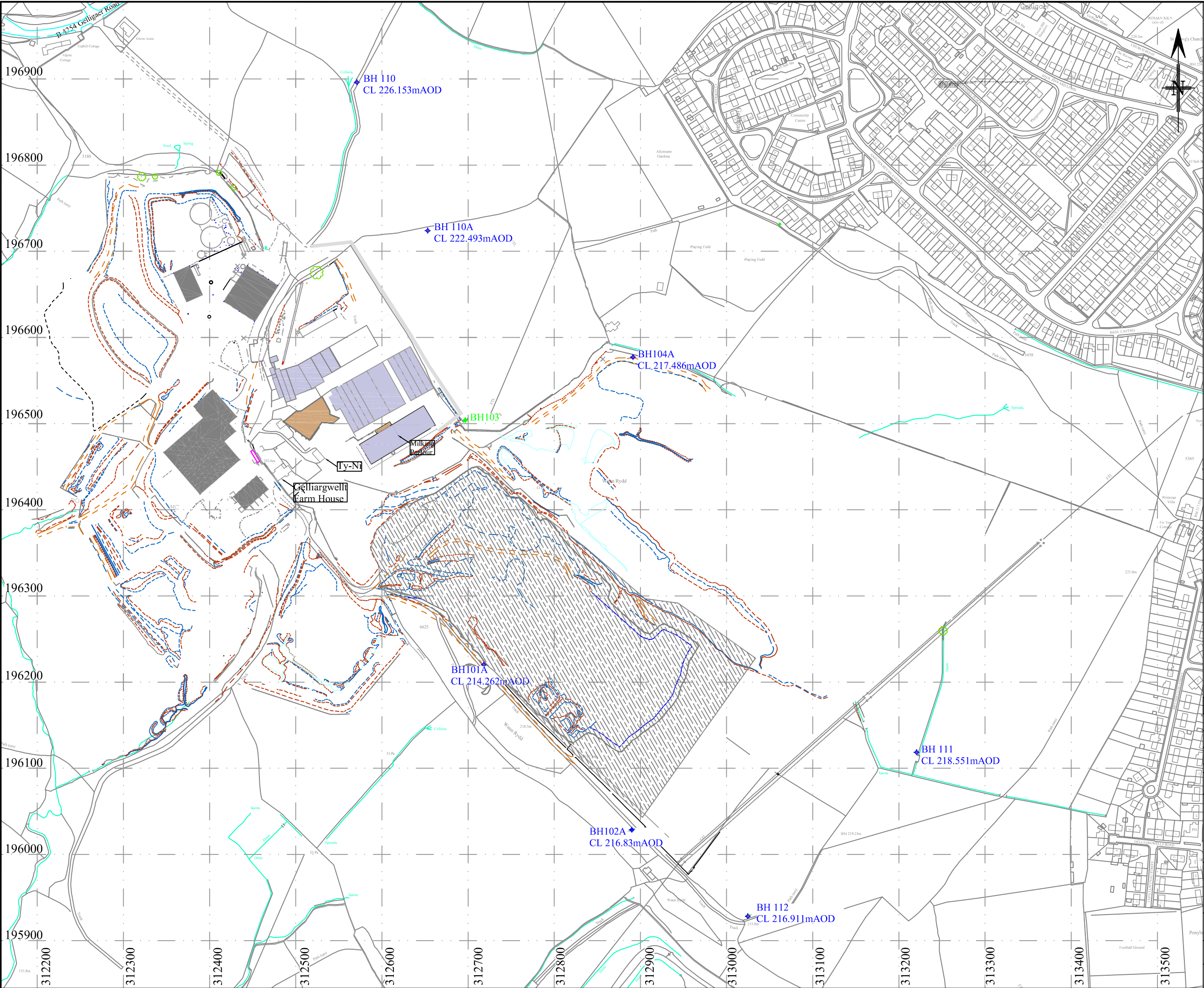
Table 5-1 Proposed Contingency Actions

Contingency action	Response time	Responsibility
Increase the survey frequency to monthly from quarterly or to weekly from monthly	One month	Monitoring technician
Re-appraise the risks and options for protective measures	6 months	Bryn Aggregates & Environmental consultant
If the risks are acceptable re- evaluate the assessment criteria	6 months	Bryn Aggregates & Environmental consultant

Contingency action	Response time	Responsibility
If the risks are unacceptable implement agreed corrective action	12 months	Bryn Aggregates

Appendix A

Drawing BAL-SI-2020-001revC



KEY

Approximate Current Quarry Void

BH104 Existing Borehole Positions

BH110 Proposed Borehole locations

BH101 Borehole to be repaired or replaced

Based upon the Ordnance Survey map with the permission of The Controller of Her Majesty's Stationary Office © Crown copyright.
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A	April 20	As Installed
REV/N	DATE	ISSUE
J P C E Limited		
CLIENT BRYN AGGREGATES LTD GELLIARGWELLT FARM GELLIGAER ROAD GELLIGAER CAERPHILLY CF82 8PY		JOHN PERKINS CONSULTING ENGINEER Bronhaul, Abernant Road Aberdare CF44 0PY Tel 07889 644649 e-mail jpce@hotmail.co.uk
DRAWING TITLE & SCHEME		
SITE INVESTIGATIONS REPORT FOR BRYN QUARRY GELLIARGWELLT FARM, NELSON		
Location Plan for new groundwater monitoring installations		
Drawing Number BAL-SI-2020-001A		Drawn By: B M JONES
Date: JAN 2020	Scale 1:4000@A3	Checked: J PERKINS

Appendix B

Drillers Borehole Logs

Contract Name Bryn Quarry

Contract No

Date 10.2.20

Sheet 1 of 1 Working Day 1

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client Bryn Associates

Order No

Drill Crew Bar Jones - D. Leech

Rig Type Klemm

Sheet		Of	Day			Rig Type	INSTALLATION DETAILS			
Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	Borehole			
	Arrive on site	-		9.00 o'clock	- site recce					
	fuel up - load		4x4 with equipment							
	Track to first position									
BH110	0.00	1.80	1.80		boulder clay					
	1.80	3.80	2.00		SST	Case - 3.00m				
R _w 1	3.80	5.30	1.50	1.50	SST					
R _w 2	5.30	6.90	1.60	1.60	SST	WS 2nd Run				
R _w 3	6.90	8.40	1.50	1.50	SST					
R _w 4	8.40	9.90	1.50	1.50	SST					
R _w 5	9.90	11.40	1.50	1.50	SST					
	Track Rig to safe location			20 mins						
							Diameter			
							Well Casing			
							Well Screen			
							Gravel			
							Bentonite			
							Gas Bung			
							End Cap			
QUANTITIES		Site Moves.....(No)	Casing.....m	Core Boxes.....(No)	Fixed Plant.....					
		Bore Moves.....(No)	Open Hole.....m	Core Liner.....m						
		Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)	Standing Times.....(hrs)					
		Security YES / NO	Corking.....m	Installation.....m	Breakdown.....1 1/2 (hrs)					

Contract Name Bryn Quarry

Contract No

Date 12-2-20Sheet 1 of 1 Working Day 2

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client Bryn Aggregates LTD

Order No

Drill Crew B. Jones - D. LeechRig Type Klemm 802

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
R _N 6	11.40	12.90	1.50	1.50	SS		Borehole			
R _N 7	12.90	14.40	1.50	1.50	SS					
R _N 8	14.40	15.90	1.50	1.40	SS					
R _N 9	15.90	17.40	1.50	1.50	SS - SHale					
R _N 10	17.40	18.90	1.50	1.50	SHALE					
R _N 11	18.90	20.40	1.50	1.50	SH					
R _N 12	20.40	21.90	1.50	1.50	SH					
R _N 13	21.90	23.40	1.50	1.20	SH					
	Instal	50mm	Pipe -	16.00m						
			Slotted	14.50m						
			Plain	2.00m						

QUANTITIES	Site Moves.....(No)	Casing.....m	Core Boxes <u>4</u>(No)	Fixed Plant.....
	Bore Moves.....(No)	Open Hole.....m	Core Liner <u>12.00</u>m	
	Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)	Standing Times.....(hrs)
	Security YES / NO	Corking <u>12.00</u>m	Installation <u>16.00</u>m	Breakdown.....(hrs)
				<u>(Track to BH 20 mins)</u>

Diameter 50 mm Ø
 Well Casing 2.00 m
 Well Screen 14.50 m
 Gravel 14.50 (supplied by Apex) m
 Bentonite 8.40 m
 Gas Bung 1 (No)
 End Cap (No)
 Cover Type RAISED / FLUSH
 Water Level 14.50 m
 Remarks

Signed
by ApexSigned
by Client

Date

Blue - Client's Copy Yellow - QS Copy White - Site Copy

Sheet 1 of 2 Working Day 4 3

E-mail: admin@apex-drilling.com

Rig Type Klemm 802

Bore Hole		Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
		Track to next position						Borehole			
BH110A	0.00	0.20	0.20			Top soil					
	0.20	1.30	1.10			boulder clay					
	1.80	1.70	0.40			SST	WS = 1.50 m				
R _{No} 1	1.70	3.30	1.60	1.60		SST					
R _{No} 2	3.30	4.70	1.40	1.40		SS					
R _{No} 3	4.70	6.20	1.50	1.50		SS					
R _{No} 4	6.20	7.70	1.50	1.50		SS					
R _{No} 5	7.70	9.30	1.60	1.60		SS					
R _{No} 6	9.30	10.80	1.50	1.50		SS					
R _{No} 7	10.80	12.30	1.50	1.50		SS					
								Diameter.....m			
								Well Casing.....m			
								Well Screen.....m			
								Gravel.....m			
								Bentonite.....m			
								Gas Bung.....(No)			
								End Cap.....(No)			
Site Moves.....(No)		Casing 1.50.....m	Core Boxes 4.....(No)		Fixed Plant.....						
Bore Moves 1.....(No)		Open Hole 1.70.....m	Core Liner 10.60.....m								
Return Moves.....(No)		W. Samples.....m	SPT/CPT.....(No)		Standing Times.....(hrs)						
Security YES / NO		Corking 10.60.....m	Installation.....m		Breakdown.....(hrs)						

Diameter.....	Ø
Well Casing.....	m
Well Screen.....	m
Gravel.....	m
Bentonite.....	m
Gas Bung.....	(No)
End Cap.....	(No)
Cover Type	RAISED / FLUSH
Water Level.....	m
Remarks.....	

Blue – Client's Copy Yellow – QS Copy White – Site Copy

Blue – Client's Copy Yellow – QS Copy White – Site Copy

Contract Name Bryn Quarry

Contract No

Date 13.2.20

Sheet 1 of 1 Working Day 4

APEX DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client Bryn Aggregates

Order No

Drill Crew B. Jones - D. Leech

Rig Type Klemm 802

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS		
Rw 11	16.80	18.30	1.50	1.50	SS		Borehole		
Rw 12	18.30	19.80	1.50	1.80	SS				
Rw 13	19.80	20.50	0.70	0.70	SS				
Rw 14	20.50	22.00	1.50	1.50	SS				
Rw 15	22.00	23.50	1.50	1.50	SS - 				
Rw 16	23.50	25.00	1.50	1.50	 SS - Coal trace				
Rw 17	25.00	26.50	1.50	1.50	Shale				
	Back fill to		25.00 - Bento						
	Instal 50mm -		25.00m						
			23.00m = Slotted						
			2.50m = Plain						

QUANTITIES	Site Moves.....(No)	Casing.....m	Core Boxes <u>3</u>(No)	Fixed Plant.....
	Bore Moves.....(No)	Open Hole.....m	Core Liner <u>9.70</u>m	
	Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)	Standing Times.....(hrs)
	Security YES / NO	Corking <u>8.00 9.70</u>m	Installation.....m	Breakdown.....(hrs)

Diameter 50mm.....Ø
 Well Casing 2.50.....m
 Well Screen 23.00.....m
 Gravel supplied by Quarry.....m
 Bentonite 2.00.....m
 Gas Bung 1.....(No)
 End Cap.....(No)
 Cover Type RAISED / FLUSH
 Water Level.....m
 Remarks Geo wrap



Certificate No: 08750A

Signed by Apex [Signature]

Signed by Client Date

Blue - Client's Copy Yellow - OS Copy White - Site Copy

Contract Name Bayn Quarry

Contract No

Date 14.2.20

Sheet 1 of 1 Working Day 5

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client Bayn Aggregates

Order No

Drill Crew B. Jones - D. Leech

Rig Type Klemm 802

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
	<u>Track</u>	<u>to BH 101</u>		<u>40 mins</u>			<u>Borehole</u>			
<u>BH 101</u>	<u>0.00</u>	<u>0.30</u>	<u>0.30</u>		<u>loose sub blast</u>	<u>Case - 1.50m</u>				
	<u>0.30</u>	<u>3.80</u>	<u>3.50</u>		<u>SS</u>					
	<u>3.80</u>	<u>5.00</u>	<u>1.20</u>		<u>Broken Ground</u>					
	<u>5.00</u>	<u>17.90</u>	<u>12.90</u>		<u>SS</u>	<u>WS 20.00</u>				
	<u>17.90</u>	<u>25.00</u>	<u>7.10</u>		<u>Shale</u>					
	<u>Flush</u>	<u>1 Hr</u>								
	<u>Instal</u>	<u>failed</u>	<u>-15.00m</u>	<u>Ream BH</u>						
	<u>"</u>	<u>"</u>	<u>-12.50m</u>	<u>"</u>	<u>"</u>					
	<u>Case - 4.50m</u>	<u>+</u>		<u>Ream BH</u>						
	<u>Instal</u>	<u>failed</u>	<u>-7.00m</u>							
	<u>Track Back</u>	<u>to Wheel Wash</u>	<u>-20 mins</u>							

QUANTITIES	Site Moves.....(No)	Casing.....m	Core Boxes.....(No)	Fixed Plant.....		Diameter.....Ø
	Bore Moves.....(No)	Open Hole.....m	Core Liner.....m			Well Casing.....m
	Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)	Standing Times.....(hrs)		Well Screen.....m
	Security YES / NO	Corking.....m	Installation.....m	Breakdown.....(hrs)		Gravel.....m
						Bentonite.....m
						Gas Bung.....(No)
						End Cap.....(No)
						Cover Type <u>RAISED / FLUSH</u>
						Water Level.....m
						Remarks



Certificate No: 08750A

Signed [Signature]
by Apex

Signed _____
by Client Date

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Contract Name Bryn Quarry

Contract No

Date 17.2.20Sheet 1 of 1 Working Day 6

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client Bryn Aggregates

Order No

Drill Crew B. Jones - D. LeechRig Type Kiem 802

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS
BH101	Advance Casing - 7.50m Flush - 30mins			+ Ream		TRACK TO B/H 20min	Borehole
	INS 50mm - 25.00m						
	Track to BH 102A						
BH102A	0.00	1.50	1.50	Tip		Case - 1.50m	
	1.50	14.70	13.20	SST		WS - 15.50m	
	14.70	25.00	10.30	Shale			
	INS 50mm - 25.00m						
	Track to Wheel Wash			30 mins			

QUANTITIES	Site Moves.....(No)	Casing.....m	Core Boxes.....(No)	Fixed Plant.....
	Bore Moves.....(No)	Open Hole.....m	Core Liner.....m	
	Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)	Standing Times.....(hrs)
	Security YES / NO	Corking.....m	Installation.....m	Breakdown.....(hrs)

BH101	BH102A
Diameter	50mm
Well Casing	1.50
Well Screen	24.00
Gravel	Supplied by Quarry
Bentonite	1.00
Gas Bung	
End Cap	
Cover Type	RAISED / FLUSH
Water Level	
Remarks	

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by ApexSigned
by Client

Date

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Contract Name Bryn Quarry

Contract No

Date 18.2.20Sheet 1 of 1 Working Day 7**APEX**
DRILLING
SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client Bryn Aggregates

Order No

Drill Crew B. Jones - D. LeechRig Type Klam 809

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
	<u>Track</u>	<u>to next position</u>	<u>- 30 mins</u>				Borehole			
<u>BH104A</u>		<u>Dig trial pit - 1.20m</u>								
	<u>0.00</u>	<u>1.70</u>	<u>1.70</u>		<u>Tip - Builders Rubble</u>	<u>Case - 4.50m</u>				
	<u>1.70</u>	<u>4.00</u>	<u>2.30</u>		<u>Peat</u>					
	<u>4.00</u>	<u>5.50</u>	<u>1.50</u>		<u>Builder Clay</u>					
	<u>5.50</u>	<u>7.00</u>	<u>1.50</u>		<u>SS</u>					
	<u>Stop,</u>	<u>move</u>	<u>BH due</u>	<u>to services issue</u>						
<u>BH104A x2</u>		<u>Dig trial pit - 1.20m</u>								
	<u>0.00</u>	<u>1.30</u>	<u>1.30</u>		<u>Builders Rubble</u>	<u>Case - 3.00m</u>				
	<u>1.30</u>	<u>2.50</u>	<u>0.70</u>		<u>Peat - Clay</u>					
	<u>2.50</u>	<u>27.00</u>	<u>24.50</u>		<u>SS shale bands</u>					
	<u>Pull rods</u>									
	<u>Pull off BH + back to</u>	<u>secure location</u>	<u>- 40 mins</u>							

QUANTITIES

 Site Moves.....(No)
 Bore Moves.....(No)
 Return Moves.....(No)
 Security YES / NO

 Casing ☒m
 Open Hole.....m
 W. Samples.....m
 Coring.....m

 Core Boxes.....(No)
 Core Liner.....m
 SPT/CPT.....(No)
 Installation.....m

 Fixed Plant.....
 Standing Times.....(hrs)
 Breakdown 2 1/2 underground services issue (hrs)

 Diameter.....Ø
 Well Casing.....m
 Well Screen.....m
 Gravel.....m
 Bentonite.....m
 Gas Bung.....(No)
 End Cap.....(No)
 Cover Type RAISED / FLUSH
 Water Level.....m
 Remarks.....


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by Client Date

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Contract Name Bryn Quarry

Contract No

Date 19.2.20Sheet 1 of 1 Working Day 8

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client Bryn Aggregates

Order No

Drill Crew B. Jones - D. LeechRig Type Klemm 802

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS
	Track back to	BH 104A	+ set up on position				Borehole
	27.00	30.00	3.00		Shale		
	Flush	30 mins					
	Back fill	-27.00m	- bento				
	Instal samm pipe	- 27.00m					
	Rece next two BH positions	with engineer	= 30 mins				
	Track to BH 111	= 1Hr					
	Scan for services	+ Dig inspection pit	= 45 mins				
	Set up on BH						
BH 111	0.00	1.20	1.20		fill - peat	case - 3.00 m	
	1.20	2.50	1.30 1.30		Clay		
	2.50	3.00	0.50		SS		
R ^N 1	3.00	4.40	1.40	1.40	SS		
R ^N 2	4.40	5.60	1.20	1.20	SS		
QUANTITIES	Site Moves.....(No)	Casing.....m	Core Boxes.....(No)	Fixed Plant.....	Standing Times.....(hrs)	Breakdown.....(hrs)	Diameter.....Ø
	Bore Moves.....(No)	Open Hole.....m	Core Liner.....m				Well Casing.....m
	Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)				Well Screen.....m
	Security YES / NO	Corking.....m	Installation.....m				Gravel.....m
							Bentonite.....m
							Gas Bung.....(No)
							End Cap.....(No)
							Cover Type RAISED / FLUSH
							Water Level.....m
							Remarks

QUANTITIES



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by Client

Date

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Contract Name Bryn Quarry

Contract No

Date 20.2.20

Sheet 1 of 1 Working Day 9

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DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client Bryn Aggregates

Order No

Drill Crew B. Jones - D. Leech

Rig Type Klemm 802

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS		
R _N 3	5.60	7.20	1.60	1.60	SS		Borehole		
R _N 4	7.20	8.70	1.50	1.50	SS WS				
R _N 5	8.70	10.20	1.50	1.50	SS				
R _N 6	10.20	10.90	0.70	0.70	SS				
R _N 7	10.90	12.50	1.60	1.60	SS				
R _N 8	12.50	14.10	1.60	1.60	SS				
R _N 9	14.10	15.60	1.50	1.50	SS				
R _N 10	15.60	17.10	1.50	1.50	SS				
R _N 11	17.10	18.60	1.50	1.50	SS				
R _N 12	18.60	20.10	1.50	1.50	SS				

QUANTITIES	Site Moves.....(No)	Casing.....m	Core Boxes.....(No)	Fixed Plant.....
	Bore Moves.....(No)	Open Hole.....m	Core Liner.....m	
	Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)	Standing Times.....(hrs)
	Security YES / NO	Corking.....m	Installation.....m	Breakdown.....(hrs)

Diameter.....Ø

Well Casing.....m

Well Screen.....m

Gravel.....m

Bentonite.....m

Gas Bung.....(No)

End Cap.....(No)

Cover Type RAISED / FLUSH

Water Level.....m

Remarks.....

Signed by Apex [Signature]

Signed by Client Date



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Contract Name Bigg Country

Contract No

Date 21.2.20

Sheet 1 of 1 Working Day 10



DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client Sign Analytics

Order No

Drill Crew B. Jones - D. Leech

Rig Type Klemm 802

[illegible]

QUANTITIES

Site Moves.....(No)

Bore Moves(No)

Return Moves(No)

Security YES / NO

Casingm

Open Holem

W. Samplesm

Corkingm

Core Boxes(No)

Core Liner.....m

SPT/CPT.....(No)

Installationm

Fixed Plant.....

.....

Standing Times..... (45 mins) (hrs)

Breakdown	hrs
-----------	-----

Diameter.....Ø

Well Casingm

Well Screenm

Gravelm

Bentonitem

Gas Bung (No)

End Cap (No)

Cover Type	RAISED / FLUSH
------------	----------------

Water Level.....m

Remarks

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Certificate No: 08750A

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Signed _____
by Client _____ Date _____

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Contract Name Bryn Quarry

Contract No

Date 24.2.20

Sheet 1 of 1 Working Day 11

APEX DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client Bryn Aggregates

Order No

Drill Crew B. Jones - C. Smith

Rig Type Klemm 802

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS			
R ^{no} 21	31.50	33.00	1.50	1.50	SHALE		Borehole			
	Back fill	-	30.00m	With Benta						
	INS	-	30.00m = 50mm							
Mave -	BH 112		(25mins Track)		cat scan +  inspection pit					
	0.00	0.80	0.80		TS-clay	case 1.50m				
	0.80	1.50	0.70		SS					
R ^{no} 1	1.50	3.00	1.50	1.50	SS WS					
R ^{no} 2	3.00	4.50	1.50	1.50	SS					
R ^{no} 3	4.50	6.00	1.50	1.50	SS					
R ^{no} 4	6.00	7.50	1.50	1.50	SS					
R ^{no} 5	7.50	8.80	1.30	1.30	SS					
							Diameter	50mm		
							Well Casing	3.00		
							Well Screen	27.00		

QUANTITIES	Site Moves.....(No)	Casing.....m	Core Boxes.....(No)	Fixed Plant.....
	Bore Moves.....(No)	Open Hole.....m	Core Liner.....m	
	Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)	Standing Times.....(hrs)
	Security YES / NO	Corking.....m	Installation.....m	Breakdown.....(hrs)

Diameter 50mm.....Ø

Well Casing 3.00.....m

Well Screen 27.00.....m

Gravel supplied by quarry.....m

Bentonite 3.00.....m

Gas Bung 1.....(No)

End Cap 1.....(No)

Cover Type RAISED / FLUSH

Water Level.....m

Remarks Geo wrap



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Signed by Client Date

Contract Name Bryn Quarry

Contract No

Date 25.09/2. / 20

Sheet 1 of 1 Working Day 12

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client Bryn Aggregates

Order No

Drill Crew B. Jones - A. Lees

Rig Type Klemm 802

Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time — Reason	INSTALLATION DETAILS
R ^{no} 6	8.80	9.90	1.10	1.10	SS		Borehole
R ^{no} 7	9.90	11.40	1.50	1.50	SS		
R ^{no} 8	11.40	12.90	1.50	1.50	SS soft clay band		
R ^{no} 9	12.90	13.60	0.70	0.70	SS		
R ^{no} 10	13.60	14.10	0.50	0.50	SS		
R ^{no} 11	14.10	15.60	1.50	1.50	SS		
R ^{no} 12	15.60	17.10	1.50	1.50	SS SHALE		
R ^{no} 13	17.10	18.60	1.50	1.50	SH		
Backfill		- 15.00m = bento					
Install		- 15.00m = 80mm					

QUANTITIES	Site Moves.....(No)	Casing.....m	Core Boxes.....(No)	Fixed Plant.....
	Bore Moves.....(No)	Open Hole.....m	Core Liner.....m	
	Return Moves.....(No)	W. Samples.....m	SPT/CPT.....(No)	Standing Times.....(hrs)
	Security YES / NO	Corking.....m	Installation.....m	Breakdown.....(hrs)

Diameter 80mm.....Ø

Well Casing 1.50.....m

Well Screen 14.00.....m

Gravel supplied by Quarry.....m

Bentonite 4.00.....m

Gas Bung 1.....(No)

End Cap 1.....(No)

Cover Type RAISED / FLUSH

Water Level.....m

Remarks Geo Map



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Signed by Client

Date

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Appendix C

Surface Water Monitoring Baseline Data and Analysis Table

NOTE: Surface water monitoring data is taken from the available monitoring points over the period May 2020 – July 2024.

NOTE:#DIV/0! & #NUM! Indicates where no Concentrations have been recorded above Laboratory Level of Detection for a particular determinant or where there isn't enough data >LoD for Mean, Standard Deviation and 95%ile to be calculated.

SW1		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	67.0	219.0	138.8	42.3	195.2	152.7
Ammonia	mg.l ⁻¹ as N	0.0	2.2	0.2	0.6	1.1	0.2
BOD	mg.l ⁻¹ O ₂	0.5	5.1	2.0	1.2	4.1	2.2
COD	mg.l ⁻¹ O ₂	11.0	82.0	43.9	17.5	74.3	48.3
Chloride	mg.l ⁻¹	11.8	38.2	21.7	6.7	34.8	23.9
Conductivity	µS.cm ⁻¹	7.7	14.3	9.6	1.7	12.4	10.6
Dissolved Oxygen	mg.l ⁻¹ O ₂	279.0	654.0	450.9	115.1	637.2	496.0
Fluoride	mg.l ⁻¹	0.1	0.2	0.1	0.1	0.2	0.1
Nitrate	mg.l ⁻¹	4.2	39.8	18.2	11.3	35.8	20.0
pH	pH units	6.3	8.5	7.2	0.5	8.1	7.9
Sulphate	mg.l ⁻¹	9.3	122.0	56.9	36.0	120.6	62.6
Sulphide	mg.l ⁻¹	0.1	0.1	0.1	0.0	0.1	0.1
Total Sulphur	mg.l ⁻¹	5.0	40.6	20.5	11.8	40.2	22.5
Suspended Solids	mg.l ⁻¹	5.0	732.0	127.5	217.0	641.7	140.2
Total Organic Carbon	mg.l ⁻¹ C	4.0	48.8	26.3	12.8	48.5	28.9
Aluminium (Dissolved)	µg.l ⁻¹	26.8	579.0	190.4	148.4	443.9	209.4
Arsenic (Dissolved)	µg.l ⁻¹	0.5	4.3	2.1	0.8	3.5	2.3
Boron (Dissolved)	µg.l ⁻¹	27.0	104.0	57.3	21.1	88.0	63.0
Cadmium (Dissolved)	µg.l ⁻¹	0.9	0.9	0.9	0.0	0.9	1.0
Calcium (Dissolved)	mg.l ⁻¹	37.9	89.5	56.8	17.1	87.4	62.5
Chromium (Dissolved)	µg.l ⁻¹	1.7	10.3	5.2	3.6	9.8	5.7
Copper (Dissolved)	µg.l ⁻¹	3.4	37.8	11.5	11.5	32.9	12.6
Iron (Dissolved)	µg.l ⁻¹	23.3	625.0	182.6	165.1	489.2	200.9
Lead (Dissolved)	µg.l ⁻¹	7.0	50.6	18.3	16.3	43.0	20.2
Magnesium (Dissolved)	mg.l ⁻¹	7.8	17.1	11.6	2.7	15.6	12.8
Manganese (Dissolved)	µg.l ⁻¹	3.8	90.0	26.0	20.7	61.5	28.6
Mercury (Dissolved)	µg.l ⁻¹	0.1	1.8	0.5	0.7	1.5	0.5
Nickel (Dissolved)	µg.l ⁻¹	1.7	4.7	3.1	1.1	4.5	3.4
Phosphorus	mg.l-1	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Potassium (Dissolved)	mg.l ⁻¹	11.2	27.3	18.6	4.8	26.1	20.4
Sodium (Dissolved)	mg.l ⁻¹	10.6	21.6	14.6	2.8	19.4	16.1
Zinc (Dissolved)	µg.l ⁻¹	3.3	38.4	13.7	11.5	32.2	15.1
Phosphate total	mg.l ⁻¹	0.3	0.4	0.4	0.1	0.4	0.4
Total TPH >C6-C40	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Naphthalene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Acenaphthylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Acenaphthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Fluorene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Phenanthrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Benza(a)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Chrysene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Benzo(b)fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Benzo(k)fluoranthene	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Benzo(a)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Indeno(123-cd)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Benzo(ghi)perylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Dibenza(ah)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Total PAHs	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!
Sulphide	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	#DIV/0!

SW2		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	24.6	45.1	37.0	5.9	44.3	49.6
Ammonia	mg.l ⁻¹ as N	0.01	0.2	0.1	0.1	0.2	0.2
BOD	mg.l ⁻¹ O ₂	0.7	7.1	2.7	1.9	5.9	7.8
COD	mg.l ⁻¹ O ₂	3	43	20.6	14.3	41.4	47.3
Chloride	mg.l ⁻¹	9.7	24.2	17.4	5.4	23.7	26.6
Conductivity	µS.cm ⁻¹	6.2	12.2	9.7	1.6	11.9	13.4
Dissolved Oxygen	mg.l ⁻¹ O ₂	134	263	184.6	44.3	258.6	289.3
Fluoride	mg.l ⁻¹	0.04	0.33	0.1	0.1	0.3	0.4
Nitrate	mg.l ⁻¹	0.68	20.4	8.4	6.5	19.1	22.4
pH	pH units	6.2	8.2	6.9	0.6	7.8	9.0
Sulphate	mg.l ⁻¹	4.8	30.7	15.3	7.6	27.5	33.8
Sulphide	mg.l ⁻¹	0.57	0.57	0.6	0.0	0.6	0.6
Total Sulphur	mg.l ⁻¹	3.8	18.9	7.9	4.5	15.4	20.8
Suspended Solids	mg.l ⁻¹	5.2	1672	406.6	588.9	1475.7	1839.2
Total Organic Carbon	mg.l ⁻¹ c	1.7	44.2	21.2	11.4	38.9	48.6
Aluminium (Dissolved)	µg.l ⁻¹	17.5	248	91.8	86.6	247.6	272.8
Arsenic (Dissolved)	µg.l ⁻¹	0.27	7.1	1.5	2.3	5.2	7.8
Boron (Dissolved)	µg.l ⁻¹	12.1	69.5	28.5	18.2	59.1	76.5
Cadmium (Dissolved)	µg.l ⁻¹	0.2	1.7	1.0	0.8	1.6	1.9
Calcium (Dissolved)	mg.l ⁻¹	12.9	33.6	20.3	6.3	31.2	37.0
Chromium (Dissolved)	µg.l ⁻¹	1.8	8.3	4.3	2.9	7.7	9.1
Copper (Dissolved)	µg.l ⁻¹	2.1	43.8	12.6	15.0	39.3	48.2
Iron (Dissolved)	µg.l ⁻¹	9.3	1200	301.3	375.5	931.6	1320.0
Lead (Dissolved)	µg.l ⁻¹	5	9.6	6.8	2.0	9.2	10.6
Magnesium (Dissolved)	mg.l ⁻¹	4	9.4	5.5	1.6	8.3	10.3
Manganese (Dissolved)	µg.l ⁻¹	2.8	59.6	18.1	18.4	48.7	65.6
Mercury (Dissolved)	µg.l ⁻¹	0.13	0.2	0.2	0.0	0.2	0.2
Nickel (Dissolved)	µg.l ⁻¹	2.2	4.4	3.4	0.9	4.3	4.8
Phosphorus	mg.l-1	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Potassium (Dissolved)	mg.l ⁻¹	3.2	7	4.5	1.3	6.6	7.7
Sodium (Dissolved)	mg.l ⁻¹	7.6	16.7	11.0	2.4	14.9	18.4
Zinc (Dissolved)	µg.l ⁻¹	2.2	36.4	19.6	11.1	34.2	40.0
Phosphate total	mg.l ⁻¹	0.3	0.5	0.4	0.1	0.5	0.6
Total TPH >C6-C40	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Naphthalene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthylene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluorene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Phenanthrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluoranthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benza(a)anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Chrysene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(b)fluoranthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(k)fluoranthene	µg.l ⁻²	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(a)pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Indeno(123-cd)pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(ghi)perylene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Dibenza(ah)anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total PAHs	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Sulphide	mg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0

SW4		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	118.0	228.0	164.0	22.1	201.7	250.8
Ammonia	mg.l ⁻¹ as N	0.0	0.4	0.1	0.1	0.3	0.5
BOD	mg.l ⁻¹ O ₂	0.5	5.8	2.6	1.4	5.7	6.4
COD	mg.l ⁻¹ O ₂	2.0	38.0	13.7	9.7	34.4	41.8
Chloride	mg.l ⁻¹	11.2	20.9	14.2	2.2	19.0	23.0
Conductivity	µS.cm ⁻¹	3.2	540.0	30.5	107.9	368.1	594.0
Dissolved Oxygen	mg.l ⁻¹ O ₂	6.9	581.0	457.8	137.8	571.1	639.1
Fluoride	mg.l ⁻¹	0.1	0.2	0.1	0.0	0.2	0.3
Nitrate	mg.l ⁻¹	0.1	6.6	1.4	1.4	4.5	7.3
pH	pH units	5.5	8.0	6.6	0.4	7.5	8.8
Sulphate	mg.l ⁻¹	31.9	662.0	118.3	86.3	157.6	728.2
Sulphide	mg.l ⁻¹	0.1	149.0	49.9	70.1	134.1	163.9
Total Sulphur	mg.l ⁻¹	21.7	221.0	42.5	31.3	95.6	243.1
Suspended Solids	mg.l ⁻¹	1.6	85.5	13.2	18.2	77.8	94.1
Total Organic Carbon	mg.l ⁻¹ C	2.5	116.0	24.5	20.5	76.5	127.6
Aluminium (Dissolved)	µg.l ⁻¹	3.3	269.0	25.8	57.6	238.5	295.9
Arsenic (Dissolved)	µg.l ⁻¹	0.2	1.0	0.4	0.3	0.9	1.1
Boron (Dissolved)	µg.l ⁻¹	5.4	68.2	28.3	12.7	58.9	75.0
Cadmium (Dissolved)	µg.l ⁻¹	0.1	1.3	0.5	0.5	1.2	1.4
Calcium (Dissolved)	mg.l ⁻¹	37.1	140.0	55.5	14.4	66.2	154.0
Chromium (Dissolved)	µg.l ⁻¹	1.2	8.8	2.6	1.8	6.0	9.7
Copper (Dissolved)	µg.l ⁻¹	0.8	20.4	3.6	4.7	10.4	22.4
Iron (Dissolved)	µg.l ⁻¹	2.9	373.0	46.1	77.0	300.1	410.3
Lead (Dissolved)	µg.l ⁻¹	1.1	22.7	8.6	5.3	18.0	25.0
Magnesium (Dissolved)	mg.l ⁻¹	19.3	60.6	27.8	6.2	34.2	66.7
Manganese (Dissolved)	µg.l ⁻¹	7.0	1430.0	243.6	256.4	846.0	1573.0
Mercury (Dissolved)	µg.l ⁻¹	0.1	10.0	2.0	3.3	7.6	11.0
Nickel (Dissolved)	µg.l ⁻¹	1.8	7.5	3.6	1.5	7.3	8.3
Phosphorus	mg.l-1	0.4	0.4	0.4	0.0	#NUM!	0.4
Potassium (Dissolved)	mg.l ⁻¹	6.7	99.0	11.7	13.2	12.5	108.9
Sodium (Dissolved)	mg.l ⁻¹	6.4	29.7	10.0	3.5	15.1	32.7
Zinc (Dissolved)	µg.l ⁻¹	1.5	72.3	11.6	16.1	72.3	79.5
Phosphate total	mg.l ⁻¹	0.3	0.6	0.4	0.1	0.5	0.6
Total TPH >C6-C40	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Naphthalene	µg.l ⁻¹	0.6	0.6	0.6	0.0	#NUM!	0.7
Acenaphthylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluorene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Phenanthrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benza(a)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Chrysene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(b)fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(k)fluoranthene	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(a)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Indeno(123-cd)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(ghi)perylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Dibenza(ah)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total PAHs	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Sulphide	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0

SW5		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	114	269	171.1	34.4	244.3	295.9
Ammonia	mg.l ⁻¹ as N	0.03	4.4	85.8	0.9	3.4	4.8
BOD	mg.l ⁻¹ O ₂	0.4	39.5	2.1	6.2	12.8	43.5
COD	mg.l ⁻¹ O ₂	2	198	12.0	30.5	54.4	217.8
Chloride	mg.l ⁻¹	1.3	37.5	19.9	6.2	34.5	41.3
Conductivity	µS.cm ⁻¹	3.7	426	24.1	84.9	332.5	468.6
Dissolved Oxygen	mg.l ⁻¹ O ₂	8.3	827	251.8	147.6	782.8	909.7
Fluoride	mg.l ⁻¹	0.07	0.49	246.4	0.1	0.3	0.5
Nitrate	mg.l ⁻¹	0.16	19.2	2.4	5.0	17.4	21.1
pH	pH units	6.7	8.5	6.2	0.4	8.4	9.4
Sulphate	mg.l ⁻¹	39.1	250	51.3	37.9	197.3	275.0
Sulphide	mg.l ⁻¹	0.07	172	94.5	86.0	163.4	189.2
Total Sulphur	mg.l ⁻¹	17.3	160	39.7	24.2	95.0	176.0
Suspended Solids	mg.l ⁻¹	1.5	344	33.9	53.7	80.4	378.4
Total Organic Carbon	mg.l ⁻¹ C	1.2	344	31.5	51.6	76.7	378.4
Aluminium (Dissolved)	µg.l ⁻¹	0.62	1080	60.1	189.2	481.5	1188.0
Arsenic (Dissolved)	µg.l ⁻¹	0.25	2.2	48.5	0.5	2.0	2.4
Boron (Dissolved)	µg.l ⁻¹	7.7	109	21.9	18.4	85.7	119.9
Cadmium (Dissolved)	µg.l ⁻¹	0.093	3.3	37.6	1.5	3.0	3.6
Calcium (Dissolved)	mg.l ⁻¹	35.9	149	57.1	24.8	128.4	163.9
Chromium (Dissolved)	µg.l ⁻¹	1	11.7	45.3	3.4	11.6	12.9
Copper (Dissolved)	µg.l ⁻¹	0.8	34.7	4.1	7.1	29.6	38.2
Iron (Dissolved)	µg.l ⁻¹	1.5	1119	96.1	236.0	690.6	1230.9
Lead (Dissolved)	µg.l ⁻¹	1.3	52.3	114.2	11.6	26.1	57.5
Magnesium (Dissolved)	mg.l ⁻¹	13.5	77.8	21.1	10.3	39.2	85.6
Manganese (Dissolved)	µg.l ⁻¹	1.3	1142	121.2	261.8	794.9	1256.2
Mercury (Dissolved)	µg.l ⁻¹	0.05	16.4	199.2	7.1	14.0	18.0
Nickel (Dissolved)	µg.l ⁻¹	2	21.8	5.6	4.2	19.3	24.0
Phosphorus	mg.l-1	0.4	0.4	5.6	0.0	0.4	0.4
Potassium (Dissolved)	mg.l ⁻¹	5.1	31.8	10.3	6.3	28.9	35.0
Sodium (Dissolved)	mg.l ⁻¹	8.2	30.7	12.2	4.8	25.8	33.8
Zinc (Dissolved)	µg.l ⁻¹	1.4	29	12.3	8.1	23.7	31.9
Phosphate total	mg.l ⁻¹	0.4	0.4	6.4	0.0	0.4	0.4
Total TPH >C6-C40	µg.l ⁻¹	0.38	0.38	0.4	0.0	0.4	0.4
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0	0	0.4	#DIV/0!	#NUM!	0.0
Naphthalene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthylene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluorene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Phenanthrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluoranthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benza(a)anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Chrysene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(b)fluoranthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(k)fluoranthene	µg.l ⁻²	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(a)pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Indeno(123-cd)pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(ghi)perylene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Dibenza(ah)anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total PAHs	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Sulphide	mg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0

SWDis		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	99.3	263	157.2	32.0	208.7	289.3
Ammonia	mg.l ⁻¹ as N	0.01	2	0.3	0.5	1.8	2.2
BOD	mg.l ⁻¹ O ₂	0.4	13	2.3	2.1	6.0	14.3
COD	mg.l ⁻¹ O ₂	2	46	15.0	12.7	44.7	50.6
Chloride	mg.l ⁻¹	6.3	33.8	17.8	4.9	30.6	37.18
Conductivity	µS.cm ⁻¹	0.8	418	28.5	86.1	351.4	459.8
Dissolved Oxygen	mg.l ⁻¹ O ₂	8.8	809	434.8	139.9	657.3	889.9
Fluoride	mg.l ⁻¹	0.07	0.37	0.2	0.1	0.3	0.407
Nitrate	mg.l ⁻¹	0.26	40.4	5.1	7.3	20.7	44.44
pH	pH units	6.7	8.3	7.3	0.3	7.9	9.13
Sulphate	mg.l ⁻¹	14.5	288	93.1	49.8	221.6	316.8
Sulphide	mg.l ⁻¹	0.51	149	74.8	105.0	141.6	163.9
Total Sulphur	mg.l ⁻¹	15.2	128	35.3	23.0	101.0	140.8
Suspended Solids	mg.l ⁻¹	2.8	156	22.6	37.8	153.8	171.6
Total Organic Carbon	mg.l ⁻¹ C	0.2	116	23.8	19.3	50.1	127.6
Aluminium (Dissolved)	µg.l ⁻¹	0.29	319	38.9	67.5	201.2	350.9
Arsenic (Dissolved)	µg.l ⁻¹	0.22	2.9	0.6	0.7	2.8	3.2
Boron (Dissolved)	µg.l ⁻¹	7.8	85.4	34.7	17.0	75.9	93.9
Cadmium (Dissolved)	µg.l ⁻¹	0.13	5.6	2.3	2.9	5.2	6.16
Calcium (Dissolved)	mg.l ⁻¹	32.7	137	57.5	27.1	121.0	150.7
Chromium (Dissolved)	µg.l ⁻¹	1	10	3.6	3.2	9.1	11
Copper (Dissolved)	µg.l ⁻¹	0.8	27.9	4.5	6.3	26.6	30.7
Iron (Dissolved)	µg.l ⁻¹	0.9	1230	152.2	256.1	804.1	1353
Lead (Dissolved)	µg.l ⁻¹	5.2	17.9	8.4	4.0	16.2	19.7
Magnesium (Dissolved)	mg.l ⁻¹	15.6	59.3	23.5	7.4	37.0	65.2
Manganese (Dissolved)	µg.l ⁻¹	3.8	1490	374.7	423.3	1303.0	1639
Mercury (Dissolved)	µg.l ⁻¹	0.06	7.8	1.6	2.9	6.2	8.6
Nickel (Dissolved)	µg.l ⁻¹	1.7	24	6.2	5.5	23.3	26.4
Phosphorus	mg.l-1	0.3	0.3	0.3	#DIV/0!	0.3	0.3
Potassium (Dissolved)	mg.l ⁻¹	4.1	19.3	7.5	3.6	17.6	21.2
Sodium (Dissolved)	mg.l ⁻¹	7.3	27.2	12.9	4.7	26.5	29.9
Zinc (Dissolved)	µg.l ⁻¹	1.2	34.1	7.5	8.4	33.4	37.5
Phosphate total	mg.l ⁻¹	0.3	0.4	0.4	0.1	0.4	0.4
Total TPH >C6-C40	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Naphthalene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Acenaphthylene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Acenaphthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Fluorene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Phenanthrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Fluoranthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Benza(a)anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Chrysene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Benzo(b)fluoranthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Benzo(k)fluoranthene	µg.l ⁻²	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Benzo(a)pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Indeno(123-cd)pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Benzo(ghi)perylene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Dibenza(ah)anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Total PAHs	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Sulphide	mg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0

SWUp		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	59.2	493	134.3	100.9	462.2	542.3
Ammonia	mg.l ⁻¹ as N	0.01	15.5	1.2	3.0	10.9	17.05
BOD	mg.l ⁻¹ O ₂	0.6	41.3	6.8	7.9	29.5	45.43
COD	mg.l ⁻¹ O ₂	2	154	38.3	33.9	150.8	169.4
Chloride	mg.l ⁻¹	8.1	1048	49.4	176.7	351.8	1152.8
Conductivity	µS.cm ⁻¹	0.1	536	36.6	110.9	440.8	589.6
Dissolved Oxygen	mg.l ⁻¹ O ₂	1.1	3035	413.8	525.2	1856.9	3338.5
Fluoride	mg.l ⁻¹	0.07	0.39	0.1	0.1	0.4	0.429
Nitrate	mg.l ⁻¹	0.22	28.7	6.5	6.5	23.2	31.57
pH	pH units	6.6	8.7	7.6	0.4	8.6	9.57
Sulphate	mg.l ⁻¹	5.5	528	66.4	102.4	348.8	580.8
Sulphide	mg.l ⁻¹	0.06	0.52	0.3	0.2	0.5	0.572
Total Sulphur	mg.l ⁻¹	3.3	46.1	11.7	9.0	36.7	50.71
Suspended Solids	mg.l ⁻¹	2.4	54	17.1	16.1	52.0	59.4
Total Organic Carbon	mg.l ⁻¹ C	1.4	82.2	23.4	16.6	62.7	90.42
Aluminium (Dissolved)	µg.l ⁻¹	2.3	384	63.2	79.0	303.0	422.4
Arsenic (Dissolved)	µg.l ⁻¹	0.23	7.9	1.4	1.7	6.9	8.69
Boron (Dissolved)	µg.l ⁻¹	12.8	247	37.0	42.5	163.3	271.7
Cadmium (Dissolved)	µg.l ⁻¹	0.12	1.8	1.0	0.8	1.7	1.98
Calcium (Dissolved)	mg.l ⁻¹	20.5	464	55.3	80.0	291.1	510.4
Chromium (Dissolved)	µg.l ⁻¹	1.1	9.3	3.3	2.9	9.3	10.23
Copper (Dissolved)	µg.l ⁻¹	1	81	12.6	18.8	69.8	89.1
Iron (Dissolved)	µg.l ⁻¹	4	1060	139.9	193.3	599.4	1166
Lead (Dissolved)	µg.l ⁻¹	5.5	65.8	12.6	15.7	35.7	72.38
Magnesium (Dissolved)	mg.l ⁻¹	4.8	28.5	12.2	6.8	28.2	31.35
Manganese (Dissolved)	µg.l ⁻¹	1.3	1300	97.4	239.3	824.2	1430
Mercury (Dissolved)	µg.l ⁻¹	0.07	0.53	0.2	0.2	0.5	0.583
Nickel (Dissolved)	µg.l ⁻¹	1.9	35	6.7	8.2	18.6	38.5
Phosphorus	mg.l-1	1	3.4	2.2	1.2	3.3	3.74
Potassium (Dissolved)	mg.l ⁻¹	3.4	52.6	11.1	10.9	39.6	57.86
Sodium (Dissolved)	mg.l ⁻¹	3.3	433	29.3	74.8	226.5	476.3
Zinc (Dissolved)	µg.l ⁻¹	1.7	153	20.9	32.6	147.5	168.3
Phosphate total	mg.l ⁻¹	0.2	0.6	0.4	0.2	0.6	0.66
Total TPH >C6-C40	µg.l ⁻¹	180	180	180.0	0.0	180.0	198
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Naphthalene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Acenaphthylene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Acenaphthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Fluorene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Phenanthrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Fluoranthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Benza(a)anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Chrysene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Benzo(b)fluoranthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Benzo(k)fluoranthene	µg.l ⁻²	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Benzo(a)pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Indeno(123-cd)pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Benzo(ghi)perylene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Dibenza(ah)anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Total PAHs	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0
Sulphide	mg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0

SWDown		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	127	432	238.2	78.1	410	475.2
Ammonia	mg.l ⁻¹ as N	0.01	3.6	0.5	0.7	2.5	4.0
BOD	mg.l ⁻¹ O ₂	0.4	9.8	3.5	2.2	8.3	10.8
COD	mg.l ⁻¹ O ₂	2	58	22.9	14.9	53.3	63.8
Chloride	mg.l ⁻¹	9.6	85.9	32.2	17.9	74.5	94.5
Conductivity	µS.cm ⁻¹	4.8	752	38.4	135.9	369.1	827.2
Dissolved Oxygen	mg.l ⁻¹ O ₂	8.1	1193	632.7	249.0	1097.6	1312.3
Fluoride	mg.l ⁻¹	0.07	0.48	0.2	0.1	0.4	0.5
Nitrate	mg.l ⁻¹	0.35	22.5	6.4	5.9	21.3	24.8
pH	pH units	6.5	8.8	7.9	0.4	8.5	9.7
Sulphate	mg.l ⁻¹	33.9	1120	138.4	153.4	270.0	1232.0
Sulphide	mg.l ⁻¹	197	197	197.0	0.0	#NUM!	216.7
Total Sulphur	mg.l ⁻¹	20.8	375	49.2	54.3	114.3	412.5
Suspended Solids	mg.l ⁻¹	1.2	441	38.6	69.6	177.3	485.1
Total Organic Carbon	mg.l ⁻¹ C	1.7	107	26.7	20.7	66.7	117.7
Aluminium (Dissolved)	µg.l ⁻¹	0.64	572	70.4	129.7	460.1	629.2
Arsenic (Dissolved)	µg.l ⁻¹	0.29	4.3	1.0	0.8	2.6	4.7
Boron (Dissolved)	µg.l ⁻¹	19.9	167	76.3	36.8	153.9	183.7
Cadmium (Dissolved)	µg.l ⁻¹	0.13	1.1	0.6	0.5	1.1	1.2
Calcium (Dissolved)	mg.l ⁻¹	48.6	176	88.0	32.8	166.2	193.6
Chromium (Dissolved)	µg.l ⁻¹	1	8.9	3.5	2.7	8.9	9.8
Copper (Dissolved)	µg.l ⁻¹	0.8	48.2	7.3	11.9	42.3	53.0
Iron (Dissolved)	µg.l ⁻¹	2.4	638	116.3	179.1	587.0	701.8
Lead (Dissolved)	µg.l ⁻¹	0.97	42.1	10.9	10.0	42.1	46.3
Magnesium (Dissolved)	mg.l ⁻¹	12.8	104	26.2	13.1	40.3	114.4
Manganese (Dissolved)	µg.l ⁻¹	1.2	506	89.6	118.1	448.0	556.6
Mercury (Dissolved)	µg.l ⁻¹	0.05	21.6	4.1	7.9	16.8	23.8
Nickel (Dissolved)	µg.l ⁻¹	1.3	14.2	4.4	3.2	13.9	15.6
Phosphorus	mg.l-1	0.4	0.4	0.4	0.0	#NUM!	0.4
Potassium (Dissolved)	mg.l ⁻¹	7.6	44	15.8	7.6	32.4	48.4
Sodium (Dissolved)	mg.l ⁻¹	8.6	49.3	22.3	10.3	47.0	54.2
Zinc (Dissolved)	µg.l ⁻¹	1.2	42.1	14.1	13.5	39.3	46.3
Phosphate total	mg.l ⁻¹	0.3	0.4	0.4	0.0	0.4	0.4
Total TPH >C6-C40	µg.l ⁻¹	0.35	0.35	0.4	0.0	0.4	0.4
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Naphthalene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthylene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluorene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Phenanthrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluoranthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benza(a)anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Chrysene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(b)fluoranthene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(k)fluoranthene	µg.l ⁻²	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(a)pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Indeno(123-cd)pyrene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(ghi)perylene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Dibenza(ah)anthracene	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total PAHs	µg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0
Sulphide	mg.l ⁻¹	0	0	#DIV/0!	#DIV/0!	#NUM!	0.0

Appendix D

Groundwater Monitoring Baseline Data and Analysis Table

NOTE: Surface water monitoring data is taken from the available monitoring points over the period May 2020 – July 2024.

NOTE:#DIV/0! & #NUM! Indicates where no Concentrations have been recorded above Laboratory Level of Detection for a particular determinant or where there isn't enough data >LoD for Mean, Standard Deviation and 95%ile to be calculated.

BH101A		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	107.0	399.0	223.0	54.4	285.7	438.9
Ammonia	mg.l ⁻¹ as N	0.0	0.2	0.1	0.0	0.2	0.2
BOD	mg.l ⁻¹ O ₂	0.6	7.3	3.5	1.9	6.4	8.0
COD	mg.l ⁻¹ O ₂	2.0	52.0	14.1	12.5	36.3	57.2
Chloride	mg.l ⁻¹	5.2	63.2	32.2	14.8	51.4	69.5
Conductivity	µS.cm ⁻¹	168.0	845.0	582.2	169.0	807.7	929.5
Dissolved Oxygen	mg.l ⁻¹ O ₂	0.7	10.3	4.8	3.3	10.0	11.3
Fluoride	mg.l ⁻¹	0.1	0.2	0.1	0.1	0.2	0.3
Nitrate	mg.l ⁻¹	0.1	21.6	4.3	5.3	14.4	23.8
pH	pH units	5.5	7.8	6.7	0.4	7.4	8.6
Sulphate	mg.l ⁻¹	31.4	192.0	94.3	45.0	175.2	211.2
Sulphide	mg.l ⁻¹	0.1	0.1	0.1	0.0	0.1	0.1
Total Sulphur	mg.l ⁻¹	10.5	359.0	41.7	53.0	64.0	394.9
Suspended Solids	mg.l ⁻¹	N/A	N/A	N/A	N/A	N/A	#VALUE!
Total Organic Carbon	mg.l ⁻¹ C	4.4	134.0	31.1	20.7	57.6	147.4
Aluminium (Dissolved)	µg.l ⁻¹	2.7	810.0	105.3	182.9	471.6	891.0
Arsenic (Dissolved)	µg.l ⁻¹	0.2	1.7	0.5	0.4	1.5	1.9
Boron (Dissolved)	µg.l ⁻¹	14.8	364.0	46.2	48.1	56.6	400.4
Cadmium (Dissolved)	µg.l ⁻¹	0.1	1.6	0.9	0.6	1.5	1.8
Calcium (Dissolved)	mg.l ⁻¹	0.2	123.0	66.2	22.1	98.8	135.3
Chromium (Dissolved)	µg.l ⁻¹	1.1	8.2	3.0	2.0	7.4	9.0
Copper (Dissolved)	µg.l ⁻¹	0.8	26.8	4.5	6.7	21.1	29.5
Iron (Dissolved)	µg.l ⁻¹	1.8	1218.0	149.4	273.5	729.5	1339.8
Lead (Dissolved)	µg.l ⁻¹	4.5	58.1	12.3	13.0	38.4	63.9
Magnesium (Dissolved)	mg.l ⁻¹	11.9	59.5	33.3	12.8	50.9	65.5
Manganese (Dissolved)	µg.l ⁻¹	1.0	910.0	280.0	246.4	713.0	1001.0
Mercury (Dissolved)	µg.l ⁻¹	0.1	0.1	0.1	0.0	0.1	0.1
Nickel (Dissolved)	µg.l ⁻¹	1.5	12.9	4.2	2.1	6.2	14.2
Phosphorus	mg.l ⁻¹	0.5	0.5	0.5	0.0	0.5	0.6
Potassium (Dissolved)	mg.l ⁻¹	0.5	15.8	7.7	2.8	12.9	17.4
Sodium (Dissolved)	mg.l ⁻¹	0.2	25.4	11.3	3.3	15.0	27.9
Zinc (Dissolved)	µg.l ⁻¹	1.7	126.0	23.4	33.1	97.1	138.6
Phosphate total	mg.l ⁻¹	0.2	0.5	0.3	0.1	0.5	0.6
Total TPH >C6-C40	µg.l ⁻¹	0.3	0.3	0.3	0.0	0.3	0.3
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0.0	0.0	N/A	N/A	N/A	0.0
Naphthalene	µg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0
Acenaphthylene	µg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0
Acenaphthene	µg.l ⁻¹	0.8	0.8	0.8	0.0	0.8	0.9
Fluorene	µg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0
Phenanthrene	µg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0
Anthracene	µg.l ⁻¹	1.5	1.5	1.5	0.0	1.5	1.7
Fluoranthene	µg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0
Pyrene	µg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0
Benza(a)anthracene	µg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0
Chrysene	µg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0
Benzo(b)fluoranthene	µg.l ⁻¹	2.3	2.3	2.3	0.0	2.3	2.5
Benzo(k)fluoranthene	µg.l ⁻²	0.0	0.0	N/A	N/A	N/A	0.0
Benzo(a)pyrene	µg.l ⁻¹	2.1	2.1	2.1	0.0	2.1	2.3
Indeno(123-cd)pyrene	µg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0
Benzo(ghi)perylene	µg.l ⁻¹	2.1	2.1	2.1	0.0	2.1	2.3
Dibenza(ah)anthracene	µg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0
Total PAHs	µg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0
Sulphide	mg.l ⁻¹	0.0	0.0	N/A	N/A	N/A	0.0

BH102A		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	61.0	287.0	153.5	54.7	256.0	315.7
Ammonia	mg.l ⁻¹ as N	0.0	0.5	0.1	0.1	0.3	0.6
BOD	mg.l ⁻¹ O ₂	0.5	8.7	3.5	2.0	7.0	9.6
COD	mg.l ⁻¹ O ₂	2.0	146.0	16.4	22.6	45.8	160.6
Chloride	mg.l ⁻¹	8.8	49.5	24.2	7.6	41.8	54.5
Conductivity	µS.cm ⁻¹	0.8	561.0	26.4	104.6	275.4	617.1
Dissolved Oxygen	mg.l ⁻¹ O ₂	5.6	701.0	476.0	135.4	684.9	771.1
Fluoride	mg.l ⁻¹	0.0	0.3	0.1	0.1	0.2	0.3
Nitrate	mg.l ⁻¹	1.9	91.0	15.9	17.2	58.9	100.1
pH	pH units	5.9	7.9	6.6	0.4	7.7	8.7
Sulphate	mg.l ⁻¹	31.4	225.0	85.1	39.9	170.6	247.5
Sulphide	mg.l ⁻¹	0.1	0.1	0.1	0.0	0.1	0.1
Total Sulphur	mg.l ⁻¹	10.5	120.0	30.8	19.6	72.9	132.0
Suspended Solids	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total Organic Carbon	mg.l ⁻¹ C	2.9	79.3	25.3	16.6	66.8	87.2
Aluminium (Dissolved)	µg.l ⁻¹	1.3	1099.0	117.1	215.2	720.8	1208.9
Arsenic (Dissolved)	µg.l ⁻¹	0.2	0.9	0.4	0.2	0.9	1.0
Boron (Dissolved)	µg.l ⁻¹	13.9	263.0	44.9	34.3	79.5	289.3
Cadmium (Dissolved)	µg.l ⁻¹	0.1	1.4	0.5	0.5	1.3	1.5
Calcium (Dissolved)	mg.l ⁻¹	0.2	94.4	52.0	15.9	85.4	103.8
Chromium (Dissolved)	µg.l ⁻¹	1.0	7.8	2.4	1.8	7.6	8.6
Copper (Dissolved)	µg.l ⁻¹	0.8	31.7	3.7	5.6	20.0	34.9
Iron (Dissolved)	µg.l ⁻¹	3.1	2730.0	242.6	498.3	1418.7	3003.0
Lead (Dissolved)	µg.l ⁻¹	4.9	48.2	10.4	9.8	20.7	53.0
Magnesium (Dissolved)	mg.l ⁻¹	15.1	52.5	24.4	6.1	33.7	57.8
Manganese (Dissolved)	µg.l ⁻¹	1.0	6000.0	466.4	861.3	1055.5	6600.0
Mercury (Dissolved)	µg.l ⁻¹	0.1	2.4	0.7	1.0	2.1	2.6
Nickel (Dissolved)	µg.l ⁻¹	1.5	14.8	5.7	3.0	12.4	16.3
Phosphorus	mg.l ⁻¹	0.4	0.4	0.4	0.0	0.4	0.4
Potassium (Dissolved)	mg.l ⁻¹	0.5	28.1	10.8	4.2	18.5	30.9
Sodium (Dissolved)	mg.l ⁻¹	0.2	27.8	14.6	4.3	23.2	30.6
Zinc (Dissolved)	µg.l ⁻¹	1.2	46.5	8.9	10.8	44.9	51.2
Phosphate total	mg.l ⁻¹	0.2	0.4	0.3	0.1	0.4	0.4
Total TPH >C6-C40	µg.l ⁻¹	0.3	180.0	135.1	77.8	180.0	198.0
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Naphthalene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthene	µg.l ⁻¹	0.8	0.8	0.8	0.0	#NUM!	0.9
Fluorene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Phenanthrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Anthracene	µg.l ⁻¹	1.3	1.3	1.3	0.0	#NUM!	1.4
Fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benza(a)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Chrysene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(b)fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(k)fluoranthene	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(a)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Indeno(123-cd)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(ghi)perylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Dibenza(ah)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total PAHs	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Sulphide	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0

BH103		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	35.9	410.0	120.6	58.3	248.0	451.0
Ammonia	mg.l ⁻¹ as N	0.0	1.2	0.2	0.2	0.8	1.3
BOD	mg.l ⁻¹ O ₂	0.5	17.7	3.9	3.0	8.9	19.5
COD	mg.l ⁻¹ O ₂	3.0	51.0	20.0	13.0	45.0	56.1
Chloride	mg.l ⁻¹	8.9	46.5	20.5	9.2	40.8	51.2
Conductivity	µS.cm ⁻¹	0.7	408.0	19.3	71.9	177.0	448.8
Dissolved Oxygen	mg.l ⁻¹ O ₂	2.6	658.0	302.5	126.5	553.4	723.8
Fluoride	mg.l ⁻¹	0.1	0.4	0.1	0.1	0.3	0.4
Nitrate	mg.l ⁻¹	0.2	21.4	5.7	5.0	18.9	23.5
pH	pH units	5.4	7.8	6.4	0.4	7.5	8.6
Sulphate	mg.l ⁻¹	12.8	109.0	37.2	18.2	75.1	119.9
Sulphide	mg.l ⁻¹	0.1	0.1	0.1	0.0	0.1	0.1
Total Sulphur	mg.l ⁻¹	6.1	38.4	13.0	7.2	34.7	42.2
Suspended Solids	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total Organic Carbon	mg.l ⁻¹ C	1.0	106.0	28.6	18.8	65.1	116.6
Aluminium (Dissolved)	µg.l ⁻¹	1.9	1822.0	145.8	307.7	800.9	2004.2
Arsenic (Dissolved)	µg.l ⁻¹	0.3	2.7	0.5	0.4	1.6	3.0
Boron (Dissolved)	µg.l ⁻¹	5.8	224.0	28.7	30.4	48.2	246.4
Cadmium (Dissolved)	µg.l ⁻¹	0.1	1.7	0.3	0.5	1.4	1.9
Calcium (Dissolved)	mg.l ⁻¹	10.1	71.9	30.9	11.3	50.1	79.1
Chromium (Dissolved)	µg.l ⁻¹	1.1	5.8	2.4	1.0	5.1	6.4
Copper (Dissolved)	µg.l ⁻¹	1.0	64.2	7.0	12.6	40.7	70.6
Iron (Dissolved)	µg.l ⁻¹	1.3	1969.0	188.8	422.1	1628.8	2165.9
Lead (Dissolved)	µg.l ⁻¹	4.1	9.4	6.5	1.9	9.4	10.3
Magnesium (Dissolved)	mg.l ⁻¹	4.8	30.2	15.1	5.3	25.3	33.2
Manganese (Dissolved)	µg.l ⁻¹	2.8	23500.0	2978.6	3281.7	6550.8	25850.0
Mercury (Dissolved)	µg.l ⁻¹	0.1	0.7	0.3	0.3	0.7	0.8
Nickel (Dissolved)	µg.l ⁻¹	2.2	19.6	6.3	3.0	12.0	21.6
Phosphorus	mg.l ⁻¹	0.5	0.5	0.5	0.0	0.5	0.6
Potassium (Dissolved)	mg.l ⁻¹	1.5	9.7	3.9	1.7	7.3	10.7
Sodium (Dissolved)	mg.l ⁻¹	5.0	23.4	13.5	4.2	23.2	25.7
Zinc (Dissolved)	µg.l ⁻¹	2.4	32.6	10.9	8.6	30.9	35.9
Phosphate total	mg.l ⁻¹	0.3	0.4	0.4	0.0	0.4	0.4
Total TPH >C6-C40	µg.l ⁻¹	0.4	0.4	0.4	0.0	0.4	0.4
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Naphthalene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthene	µg.l ⁻¹	0.9	0.9	0.9	0.0	#NUM!	0.9
Fluorene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Phenanthrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Anthracene	µg.l ⁻¹	1.2	1.2	1.2	0.0	1.2	1.3
Fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benza(a)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Chrysene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(b)fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(k)fluoranthene	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(a)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Indeno(123-cd)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(ghi)perylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Dibenza(ah)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total PAHs	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Sulphide	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0

BH104A		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	115.0	1000.0	359.4	252.1	1052.0	1100.0
Ammonia	mg.l ⁻¹ as N	0.0	1.0	0.4	0.3	3.1	1.1
BOD	mg.l ⁻¹ O ₂	0.8	12.1	4.3	2.4	11.5	13.3
COD	mg.l ⁻¹ O ₂	21.0	78.0	48.8	17.2	94.0	85.8
Chloride	mg.l ⁻¹	9.0	33.0	16.5	5.0	40.4	36.3
Conductivity	µS.cm ⁻¹	0.6	1075.0	101.7	281.1	374.5	1182.5
Dissolved Oxygen	mg.l ⁻¹ O ₂	1.8	1558.0	587.2	447.2	1610.9	1713.8
Fluoride	mg.l ⁻¹	0.1	0.4	0.3	0.1	0.4	0.5
Nitrate	mg.l ⁻¹	0.1	10.1	3.0	3.2	9.7	11.1
pH	pH units	5.9	7.8	7.0	0.5	7.8	8.6
Sulphate	mg.l ⁻¹	20.5	234.0	58.1	49.3	257.7	257.4
Sulphide	mg.l ⁻¹	0.1	0.5	0.3	0.2	0.5	0.6
Total Sulphur	mg.l ⁻¹	6.8	31.0	14.8	7.5	95.0	34.1
Suspended Solids	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total Organic Carbon	mg.l ⁻¹ C	9.3	206.0	54.8	50.6	190.3	226.6
Aluminium (Dissolved)	µg.l ⁻¹	2.6	2382.0	231.4	562.7	369.5	2620.2
Arsenic (Dissolved)	µg.l ⁻¹	0.4	5.4	1.2	1.1	5.3	5.9
Boron (Dissolved)	µg.l ⁻¹	24.8	250.0	98.9	72.6	226.3	275.0
Cadmium (Dissolved)	µg.l ⁻¹	0.9	1.1	1.0	0.1	1.2	1.2
Calcium (Dissolved)	mg.l ⁻¹	29.6	280.0	97.4	69.3	257.3	308.0
Chromium (Dissolved)	µg.l ⁻¹	1.2	3.3	2.3	0.9	3.4	3.6
Copper (Dissolved)	µg.l ⁻¹	0.9	34.8	7.4	9.8	28.8	38.3
Iron (Dissolved)	µg.l ⁻¹	22.9	17075.0	3540.4	4965.2	12560.0	18782.5
Lead (Dissolved)	µg.l ⁻¹	7.0	9.7	8.2	1.1	68.6	10.7
Magnesium (Dissolved)	mg.l ⁻¹	7.0	47.3	15.8	9.7	41.8	52.0
Manganese (Dissolved)	µg.l ⁻¹	2.5	3300.0	930.0	828.8	3165.0	3630.0
Mercury (Dissolved)	µg.l ⁻¹	0.3	2.9	1.6	1.3	2.3	3.2
Nickel (Dissolved)	µg.l ⁻¹	1.6	5.5	3.8	1.2	12.6	6.1
Phosphorus	mg.l ⁻¹	0.4	0.4	0.4	0.0	0.4	0.4
Potassium (Dissolved)	mg.l ⁻¹	5.1	76.5	21.1	17.7	75.5	84.2
Sodium (Dissolved)	mg.l ⁻¹	6.6	33.0	12.9	6.2	33.3	36.3
Zinc (Dissolved)	µg.l ⁻¹	3.0	32.0	9.1	7.2	33.5	35.2
Phosphate total	mg.l ⁻¹	0.3	0.5	0.4	0.1	0.5	0.6
Total TPH >C6-C40	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Naphthalene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluorene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Phenanthrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benza(a)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Chrysene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(b)fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(k)fluoranthene	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(a)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Indeno(123-cd)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(ghi)perylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Dibenza(ah)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total PAHs	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Sulphide	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0

BH110		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	57.0	238.0	112.7	27.2	1052.0	261.8
Ammonia	mg.l ⁻¹ as N	0.0	0.3	0.1	0.0	3.1	0.3
BOD	mg.l ⁻¹ O ₂	0.3	13.2	3.6	2.5	11.5	14.5
COD	mg.l ⁻¹ O ₂	2.0	55.0	16.4	13.9	94.0	60.5
Chloride	mg.l ⁻¹	4.6	38.8	18.1	4.8	40.4	42.7
Conductivity	µS.cm ⁻¹	0.5	274.0	15.7	53.9	374.5	301.4
Dissolved Oxygen	mg.l ⁻¹ O ₂	3.5	667.0	252.5	89.1	1610.9	733.7
Fluoride	mg.l ⁻¹	0.1	0.4	0.2	0.1	0.4	0.5
Nitrate	mg.l ⁻¹	0.1	27.0	2.1	5.2	9.7	29.7
pH	pH units	5.5	7.9	6.4	0.5	7.8	8.7
Sulphate	mg.l ⁻¹	7.0	104.0	23.7	12.8	257.7	114.4
Sulphide	mg.l ⁻¹	0.1	0.1	0.1	0.0	#NUM!	0.1
Total Sulphur	mg.l ⁻¹	5.0	201.0	12.8	30.1	95.0	221.1
Suspended Solids	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total Organic Carbon	mg.l ⁻¹ C	2.3	72.2	21.6	12.9	190.3	79.4
Aluminium (Dissolved)	µg.l ⁻¹	1.9	153.0	27.3	32.8	369.5	168.3
Arsenic (Dissolved)	µg.l ⁻¹	0.2	9.5	0.7	1.8	5.3	10.5
Boron (Dissolved)	µg.l ⁻¹	2.8	923.0	45.4	133.3	226.3	1015.3
Cadmium (Dissolved)	µg.l ⁻¹	0.1	1.0	0.5	0.3	1.2	1.1
Calcium (Dissolved)	mg.l ⁻¹	8.2	71.4	23.7	8.2	257.3	78.5
Chromium (Dissolved)	µg.l ⁻¹	1.0	12.6	2.2	2.3	3.4	13.9
Copper (Dissolved)	µg.l ⁻¹	0.8	5.9	2.2	1.4	28.8	6.5
Iron (Dissolved)	µg.l ⁻¹	1.0	3330.0	620.5	912.4	12560.0	3663.0
Lead (Dissolved)	µg.l ⁻¹	4.5	15.7	7.7	3.6	68.6	17.3
Magnesium (Dissolved)	mg.l ⁻¹	6.6	38.1	13.0	4.2	41.8	41.9
Manganese (Dissolved)	µg.l ⁻¹	16.6	3500.0	1668.6	616.6	3165.0	3850.0
Mercury (Dissolved)	µg.l ⁻¹	0.1	2.7	0.8	1.0	#NUM!	3.0
Nickel (Dissolved)	µg.l ⁻¹	1.0	7.9	4.2	1.7	12.6	8.7
Phosphorus	mg.l ⁻¹	0.4	0.4	0.4	0.0	#NUM!	0.4
Potassium (Dissolved)	mg.l ⁻¹	1.4	8.5	2.9	1.1	75.5	9.4
Sodium (Dissolved)	mg.l ⁻¹	1.5	15.0	11.8	1.9	33.3	16.5
Zinc (Dissolved)	µg.l ⁻¹	1.4	128.0	9.6	25.4	33.5	140.8
Phosphate total	mg.l ⁻¹	0.2	8.4	2.3	3.5	0.5	9.2
Total TPH >C6-C40	µg.l ⁻¹	0.3	35.0	26.3	15.0	0.4	38.5
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Naphthalene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthylene	µg.l ⁻¹	0.6	0.6	0.6	0.0	#NUM!	0.7
Acenaphthene	µg.l ⁻¹	0.3	0.3	0.3	0.0	#NUM!	0.3
Fluorene	µg.l ⁻¹	0.7	0.7	0.7	0.0	#NUM!	0.8
Phenanthrene	µg.l ⁻¹	0.7	1.1	0.9	0.2	#NUM!	1.2
Anthracene	µg.l ⁻¹	0.3	1.3	0.9	0.4	#NUM!	1.4
Fluoranthene	µg.l ⁻¹	0.6	1.2	0.9	0.3	#NUM!	1.3
Pyrene	µg.l ⁻¹	0.5	1.0	0.8	0.2	#NUM!	1.1
Benza(a)anthracene	µg.l ⁻¹	1.4	1.4	1.4	0.0	#NUM!	1.5
Chrysene	µg.l ⁻¹	1.1	1.1	1.1	0.0	#NUM!	1.2
Benzo(b)fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(k)fluoranthene	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(a)pyrene	µg.l ⁻¹	2.0	2.0	2.0	0.0	#NUM!	2.2
Indeno(123-cd)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(ghi)perylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Dibenza(ah)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total PAHs	µg.l ⁻¹	2.7	2.7	2.7	0.0	#NUM!	3.0
Sulphide	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0

BH110A		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	10.9	126.0	64.4	32.8	124.3	138.6
Ammonia	mg.l ⁻¹ as N	0.0	1.3	0.2	0.3	1.3	1.4
BOD	mg.l ⁻¹ O ₂	0.4	9.1	3.4	2.1	7.6	10.0
COD	mg.l ⁻¹ O ₂	3.0	89.0	31.8	20.1	77.5	97.9
Chloride	mg.l ⁻¹	3.0	23.2	13.6	5.0	20.4	25.5
Conductivity	µS.cm ⁻¹	0.4	222.0	12.9	39.9	111.6	244.2
Dissolved Oxygen	mg.l ⁻¹ O ₂	5.4	283.0	180.3	70.5	274.6	311.3
Fluoride	mg.l ⁻¹	0.1	0.4	0.2	0.1	0.3	0.4
Nitrate	mg.l ⁻¹	0.2	34.5	7.1	7.6	22.4	38.0
pH	pH units	5.2	7.7	6.2	0.5	7.3	8.5
Sulphate	mg.l ⁻¹	4.9	365.0	25.6	50.6	39.1	401.5
Sulphide	mg.l ⁻¹	0.1	0.6	0.3	0.2	0.5	0.6
Total Sulphur	mg.l ⁻¹	2.5	14.6	6.2	2.8	13.4	16.1
Suspended Solids	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total Organic Carbon	mg.l ⁻¹ C	2.3	91.5	27.6	18.4	68.7	100.7
Aluminium (Dissolved)	µg.l ⁻¹	7.9	1149.0	304.8	277.7	916.4	1263.9
Arsenic (Dissolved)	µg.l ⁻¹	0.3	197.0	6.1	30.2	5.7	216.7
Boron (Dissolved)	µg.l ⁻¹	2.3	2660.0	88.0	407.2	132.9	2926.0
Cadmium (Dissolved)	µg.l ⁻¹	0.1	1.9	0.5	0.6	1.7	2.1
Calcium (Dissolved)	mg.l ⁻¹	0.2	38.0	17.6	6.8	27.7	41.8
Chromium (Dissolved)	µg.l ⁻¹	1.0	22.1	3.4	4.2	17.5	24.3
Copper (Dissolved)	µg.l ⁻¹	0.8	45.5	8.9	8.6	35.2	50.1
Iron (Dissolved)	µg.l ⁻¹	7.6	5240.0	736.3	848.3	2440.0	5764.0
Lead (Dissolved)	µg.l ⁻¹	0.7	10.5	5.7	2.7	9.4	11.6
Magnesium (Dissolved)	mg.l ⁻¹	2.9	14.7	8.1	3.6	14.1	16.2
Manganese (Dissolved)	µg.l ⁻¹	24.6	1360.0	387.3	386.4	1135.0	1496.0
Mercury (Dissolved)	µg.l ⁻¹	0.1	0.7	0.2	0.2	#NUM!	0.8
Nickel (Dissolved)	µg.l ⁻¹	1.2	20.1	8.3	4.3	17.5	22.1
Phosphorus	mg.l ⁻¹	0.5	0.5	0.5	0.0	0.5	0.6
Potassium (Dissolved)	mg.l ⁻¹	0.6	5.7	3.1	0.9	4.8	6.3
Sodium (Dissolved)	mg.l ⁻¹	0.3	16.7	10.9	3.0	15.9	18.4
Zinc (Dissolved)	µg.l ⁻¹	1.7	40.0	12.9	9.5	38.7	44.0
Phosphate total	mg.l ⁻¹	0.3	9.0	2.6	3.7	7.7	9.9
Total TPH >C6-C40	µg.l ⁻¹	0.3	0.3	0.3	0.0	0.3	0.3
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Naphthalene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluorene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Phenanthrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Anthracene	µg.l ⁻¹	1.2	1.2	1.2	0.0	#NUM!	1.3
Fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benza(a)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Chrysene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(b)fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(k)fluoranthene	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(a)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Indeno(123-cd)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(ghi)perylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Dibenza(ah)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total PAHs	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Sulphide	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0

BH111		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	5.6	146.0	44.1	36.4	118.5	160.6
Ammonia	mg.l ⁻¹ as N	0.0	0.2	0.1	0.1	0.2	0.2
BOD	mg.l ⁻¹ O ₂	0.6	6.3	2.9	1.8	6.3	6.9
COD	mg.l ⁻¹ O ₂	2.0	74.0	17.6	14.5	41.8	81.4
Chloride	mg.l ⁻¹	1.0	25.3	16.4	4.3	25.0	27.8
Conductivity	µS.cm ⁻¹	1.0	659.0	31.2	121.8	317.7	724.9
Dissolved Oxygen	mg.l ⁻¹ O ₂	8.1	1129.0	499.5	234.5	955.8	1241.9
Fluoride	mg.l ⁻¹	0.1	0.3	0.1	0.1	0.2	0.3
Nitrate	mg.l ⁻¹	0.3	32.0	4.2	5.4	14.0	35.2
pH	pH units	3.8	6.8	5.5	0.7	6.5	7.5
Sulphate	mg.l ⁻¹	20.4	678.0	187.0	128.8	463.0	745.8
Sulphide	mg.l ⁻¹	0.1	464.0	154.7	218.7	417.6	510.4
Total Sulphur	mg.l ⁻¹	7.2	226.0	64.4	42.5	153.5	248.6
Suspended Solids	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total Organic Carbon	mg.l ⁻¹ C	2.4	102.0	24.5	19.8	77.8	112.2
Aluminium (Dissolved)	µg.l ⁻¹	0.6	5600.0	1190.1	1534.5	5116.0	6160.0
Arsenic (Dissolved)	µg.l ⁻¹	0.2	131.0	5.3	23.8	70.1	144.1
Boron (Dissolved)	µg.l ⁻¹	2.5	4254.0	137.8	607.9	164.0	4679.4
Cadmium (Dissolved)	µg.l ⁻¹	0.2	164.0	7.6	28.7	77.0	180.4
Calcium (Dissolved)	mg.l ⁻¹	0.2	19914.0	462.5	2837.4	119.0	21905.4
Chromium (Dissolved)	µg.l ⁻¹	1.1	18.4	5.2	4.0	15.0	20.2
Copper (Dissolved)	µg.l ⁻¹	0.9	27.0	4.0	4.9	18.4	29.7
Iron (Dissolved)	µg.l ⁻¹	3.4	2580.0	162.1	406.5	825.4	2838.0
Lead (Dissolved)	µg.l ⁻¹	2.8	20.6	7.8	4.7	18.9	22.7
Magnesium (Dissolved)	mg.l ⁻¹	9.4	88.2	25.3	12.5	46.3	97.0
Manganese (Dissolved)	µg.l ⁻¹	26.6	30100.0	10413.0	7199.3	23815.0	33110.0
Mercury (Dissolved)	µg.l ⁻¹	0.1	4.6	1.0	1.8	3.7	5.1
Nickel (Dissolved)	µg.l ⁻¹	1.3	237.0	82.6	58.3	204.3	260.7
Phosphorus	mg.l ⁻¹	0.4	0.4	0.4	0.0	0.4	0.4
Potassium (Dissolved)	mg.l ⁻¹	0.5	15.4	3.7	2.1	6.9	16.9
Sodium (Dissolved)	mg.l ⁻¹	0.2	33.1	14.3	4.8	22.3	36.4
Zinc (Dissolved)	µg.l ⁻¹	1.4	172.0	67.6	42.7	163.8	189.2
Phosphate total	mg.l ⁻¹	0.3	20.1	6.9	9.3	18.1	22.1
Total TPH >C6-C40	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Naphthalene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluorene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Phenanthrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Anthracene	µg.l ⁻¹	1.1	1.1	1.1	0.0	#NUM!	1.2
Fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benza(a)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Chrysene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(b)fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(k)fluoranthene	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(a)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Indeno(123-cd)pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benzo(ghi)perylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Dibenza(ah)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total PAHs	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Sulphide	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0

BH112		Min	Max	Mean	STDev	95%ile	Proposed Exceedance Limit (Max + 10%)
Alkalinity	mg.l ⁻¹ HCO ₃	66.1	160.0	109.2	22.5	157.9	176.0
Ammonia	mg.l ⁻¹ as N	0.0	2.8	0.3	0.8	2.8	3.1
BOD	mg.l ⁻¹ O ₂	0.5	6.9	3.0	1.6	6.4	7.6
COD	mg.l ⁻¹ O ₂	5.0	153.0	22.6	30.2	128.5	168.3
Chloride	mg.l ⁻¹	5.0	31.4	17.0	6.9	31.1	34.5
Conductivity	µS.cm ⁻¹	2.0	11.0	6.5	2.7	10.7	12.1
Dissolved Oxygen	mg.l ⁻¹ O ₂	102.0	728.0	364.8	107.9	641.2	800.8
Fluoride	mg.l ⁻¹	0.0	0.2	0.1	0.1	0.2	0.2
Nitrate	mg.l ⁻¹	7.2	181.0	47.8	44.5	160.6	199.1
pH	pH units	5.6	7.5	6.4	0.4	7.4	8.3
Sulphate	mg.l ⁻¹	3.3	29.0	16.7	5.6	28.2	31.9
Sulphide	mg.l ⁻¹	0.1	18.5	9.3	9.2	17.6	20.4
Total Sulphur	mg.l ⁻¹	4.2	9.9	5.9	1.8	9.8	10.9
Suspended Solids	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total Organic Carbon	mg.l ⁻¹ C	1.7	69.0	25.1	15.7	63.1	75.9
Aluminium (Dissolved)	µg.l ⁻¹	7.0	187.0	63.7	44.3	173.5	205.7
Arsenic (Dissolved)	µg.l ⁻¹	0.2	1.8	0.5	0.5	1.7	2.0
Boron (Dissolved)	µg.l ⁻¹	12.2	211.0	38.8	41.1	179.5	232.1
Cadmium (Dissolved)	µg.l ⁻¹	1.0	1.9	1.5	0.5	1.9	2.1
Calcium (Dissolved)	mg.l ⁻¹	0.2	327.0	48.5	56.8	234.8	359.7
Chromium (Dissolved)	µg.l ⁻¹	1.0	8.2	3.9	2.5	7.8	9.0
Copper (Dissolved)	µg.l ⁻¹	0.8	60.9	7.4	13.9	59.5	67.0
Iron (Dissolved)	µg.l ⁻¹	1.3	65.2	25.7	22.4	65.1	71.7
Lead (Dissolved)	µg.l ⁻¹	1.4	32.5	11.3	8.9	26.2	35.8
Magnesium (Dissolved)	mg.l ⁻¹	6.0	35.9	13.4	6.3	31.8	39.5
Manganese (Dissolved)	µg.l ⁻¹	1.6	732.0	188.5	212.8	696.8	805.2
Mercury (Dissolved)	µg.l ⁻¹	0.1	8.0	4.7	3.4	7.8	8.8
Nickel (Dissolved)	µg.l ⁻¹	1.8	4.8	3.1	0.9	4.4	5.3
Phosphorus	mg.l-1	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Potassium (Dissolved)	mg.l ⁻¹	0.5	15.6	8.4	2.8	14.8	17.2
Sodium (Dissolved)	mg.l ⁻¹	0.2	26.1	13.6	4.7	24.0	28.7
Zinc (Dissolved)	µg.l ⁻¹	2.9	56.5	12.5	13.3	39.7	62.2
Phosphate total	mg.l ⁻¹	0.3	0.4	0.4	0.1	0.4	0.4
Total TPH >C6-C40	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Polycyclic Aromatic Hydrocarbon (Total)	µg.l ⁻²	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Naphthalene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthylene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Acenaphthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluorene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Phenanthrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Fluoranthene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Pyrene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Benza(a)anthracene	µg.l ⁻¹	3.4	3.4	3.4	0.0	#NUM!	3.7
Chrysene	µg.l ⁻¹	3.1	3.1	3.1	0.0	#NUM!	3.4
Benzo(b)fluoranthene	µg.l ⁻¹	5.1	5.1	5.1	0.0	#NUM!	5.6
Benzo(k)fluoranthene	µg.l ⁻²	4.8	4.8	4.8	0.0	#NUM!	5.3
Benzo(a)pyrene	µg.l ⁻¹	6.8	6.8	6.8	0.0	#NUM!	7.5
Indeno(123-cd)pyrene	µg.l ⁻¹	6.3	6.3	6.3	0.0	#NUM!	6.9
Benzo(ghi)perylene	µg.l ⁻¹	7.1	7.1	7.1	0.0	#NUM!	7.8
Dibenza(ah)anthracene	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Total PAHs	µg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0
Sulphide	mg.l ⁻¹	0.0	0.0	#DIV/0!	#DIV/0!	#NUM!	0.0