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Nant Newydd Inert Landfill

Environmental Monitoring Review

Hurt Plant Hire Limited

Report No. K03276-BLP-R-ENV-00015
11 November 2021
Revision A

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Contents

1 Introduction

1.1 Overview

This Environmental Monitoring Review has been compiled on behalf of Hurt Plant Hire Ltd , for Nant Newydd Quarry Landfill Site (permit reference (EPR/RP3337SE). Environmental monitoring at the site is currently undertaken in accordance with the Environmental Permit (EPR/RP3337SE/V003) and is regulated by Natural Resources Wales (NRW).

The monitoring review fulfils the requirements of Improvement Conditions 1.3.2, 1.3.6 and 1.3.9 (Table S1.3 of the Permit referenced RP3337SE) as follows:

- Improvement Condition 1.3.2 - acquire 12 months of groundwater monitoring data and submit a written report for approval to fully characterise the groundwater regime, review and revise post-interim Control Levels and Trigger Limits, recommendations for any additional groundwater monitoring points, revise and update Site Conceptual Model and revise numerical modelling to demonstrate compliance with the Groundwater Regulations (Sections 2 to 3).
- Improvement Condition 1.3.9 - acquire 12 months of surface water monitoring data and submit a written report for approval to review and revise post-interim Control Levels and Compliance Limits (Section 4).
- Improvement Condition 1.3.6 - acquire 12 months of monthly gas monitoring data and submit a written report for approval to review and revise post-interim Control Levels and Compliance Limits (Section 5).

This report has collated information relating to the Site's history, layout, underlying geology and hydrogeology to confirm the Conceptual Site Model (CSM). Environmental monitoring and other site investigation data have been reviewed to establish the likely risk associated with the Site. This report is a revised version of the Environmental Monitoring Review (3276/R/015/01) submitted in November 2020 to address questions raised by the Geoscience Team on 8 November 2021 (Appendix I) and includes updated monitoring data for the period October 2018 – October 2021(sections 2,3,4 & 5). This monitoring review seeks to discharge the improvement conditions above and supports a permit variation to have the proposed compliance limits regulated.

1.2 Site Background

Nant Newydd Quarry Landfill Site is an inert landfill in Brynteg, Anglesey, North Wales located to the north of the B5110 road. Site access is via the B5110.

The site occupies the quarry void that previously extracted limestone. The site is currently being restored with inert waste in accordance with the site's planning consent and environmental permit EPR/RP3373SE.

Historically areas of the quarry have been restored with overburden (central area) and a mix of overburden and inert waste (north and south of the quarry). The existing site haul road was constructed from suitable non-hazardous waste under a recovery permit which has since been successfully surrendered.

1.3 Monitoring Infrastructure

New perimeter gas and groundwater monitoring points were installed between 27th June 2018 and 6th July 2018 as detailed below:

- 2 gas monitoring boreholes (BH1S and BH2S) and;
- 4 combined groundwater and gas monitoring boreholes (BH2D, BH3DA, BH4D and BH5D).

Gas monitoring boreholes (BH1S and BH2S) are located in the north and north east of the site. Combined gas and groundwater monitoring borehole, BH2D is located in the north east area of the site, BH4D in the south of the site, BH3DA in the south west and BH5D in the northwest area of the site. The locations of the monitoring points are detailed on Drawing Ref: 3276/4/006 Rev A.

Surface water monitoring locations have been identified for the site and are referenced, SW1, SW2a, SW2b, SW3 and SW4 (as shown in Drawing Ref: 3276/4/006 Rev A). These locations replace previous surface water monitoring locations: W1, W1a, W2 and W3 and W4 which could not be located or identified.

Due to the inert nature of the waste to be accepted at Nant Newydd Quarry Landfill Site, there will be no generation of leachate and no requirement to collect or monitor leachate.

2 Groundwater

2.1 Overview

As required by the improvement programme requirements for the site, the Operator is required to submit the following to Natural Resources Wales (NRW) to satisfy improvement programme reference 1.3.2:

- acquire 12 months of groundwater monitoring data and submit a written report for approval to fully characterise the groundwater regime;
- review and revise post-interim Control Levels and Trigger Limits in accordance with current guidance;
- recommend any additional groundwater monitoring points;
- revise and update Site Conceptual Model; and,
- revise numerical modelling to demonstrate compliance with the Groundwater Regulations.

Nant Newydd Quarry Landfill Site accepts inert waste in accordance with the Landfill Directive (LFD). There is no leachate monitoring, management or collection at the site since the inert waste deposited at the site is not expected to produce leachate with any discernible concentrations of hazardous substances or concentrations of non-hazardous pollutants capable of causing pollution. A quantitative assessment was not considered necessary for the site.

2.2 Bedrock Geology

The sections 2.2 to 3.2 of this report have been extracted from ByrneLooby (formerly TerraConsult) document referenced 3276/R/012 which was submitted as part of a planning application for the site. These sections provide an updates site conceptual model as required as part of the improvement condition 1.3.2.

The regional geology of the area can be interpreted from British Geological Survey GeoIndex (BGS)[1] 1:50,000, BGS (1980)[2] 1:50,000 and BGS (1982)[3] 1:250,000.

The most recent geological map for the area by BGS (2019) indicates that the solid geology within the vicinity of the site comprises bedrock strata of Carboniferous Clwyd Limestone group

[1] British Geological Survey Geoindex <http://mapapps2.bgs.ac.uk/geoindex/home.html>
[2] BGS (1980) Map of Anglesey, Sheet 92 &93, 1:50,000- Solid Geology, Available at <http://www.largeimages.bgs.ac.uk/iip/mapsportal.html?id=1001841>
[3] BGS (1982) Map of Anglesey, Sheet 53° N-06° W, 1:250 000 Series – Solid Geology, Available at< http://www.largeimages.bgs.ac.uk/iip/mapsportal.html?id=1003731>

estimated by Waters et al. (2009)[4] to be within Chadian and Brigantian substage (345-325 Ma). The Clwyd Limestone group is described by the BGS as a range of limestone facies with minor sandstone and mudstone units, and local dolomitisation. It is the Clwyd Limestone that has been extracted at the quarry.

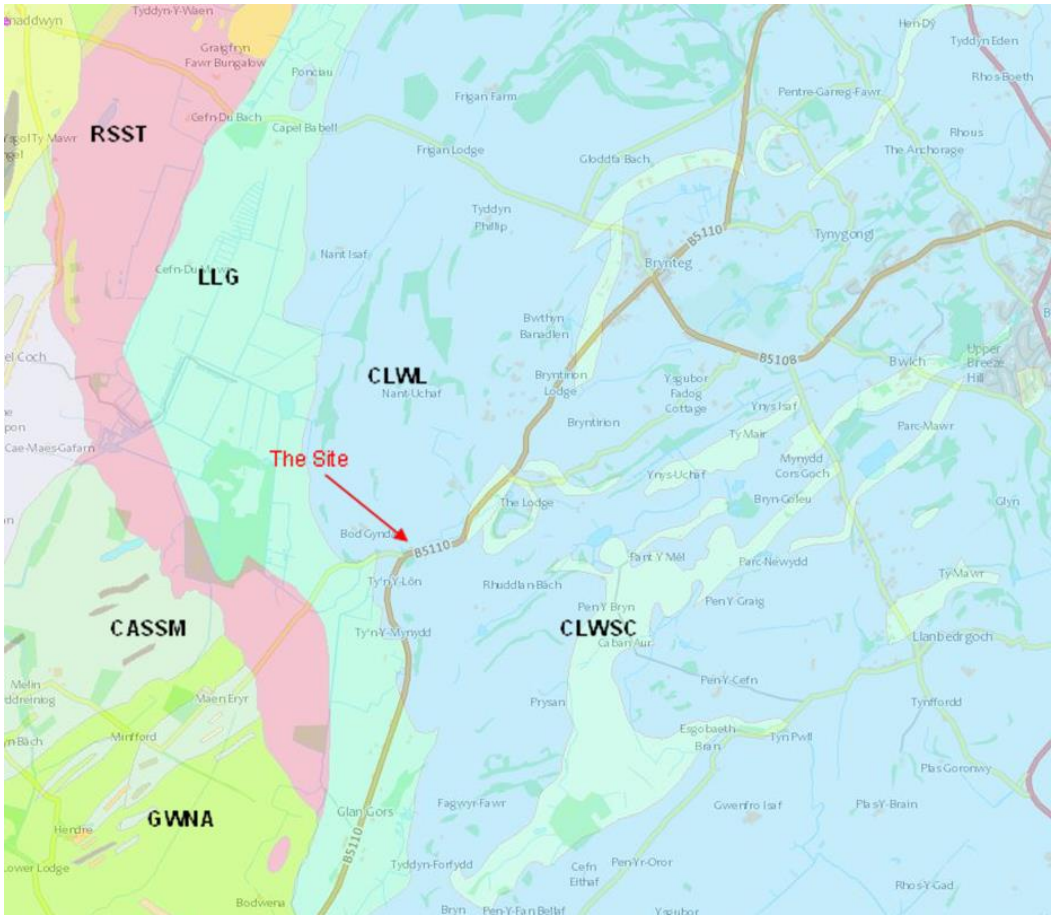


Figure 1. Bedrock Geology of Area

(RSST– Old Red Sandstone Supergroup, Sandstone) (LLG-Lligwy Sandstone Fm) (CLWL-Clywd Limestone Group, Limestone) (CLW SC- Clywd Limestone Group, Sandstone and Conglomerate) (GWNA-GWNA Group, Schist) (CASSM- Central Anglesey Shear Zone and Berw Shear Zone, Schist and Mica) (ORDMS-Ordovician Rocks, Mudstone and Sandstone)

The limestone sequence in the regional area is recorded to be younging towards the north east near Red Wharf. The following limestone sequence occurs towards the north east; Clwyd Limestone Group (329 to 347 Ma); Cefn Mawr Limestone Formation (329 to 337 Ma); and the Wharf Limestone Formation (329 to 331 Ma).

[4] Waters, C N, Waters, R A, Barclay, W J, and Davies, J R. (2009). A lithostratigraphical framework for the Carboniferous successions of southern Great Britain (Onshore). British Geological Survey Research Report, RR/09/01. Welsh Government (2004) Technical

The 1:50,000 BGS map (1980) shows in the vicinity of the site, a prevalent dip of the Carboniferous limestone towards the south-east. The angle of dip in the region is generally between 5 and 15°, extending beyond Red Wharf Bay to the northeast under the Irish Sea.

The geology to the northwest and southeast is bounded by faults and comprises older and structurally complex schists, mudstones, and metamorphic basement. These rocks form a graben and overly the Coedana Granite, (G) Ordovician mudstones and Lligwy Sandstone Formation. The limestone unconformably overlies the Devonian Old Red Sandstone Group in places.

The overall structural fabric of the bedrock geology is northeast-southwest as can be seen in Figures 2 & 3. The stratigraphical relationships of the surrounding geology are extremely complex as depicted on the associated cross-section (Figure 2. Map Showing Structure and Line of Section)[5].

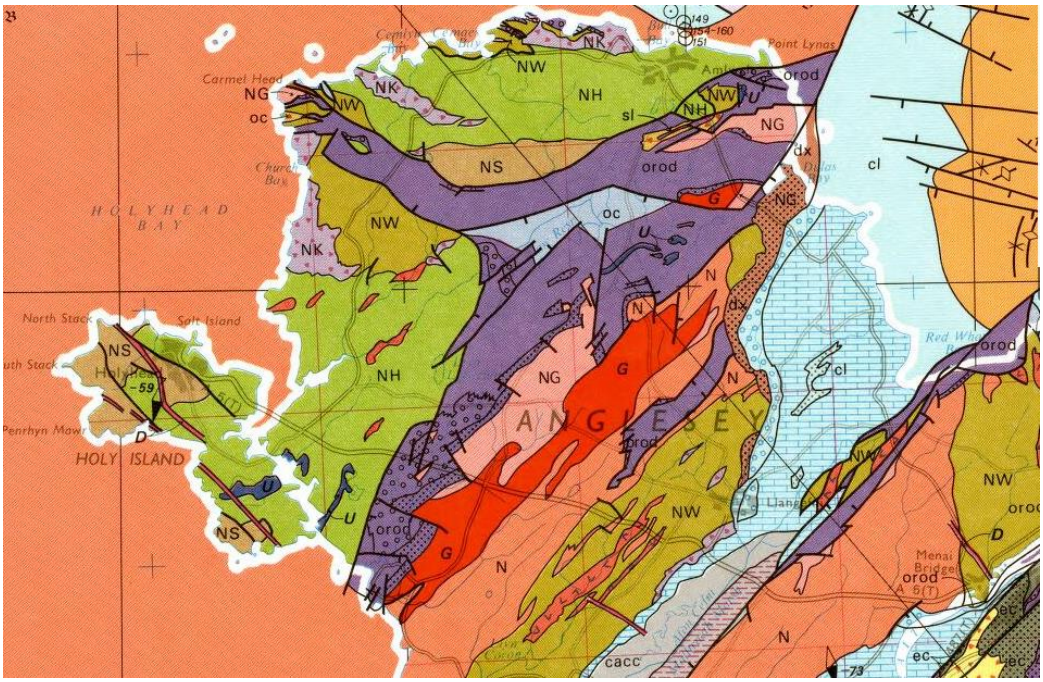


Figure 2. Map Showing Structure and Line of Section

[5] BGS (1982) Map Anglesey, Sheet 53° N-06° W, 1:250 000 Series – Solid Geology <https://largeimages.bgs.ac.uk/iip/mapsportal.html?id=1003731>

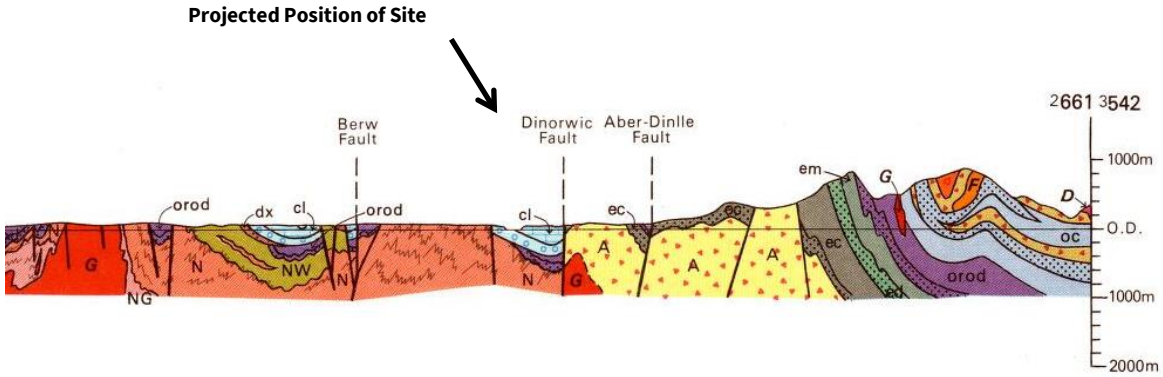


Figure 3. Cross Section

2.3 Superficial Regional Geology

The superficial deposits in the area comprise predominantly of Devensian till deposits and glaciofluvial sands and gravels with patches of Holocene fluvial alluvium. There is a lack of superficial deposits in the immediate vicinity of the site (Figure 4)

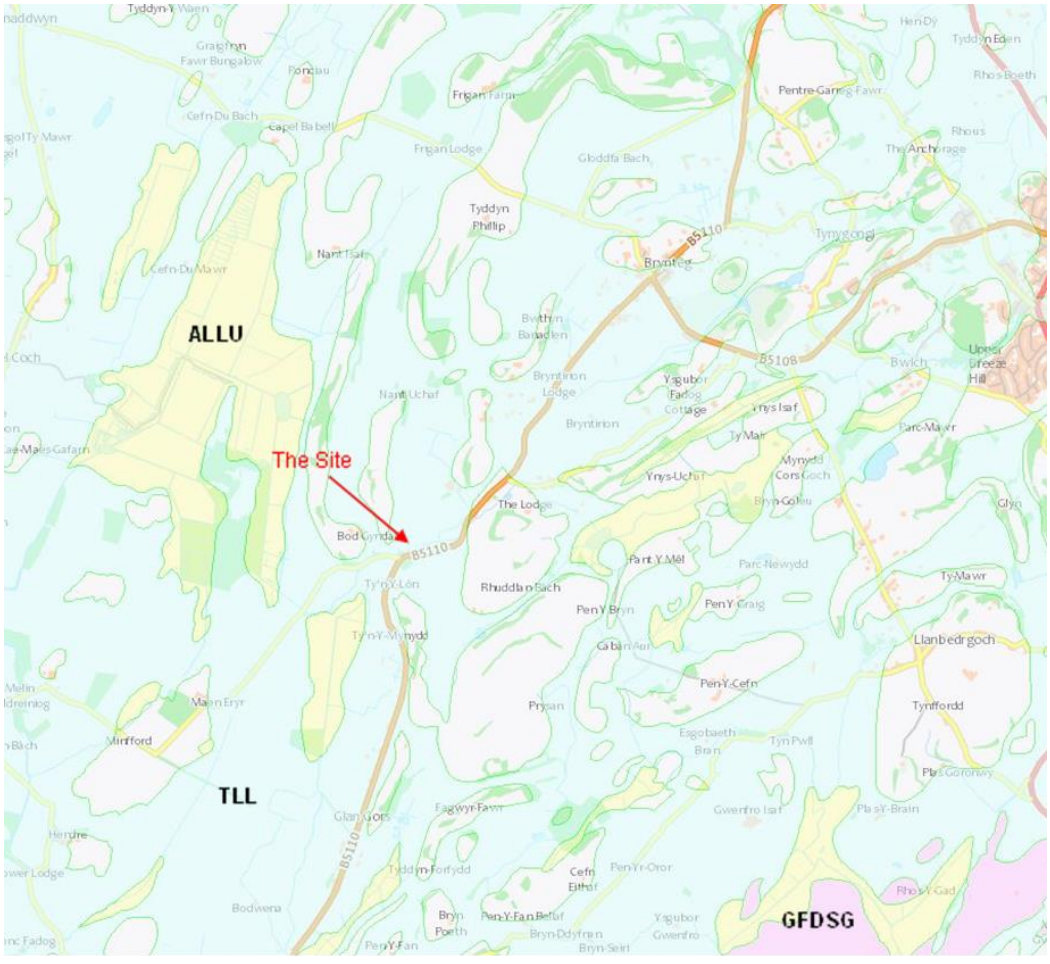


Figure 4 Superficial Geology of the Area

(ALLU-Alluvium, Clay, Silt, Sand and Gravel) (TLL- Devensian Till, Diamicton) (FDSG- Glaciofluvial Deposits, Sand and Gravel)

2.4 Local Geology

A BGS borehole log (BGS reference SH48SE1/C, viewed at BGS viewer - https://www.bgs.ac.uk/data/boreholescans/home.html) has been utilised to give an indication of the stratigraphy and lithologies expected.

This borehole log has been taken from 1.5km to the southeast of site. The borehole log indicates the top and bottom of the Lligwy Sandstone (underlying the Clwyd Limestone) at 276ft (84m) and 425ft (130m) respectively below ground level (circa 260ft). At an assumed ground datum of 260ft (79mAOD) then the base of the Clwyd Limestone (top of Lligwy Sandstone) would be circa -5mOD.

The borehole log is reproduced for reference in Appendix A. The log demonstrates an alternating sequence of limestones, mudstones, sandstones and shale which is in keeping with the literature.

2.5 Site Geology

Terraconsult supervised the installation of 2 gas (BH1S, BH2S) and 4 groundwater (BH2D-BH5D) boreholes within the site (reference 3276/R/11/01) in 2018.

The two gas boreholes were installed to the north and north east whereas the groundwater monitoring boreholes were located on the eastern and western boundaries as per drawing 3276/4/006 Rev A. The borehole logs can be found in Appendix B.

The borehole logs show the made ground at some locations on the western and southern areas of the quarry that range in thickness between 0.9m and 5.0m. The made ground includes quarry overburden and interburden and some imported fill materials.

The presence of superficial deposits comprising of clay and gravel was recorded at the most northerly section of the quarry (BH1S). Superficial deposits consisting of clay were also found in a thin package at BH4D to the south east of the site. At other locations they were absent.

There appears to be two distinct types of limestone underlying the site. The black limestone occurs in the northern section near BH1S of the site and occurs with a thickness of around 20.4m. The white limestone is present with a thickness of between 7.0 - 25.5m across the site. The mudstone band can also be observed in the northern quarry wall. Another mudstone can be found underneath the white limestone with an estimated thickness of 3.2m. From the assumptions made surrounding depths of strata in the prior section it is likely that only the Clwyd limestone group was encountered due depth of the boreholes drilled not being deep enough to intersect with the projected depth of the Lligwy sandstone.

The drilling of these boreholes confirmed the assumptions within the available literature which showed varying sequences of limestone and mudstone. According to the Robins & Davies (2015)[6] the main sequence of white limestone can occur in thicknesses of up to 500m.

2.6 Regional Hydrology

The main surface water features within the area are ponds (both on site and external), wetlands and drainage networks.

Regional surface water drainage appears to follow the structural lineament of the bedrock geology to the northeast of the site. This drainage of surface water can be seen draining in a north-easterly direction towards the coast (Figure 5).

Figure 5. Surface Water Drainage of Wider Area

The topography of the wider area (Figure 6) demonstrates a pattern of high elevations with lower valleys orientated in a north-east south-west direction. This topography reduces towards Benllech, to the north of Red Wharf Bay and to the southwest of Llanddyfnan and Llanbedroch. These elevated areas result in water flowing to the lower valley floors. In the case of the site this surface water flow appears to be directed towards the south or southwest where there is an

[6] Robins, N.S., & Davies (2015) Hydrogeology of Wales: Carboniferous aquifers - the Carboniferous Limestone aquifer, British Geological Survey. Contributor(s): D A Jones, Natural Resources Wales and G Farr, British Geological Survey 2015 – accessed at <http://earthwise.bgs.ac.uk/index.php/Hydrogeology_of_Wales:_Carboniferous_aquifers_-_the_Carboniferous_Limestone_aquifer>

existing surface water course.

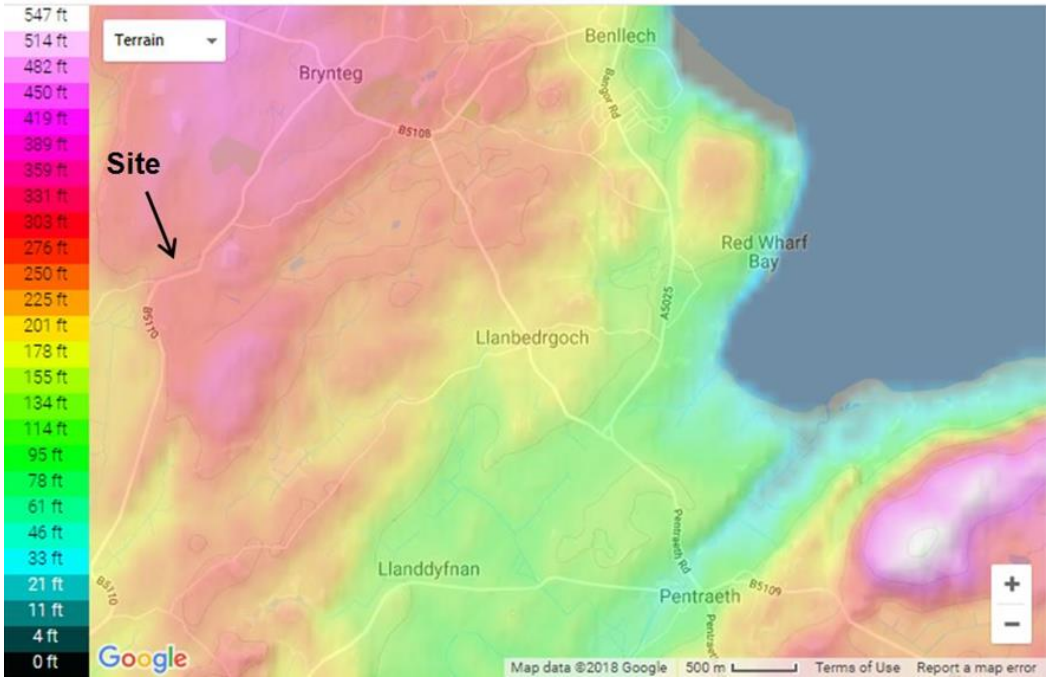


Figure 6. Topography of Wider Area

2.7 Regional Hydrogeology

The site is located within an area dominated by Devensian glacial till which is expected to be of low permeability. This appears to be confirmed by the BGS hydrogeological map (1977)[7] which does not detail any superficial aquifers within the area. Glacial Till is typically classified as "unproductive strata".

The Defra Magic map[8] classifies the bedrock geology (Carboniferous Limestone) as a Principal Aquifer (Figure 7).

The Carboniferous Limestone aquifers in North Wales are used for public and private supply. According to Robins & Davies (2015), the limestones are considered an important groundwater source and have high fracture permeability due to the well-developed joint and fracture system. Rapid solution of the limestone occurs mainly in the zone of active circulation which is in contact with the atmosphere, i.e. at the water table, or above the level of passages and caverns into which the phreatic water drains. Fossil karstic horizons, now submerged beneath the water table, may reflect past changes in base level.

As reported by Robins & Davies (2015), the Clwyd Limestone Group aquifer in is located in limestones that were deposited in faulted basins and have been extensively dolomitised and silicified. In the Clwyd limestone catchment, groundwater flow is mostly through faults, fractures

[7] BGS (1977) Hydrogeological map of England and Wales, 1: 625,000, Available at <http://www.largeimages.bgs.ac.uk/iip/hydromaps.html?id=england-wales.jp2>
[8] DEFRA (2019) https://magic.defra.gov.uk/magicmap.aspx

and karst features towards the north-east and discharges to the sea. Robins & McKenzie (2005)[9] highlighted that this groundwater flow can be inhibited by mudstone horizons.

Robins & Davies (2015) reported the groundwater quality from the limestone often being rich in Ca-HCO_3 with a smaller proportion of Mg, Cl and Na. The groundwater was described by Banks et al. (2008)[10] as having a neutral pH, nitrate in range of <25mg/l, Ca between 60-130mg/l and often being oxic in quality (>127mV).

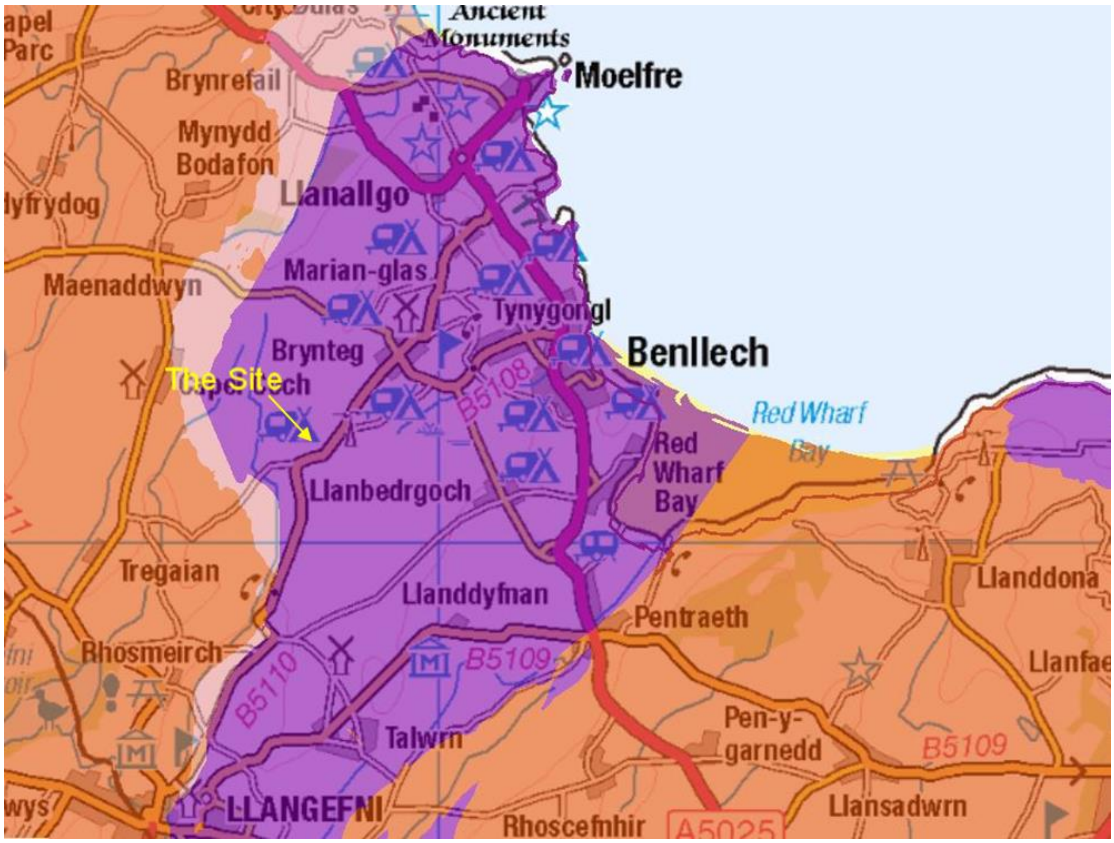


Figure 7 . Bedrock Aquifer within Vicinity of the Site

Robins & McKenzie (2005) reported the following characteristics of the wells and springs in the Anglesey area. The density of wells and springs in the Clwyd Limestone group across Anglesey are reported as 1.3km² and 1.6km² respectively. Yields are typically small with many springs being little more than minor seepages. The abundance of wells and springs in the Carboniferous Limestones are depicted on Figure 8.

Springs across Anglesey are dictated by the topography and the geology. This is evident to the northeast of Llangefni where the fissured carboniferous limestone results in groundwater being

[9] N.S. Robins & A.A. McKenzie (2005). Groundwater occurrence and the distribution of wells and springs in Precambrian and Palaeozoic rocks, NW Anglesey Quarterly Journal of Engineering Geology and Hydrogeology, 38, 83–88

[10] Banks,D., Boland, M., Farr, G. Inman, P., & Low, R. (2008) Groundwater Quality and Supply Survey for the Carboniferous Limestone, Anglesey, Environment Agency, Bristol, Technical Report

discharged into the Afon Cefni valley. These springs occur frequently in the Coedana complex, Coedana granite, and the Ordovician and central Anglesey shear zone.

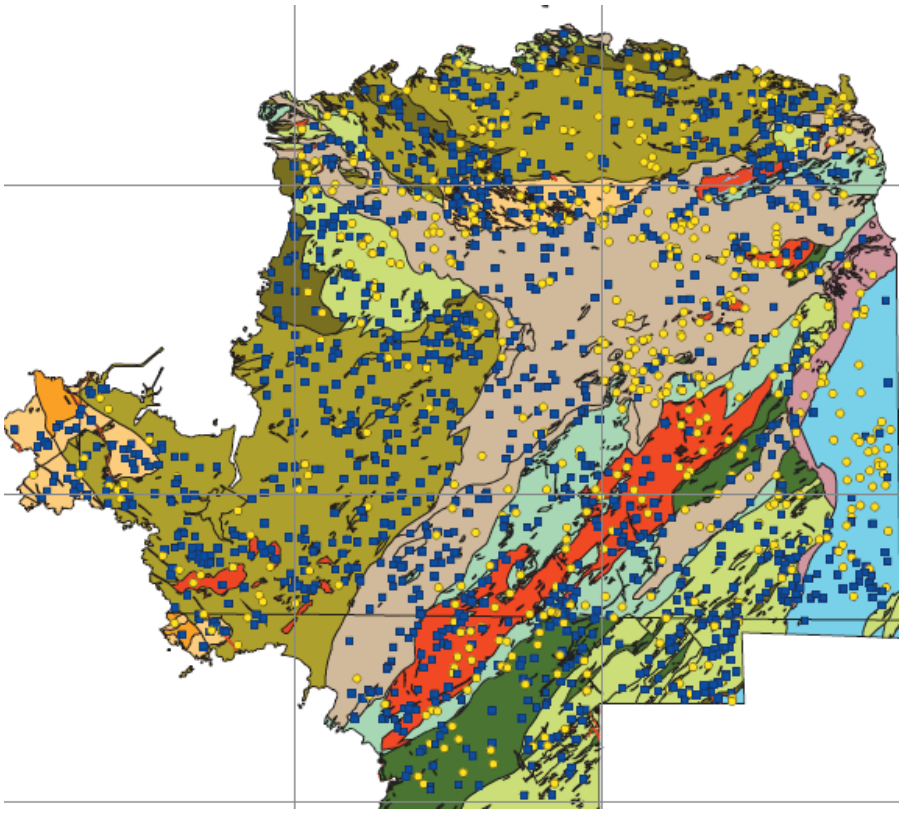


Figure 8. Distribution of Wells and Springs in NW Anglesey Robins & McKenzie (2005)

Test pumping at four different sites reported transmissivity values between 0.15-1.8m^2/d and gave yield of 1l/s.

Yields obtained from boreholes are highly variable within the region, with larger yields occurring where there is an intersection of water-filled fractures within an area of recharge. For example, at Llanbedrgoch [SH 493 803] a borehole was drilled into a mixed sedimentary sequence in Carboniferous strata to a depth of 65 m and yielded only 2.5 l/s over a two-hour pumping day. Prior to this, two other boreholes had been drilled at Llanbedrgoch with no trace of water found.

Robins & Davies (2015) reported that there were a number of shallow wells in the Devensian Till which helps illustrate perched water within moderately permeable horizons. Springs frequently occur at the base of the unconsolidated till where it overlies the bedrock. The alluvium is normally fine grained and not very permeable and the blown sand deposits are often well drained and unsaturated.

2.8 Site Hydrology / Hydrogeology

Both hydrological and hydrogeological aspects are detailed in this section as they are interlinked, surface water drains to form groundwater, groundwater discharges as spring lines to form surface water features.

The main surface water features within the vicinity of the site are the drains, ponds and a watercourse called Afon Clai.

The topography of the site shows the local topography orientated towards the south west resulting in the surface water draining from the site towards the south/southwest where there is a network of drains and a watercourse. This drainage network flows to the southwest towards the wetland at Cors Erddreiniog. The drainage network originates from a small pond north east of the site at approximately 92mAOD.

The Nant Newydd Quarry Working Plan dated 1996 stated that a stream on the eastern boundary of site had been reinstated to its original course on the southern boundary.

The 1994 survey of the site shows prior to being diverted along the southern boundary. The stream enters the site at approximately 84.5mAOD, 20m to the north of the entrance, and exits the site in the south west at an elevation given at 76.7mAOD. Currently the stream flows along the southern boundary, but remnants of flow are still evident along the alignment of the old stream bed. This flow currently enters the site's surface water management system which collects water resulting from precipitation and the groundwater seepage along the northern quarry wall.

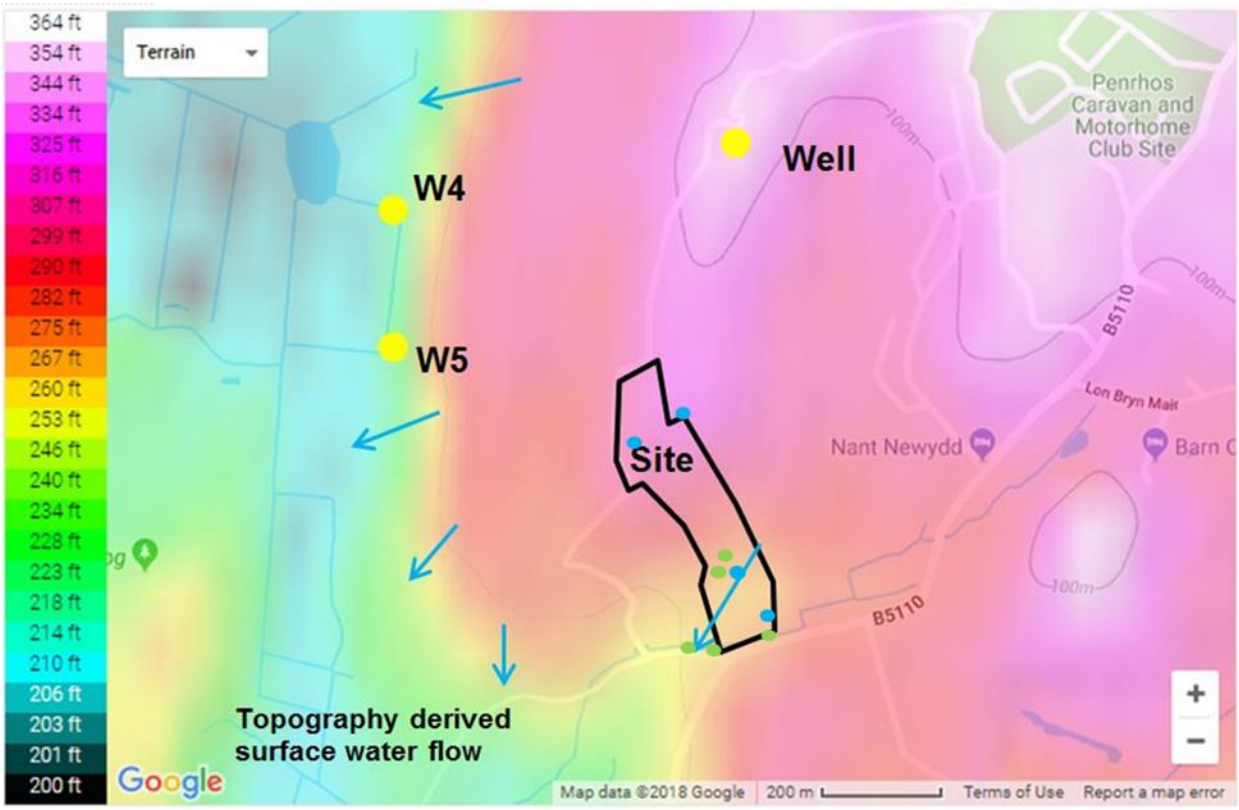


Figure 9. Local Topography and Monitoring Locations

All surface water within the quarry (standing water) either soaks away into the underlying geology or is channelled through the settlement ponds, discharged to the culvert and then the diverted stream. From the stream, the surface water eventually reaches the Cors Erddreiniog.

The northern quarry wall visibly shows signs of seepage of groundwater where there are bands of mudstone within the limestone. This seepage occurs at approximately 85-86mAOD.

The surface water percolates through the quarry strata (unsaturated zone) into the groundwater / water table which exits out of the natural topography in the area via the nearby spring lines (Figure 10). The majority of the springs exiting the lower scarp slopes to the west of the site are estimated to be at an elevation around 75mAOD similar to the contact between the Clwyd limestone and Lligwy sandstone as noted on the geological maps. All of the springs around the Cors Goch are contained within the Clwyd Limestone. These springs are potentially contributing groundwater to Llyn yr Wyth-Eidon and Cors Erddreiniog wetlands.

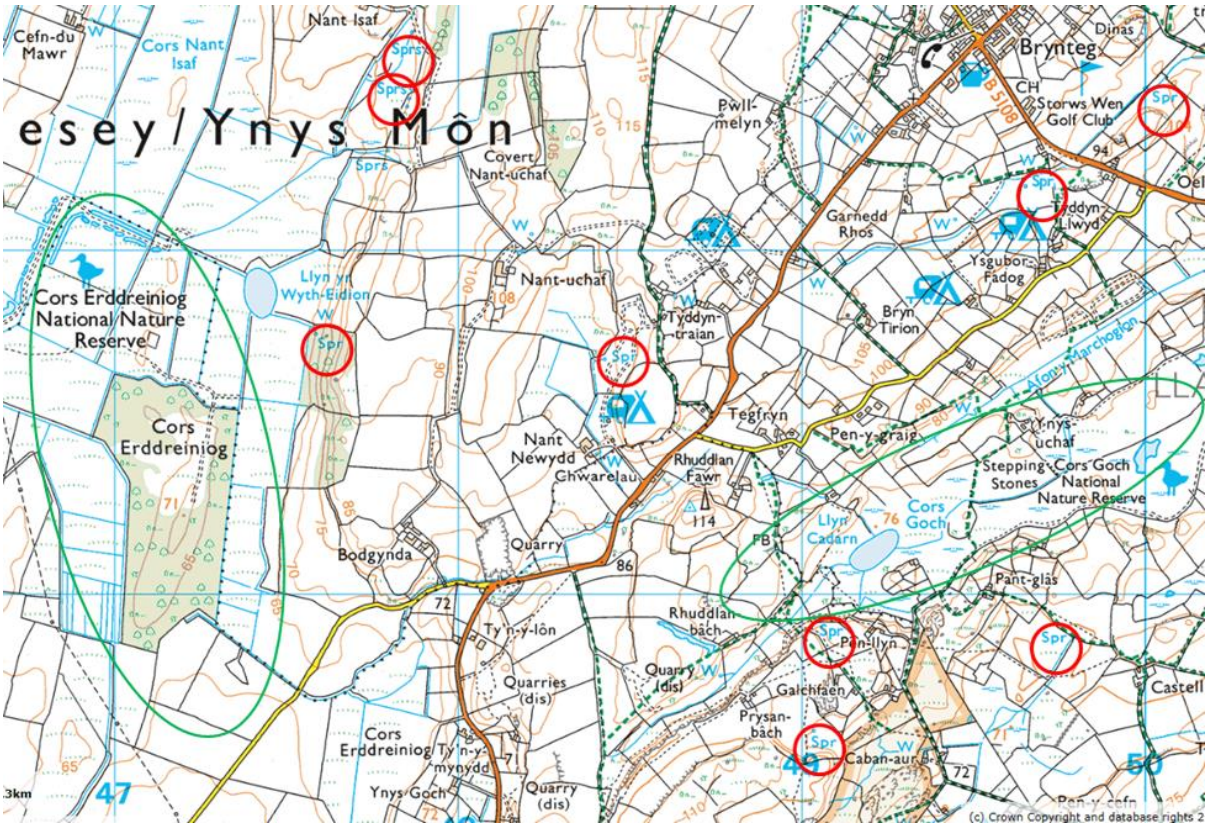


Figure 10. Location of Springs on OS mapping

According to Natural Resources Wales (2019a & 2019b)[11&12], Nant Newydd is not situated near a source protection zone or a nitrate vulnerable zone. It was reported by Natural Resources Wales (2019a) that it is not situated in a drinking water safeguard zone for either river catchments or lakes.

There are a four water wells at varying depths that have been recorded from the BGS Geoindex site. The closest of which is 1.3km to the south east of the site. In addition to this a number of water wells are noted within 750m of the site on the OS map. However, it is not known if any of

[11] Natural Resources Wales (2019a) Source Protection Zones (SPZ) Available At <https://lle.gov.wales/catalogue/item/SourceProtectionZonesSPZMerged/?lang=en>

[12] Natural Resources Wales (2019b) Water Watch Wales, Available At <https://waterwatchwales.naturalresourceswales.gov.uk/en/>

these water wells are for human consumption. NRW have confirmed that there are no abstraction licences (groundwater or surface water) within 2km of the site. It has not been possible to undertake a door knocking survey to confirm if private water supplies are used as potable supplies due to the ongoing COVID-19 situation.

It is apparent from the BGS map of the superficial deposits that only the higher elevations will be directly recharged by precipitation as the lower lying valleys are covered in superficial deposits of low permeability (glacial clays). The cover of the limestone with bentonitic clay palaeosols and localised red clay, reduces the infiltration of surface water into the limestone aquifer. According to Davies (1991)[13] the combination of both the low permeability superficial deposits and the clay rich palaeosols reduces infiltration to a minimum.

It should be noted that groundwater flow through faults, fractures (potentially karstic areas) and the joints system within the limestone can locally modify flow directions.

[13] Davies (1991) Karstification and pedogenesis on a late Dinantian carbonate platform, Anglesey, North Wales, Proceedings of the Yorkshire Geological Society, VOL. 48, PART 3, PP.297-321

3 Conceptualisation

3.1 Location of Receptors

Through the recent Site Investigations (SI) and a desk study it has been established that the main receptors are the surrounding surface watercourse (Afon Clai), the underlying groundwater and therefore potentially the protected habitats (Cors Erddreiniog and Llyn yr Wyth-Eidion). Cors Goch is not considered to be a receptor based on relative elevations between site and this location.

3.2 Geology and Hydrogeology – context

The site has been subject to detailed desk study that has allowed an understanding of the surrounding geological and hydrogeological regimes which form the conceptual understanding of the site. This has been proven by the installation of 4 monitoring boreholes to establish the depth of the unsaturated zone (see section 3.3).

Any standing water / surface water run-off that infiltrates the limestone, joins the water table below the base of the quarry (in the local vicinity to the quarry).

A report by Beamish and Farr (2013)[14] suggested that the Limestone is an important water supply to the surrounding wetlands. Beamish and Farr claimed their electrical conductivity data was capable of mapping the lateral extent of clay accumulations which can act as a confining layer to the limestone.

Beamish and Farr state that the Anglesey Fens (Special Area of Conservation or SAC) represent one of the most important wetland areas in Europe. In the area of Nant Newydd quarry they comprise of Cors Erddreiniog (their main study area) located to the west / southwest from site and Cors Goch located to the east. The report states that the wetlands hydrological functioning and specialist plant assemblages are reliant, to an extent, on the quality and quantity of groundwater. Calcareous and alkaline fens found within these wetlands that are reliant on the groundwater input from the carboniferous limestone are classed as groundwater dependent terrestrial ecosystems (GWDTE). However, it is not clear if the groundwater feeding these wetlands is an upward diffuse input or direct lateral input.

Within this research, a conceptual model was derived; this is reproduced as Figure 11

[14] Beamish, D. & Farr, G., (2013). Airborne geophysics: a novel approach to assist hydrogeological investigations at groundwater dependent wetlands. Quarterly Journal of Engineering Geology, 46, 53-62

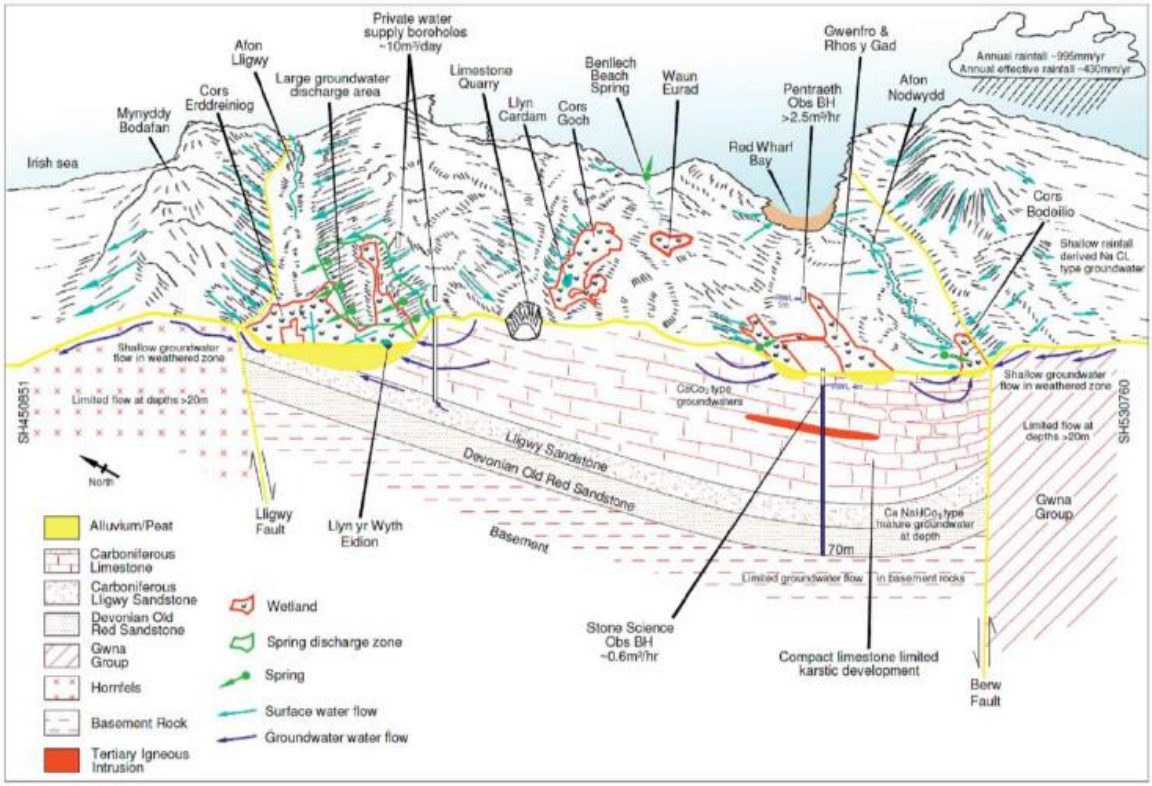


Figure 11. Conceptual model of the Anglesey Carboniferous Limestone (from Beamish and Farr, 2013

It is noted that the ground level of Cors Erddreiniog is at circa 60mAOD (below the base level of Nant Newydd Quarry) whereas Cors Goch is at 76mAOD (potentially at a similar elevation to the base of Nant Newydd Quarry), see Figure 10

The model suggests contribution of groundwater derived springs on scarp slopes (in addition to lateral input of groundwater) to the alluvium / peat dominated low lying areas. Cross referencing the location of Cors Erddreiniog and Cors Goch with the solid Geology (Figure 1) and Superficial Geology (Figure 4) indicates the former overlies the subcrop of the Red Sandstone Supergroup and Lligwy Sandstone whereas the latter overlies the Clwyd Limestone. This would imply that the underlying bedrock strata are not the controlling factor on the location of the GWDTE's.

There are abundant springs exiting at the lower scarp slopes in the area (Figure 10 & Figure 11) Those to the west of site, potentially contributing groundwater to Cors Erddreiniog are close to the basal contact between the Clwyd Limestone and Lligwy Sandstone at a level of circa 75mAOD. Those springs surrounding Cors Goch are exiting at various levels, all of which are contained within the Clwyd Limestone.

Three additional conceptual model sketches are shown below in Figure 12a), b) and c).

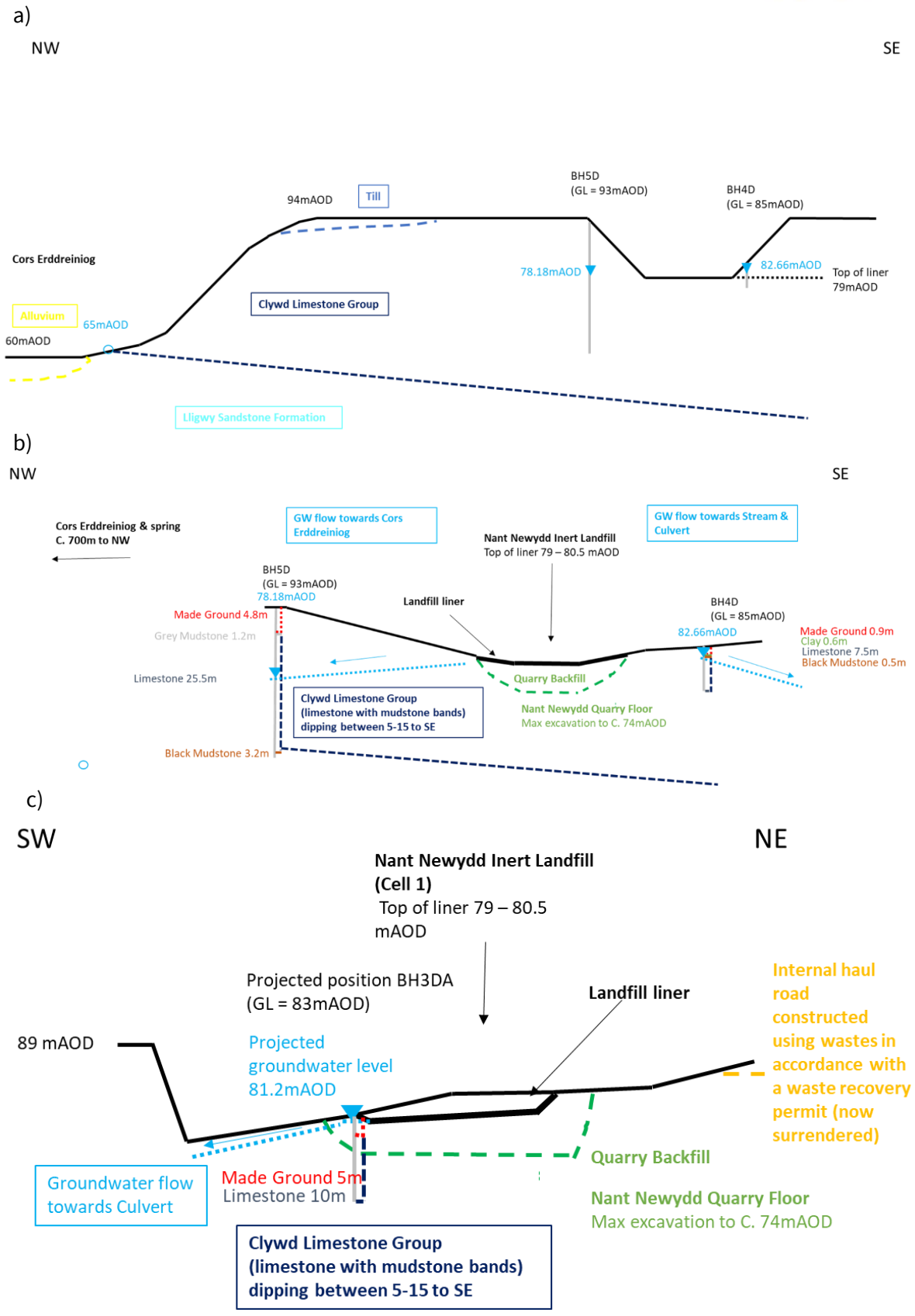


Figure 12. Schematic conceptual sections of the site detailing a) NW-SE through Cors Errdreiniog b) NW-SE section of the site c) SW-NE section of the site

Geological structure and lithology are well constrained, both locally and regionally.

There are no surface watercourses that cross the area of the quarry with the closest being located on the southern boundary of the site. On site, surface water is directed to the surface water management ponds and culvert (approximately 77mAOD) located towards the access to the quarry.

3.3 Groundwater Level and Flow

Four groundwater monitoring boreholes (BH2D, BH3DA, BH4D and BH5D) are monitored monthly. Groundwater flow within the quarry appears to flow northwest (in the north) and towards the southeast (southern part of the site) within the summer months (Figure 13 & Figure 15). However, this pattern appears to effectively reverse and flow direction can be perceived as being towards the southeast during periods of high rainfall in the winter months. Time series data indicating the increase in water levels at boreholes 2D and 5D are provided in Figure 13.

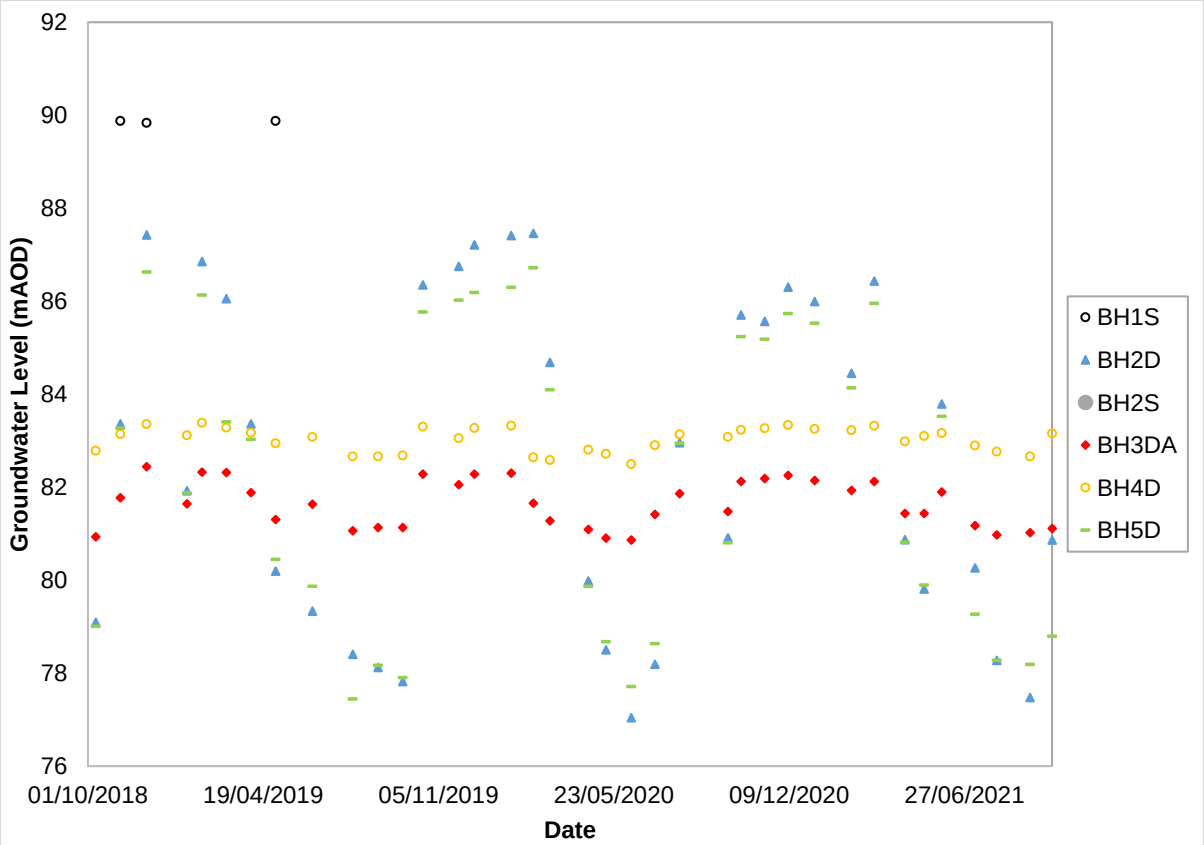


Figure 13. Groundwater level October 2018 – October 2021

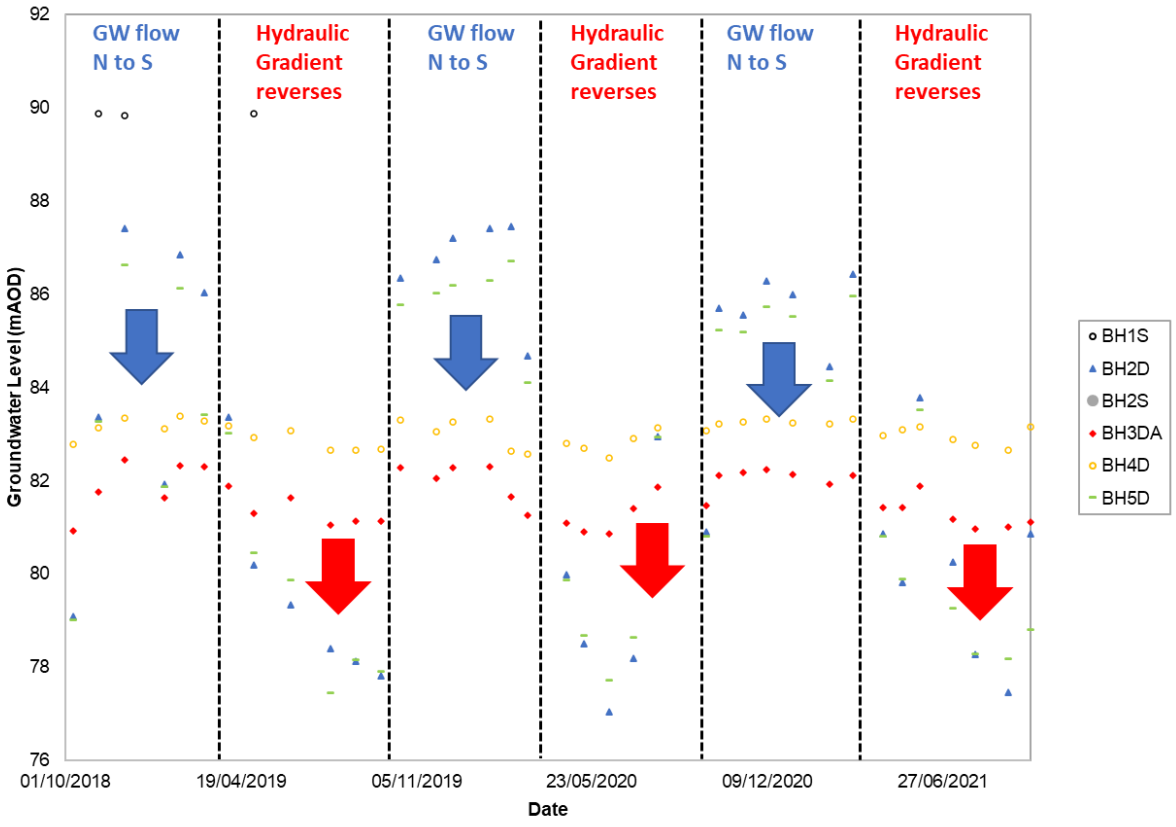


Figure 14. Annotated groundwater levels showing the reverse in hydraulic gradient

A brief summary of the statistics for groundwater level can be seen in Table 1 and a full summary of the data appended to the back of this report.

Table 1. Groundwater Level (mAOD) Statistics October 2018 – October 2021

	BH1S	BH2D	BH2S	BH3DA	BH4D	BH5D
Max	89.87	87.46	Dry	82.44	83.38	86.71
Average	89.86	82.57		81.64	83.02	82.20
Min	89.83	77.04		80.86	82.49	77.44

BH1S is frequently dry and is above the elevation of the seepages noted on the northern quarry wall (85mAOD to 86mAOD). For this reason, the water level data has been disregarded. BH2S was dry for the entirety of the review period.

The direction of the summer groundwater flow in the north of the site is consistent with the location of the springs to the north/north west of the site which contribute in providing water to the wetlands to the west of the site.

Fractured groundwater flow systems are complex and it can be difficult to deduce groundwater flow directions from groundwater level contours.[15] Determination of detailed flow direction at the site would require additional testing such as tracer tests. From the information available, the high rainfall events in the winter months cause an apparent reversal of the hydraulic flow. It is conceptualised that these high rainfall events fill the fracture network locally, and drainage through the rock mass is inhibited resulting in a higher head measured at the boreholes.

The stream to the south of the site crosses the southeast corner of the site at approximately 82mAOD and 76.5mAOD to the southwest of the site (based on OS map). BH4D has an approximate ground level of 85mAOD with groundwater ranging between 82.5mAOD to 83.4mAOD. The elevation of the stream to the south of the site may act as a control on the groundwater elevation of BH4D which appears to exhibit less seasonal fluctuation than BH3DA.

During the majority of the summer, groundwater flow (excluding high rainfall months of winter) from the north of the site (BH2D and BH5D) is towards the northwest and Cors Erddreiniog SSSI. The groundwater flow towards the northwest has been illustrated above as SSSI is a potential sensitive receptor. The southern section of the site appears to flow towards the ponds and culvert to the south of the site during the summer months. It is conceptualised that the culvert is acting as a drain, drawing groundwater towards it and the stream. There is likely some hydraulic connection between BH4D and the stream. The stream drains towards Cors Erddreiniog to the west of the site. The groundwater regime at the site appears to reverse twice a year evenly according to season. The groundwater flow in the winter months appears to be to the south west of the site towards the culvert. The groundwater boreholes have therefore not been classified as down-gradient or upgradient. However, it is proposed to discount BH3DA and BH4D as compliance boreholes as the existing groundwater levels are higher and up-gradient (80.86mAOD to 83.38mAOD) than the base of the landfill (between 79mAOD and 80.5mAOD). It is considered improbable that BH3DA and BH4D will be impacted by the landfill. Groundwater quality and trends are discussed further in section 3.4. Compliance limits have therefore been set for the remaining groundwater boreholes at the site (section 3.5)

The local groundwater flow direction in the northern section of the site appears to be towards the north-west (excluding the high rainfall months) based on the groundwater level data. The estimated range in the unsaturated ground beneath the quarry is approximately 2-21m (based on ground elevation and minimum groundwater elevation). The maximum unsaturated zone beneath the base of the landfill (80mAOD) is estimated to be minimal as a result of the surface water flow within the quarry.

[15] Brassington R (2017) *Field Hydrogeology*, Fourth Edition, John Wiley & Sons Ltd, Oxford

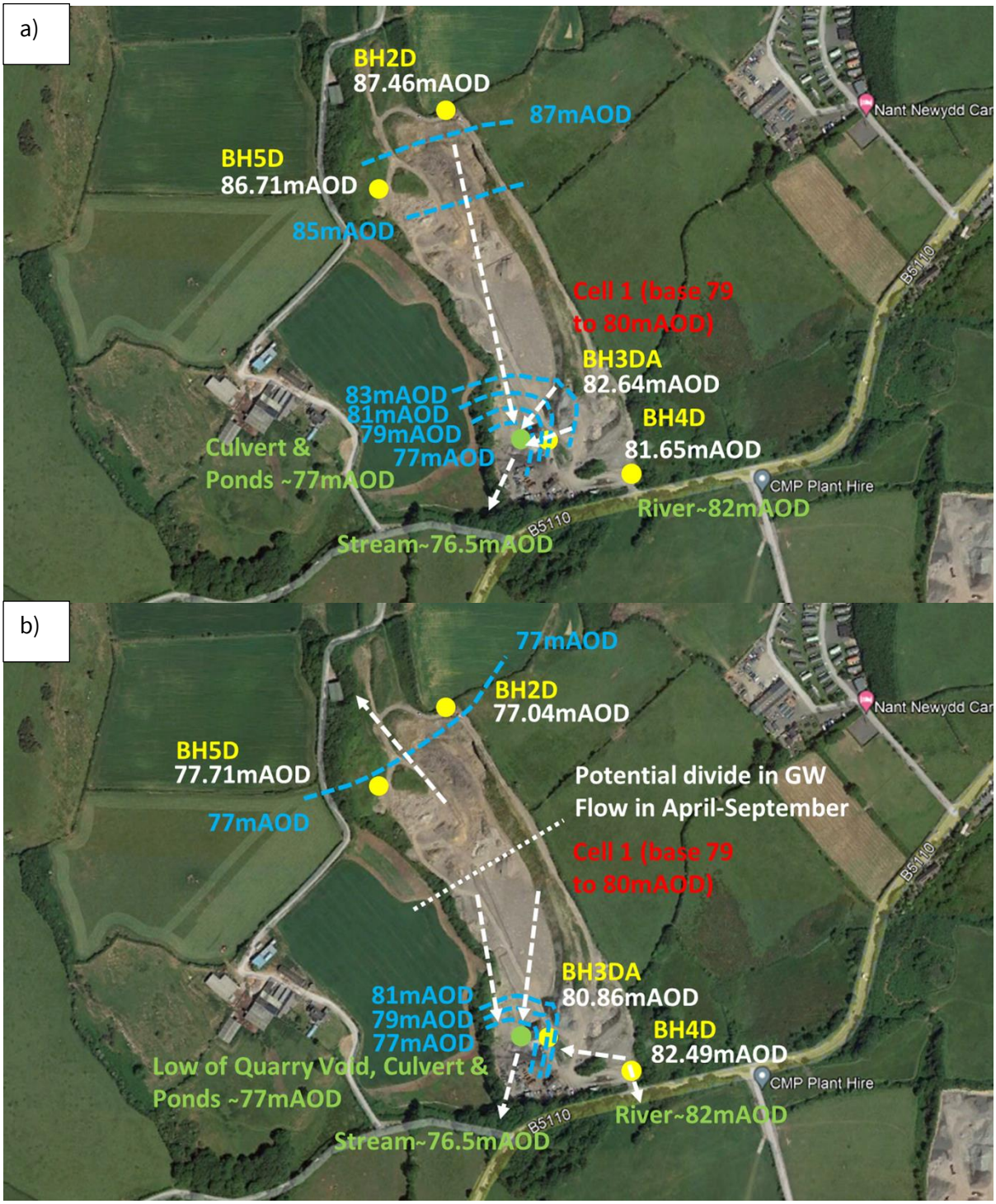


Figure 15. Inferred Groundwater Flow Direction a)February 2020 b)June 2020

3.4 Groundwater Quality

Monitoring has been undertaken at the locations detailed in drawing ref 3276/4/006 Rev A. The Environmental Permit (RP3337SE/V003) is regulated by Natural Resources Wales (NRW) and imposes compliance limits for groundwater quality. Monitoring data would suggest that the site operations are not having an impact on the groundwater.

3.4.1 Compliance Substances

Table 2 below contains a summary of the compliance substances for groundwater. A full summary of groundwater data and graphs of the key substances are appended in Appendix C.

Table 2. Summary of Groundwater Compliance Substances

Location		NH4 (mg/l)	Cl (mg/l)	SO4 (mg/l)	Cd (µg/l)	Ni (µg/l)	Zn (µg/l)	MTBE (µg/l)	TPH mg/l	PAH (Total) (µg/l)
Permit Limit		0.39	15.1	18.09	0.1	20	130.5	10	0.01	0.1
BH2D	Max	0.30	40	200	0.07	5	16	5	0.12	0.21
	Ave	0.05	29	64	0.02	0.8	5.7	2.9	0.02	0.09
BH3DA	Max	0.30	29	37	0.10	5	56	5	0.15	0.13
	Ave	0.08	25	33	0.02	0.9	7.0	2.9	0.03	0.08
BH4D	Max	0.50	61	81	0.08	15	70	5	0.18	0.21
	Ave	0.22	42	38	0.03	7.4	6.4	2.9	0.04	0.08
BH5D	Max	0.12	50	590	0.06	9	37	11	0.22	0.08
	Ave	0.03	34	206	0.02	1.9	5.8	3.4	0.05	0.07

Note: Shaded cells correspond to a value higher than the permit limits (this has occurred up and down-hydraulic gradient of the site). The following outliers have been visually excluded: NH4 0.4mg/l for BH5D & 1mg/l for BH2D; Cd 0.34µg/l,0.31µg/l, 0.31µg/l, 0.31µg/l, 0.29µg/l; Cl 68mg/l & 137mg/l ; Zn 290µg/l & 221ug/l and 150µg/l; TPH 0.35mg/l; and PAH 0.6µg/l. All PAH from 05/10/2021 excluded as it is considered likely lab contamination occurred as elevated in all monitoring points. Please note <LOD have been divided by 2.

Groundwater quality concentrations of ammoniacal-nitrogen are generally less than the permit limit of 0.39 mg/l with the exception of at BH4D. Chloride concentrations within the groundwater are below the DWS for chloride 250mg/l[16] but are frequently above the permit limit of 15.1 mg/l. It is proposed to revise the compliance limit for chloride due to the frequent exceedances due to likely background concentrations. Chloride concentrations for all boreholes are typically less than 61mg/l (Table 2).

Sulphate concentrations are continuously above the permit limit for all locations. Both chloride and sulphate had background concentrations exceeding the permit limit prior to the operation of the site as a landfill as previously reported in 2018 data review by TerraConsult[17].

[16] https://cdn.dwi.gov.uk/wp-content/uploads/2020/09/23151708/standards-V3.pdf

[17] TerraConsult (2018) 2018 Data Review, Nant Newydd Landfill Site, Report referenced 3276/R/013/01

Calcium is typically greater in concentration than the matrix ions magnesium, sodium and potassium in addition to chloride.

The BH5D data indicates a greater concentration of sodium and sulphate than the other boreholes (historically exceeding the DWS concentration for sulphate 250mg/l[18] and on one occasion for DWS for sodium 200mg/l[16]). Sulphate concentrations at BH5D demonstrate an overall declining trend with slight increases during the winter months (Figure 16).BH2D exhibits a similar increase in sulphate concentrations during the winter months (i.e. periods between February and April 2020 and between December 2020 and January 2021 with concentrations increase between 85mg/l to 125g/l) when it is hydraulically upgradient. BH3DA exhibits fairly constant concentrations of sulphate and BH4D tends to fluctuate throughout with no clear discernible pattern. Alkalinity concentrations at BH5D are similar to the concentrations recorded at BH2D and BH3D. BH4D has considerably higher concentrations of alkalinity than the remaining boreholes.

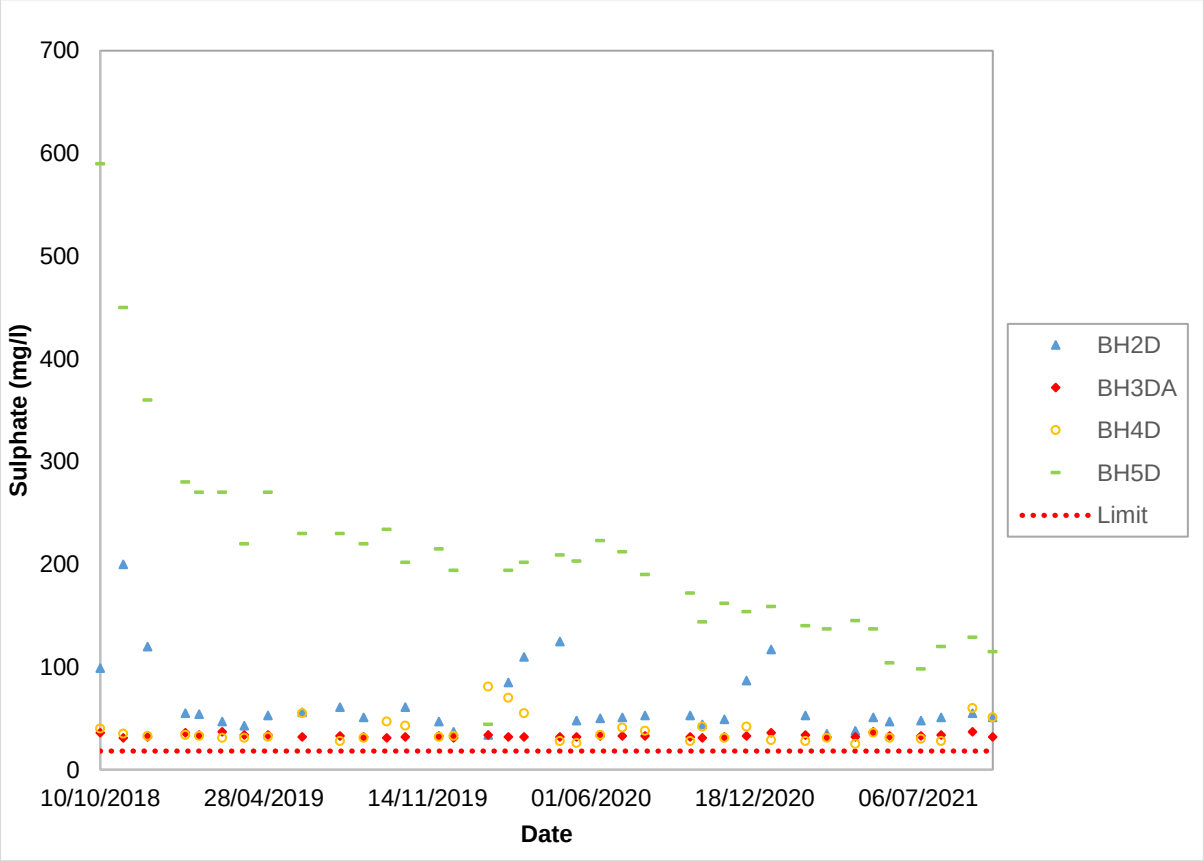


Figure 16. Sulphate concentrations in Groundwater

MTBE has only been detected just above the laboratory limit of detection on one occasion in at BH5D in October 2020.

TPH has exceeded the permit limit since January 2019 however, current concentrations are at or just above the compliance limit (Figure 17). However, pre-operational concentrations at the site in October 2018 were also above the compliance limit. There are no clear similar trends exhibited in

[18] http://dwi.defra.gov.uk/private-water-supply/local-auth/parameters.html

the key leachate indicator substances such as chloride or ammoniacal nitrogen. A new UKAS accredited laboratory was instructed in September 2019 to analyse the data which corresponded with a decrease in recorded concentrations of TPH, most likely attributable to differing analytical techniques. It is proposed to discount mineral oil (and TPH) as a compliance substance due to elevated concentrations detected in the pre-operational background data. A comparison of TPH concentrations in groundwater versus groundwater flow direction have been highlighted in Table 3 below. Overall, the data would indicate a potential external source that may be influencing the concentrations of TPH. TPH is much more likely to have originated from other sources other than the deposited waste such as the B5110 road immediately adjacent to the site entrance (and BH4D; agricultural source immediately to the north of the site; and old surrendered waste deposits at the site that were utilised in the construction of the haul road. It is therefore proposed that TPH be discounted as a compliance substance based on the review in table 3 below.

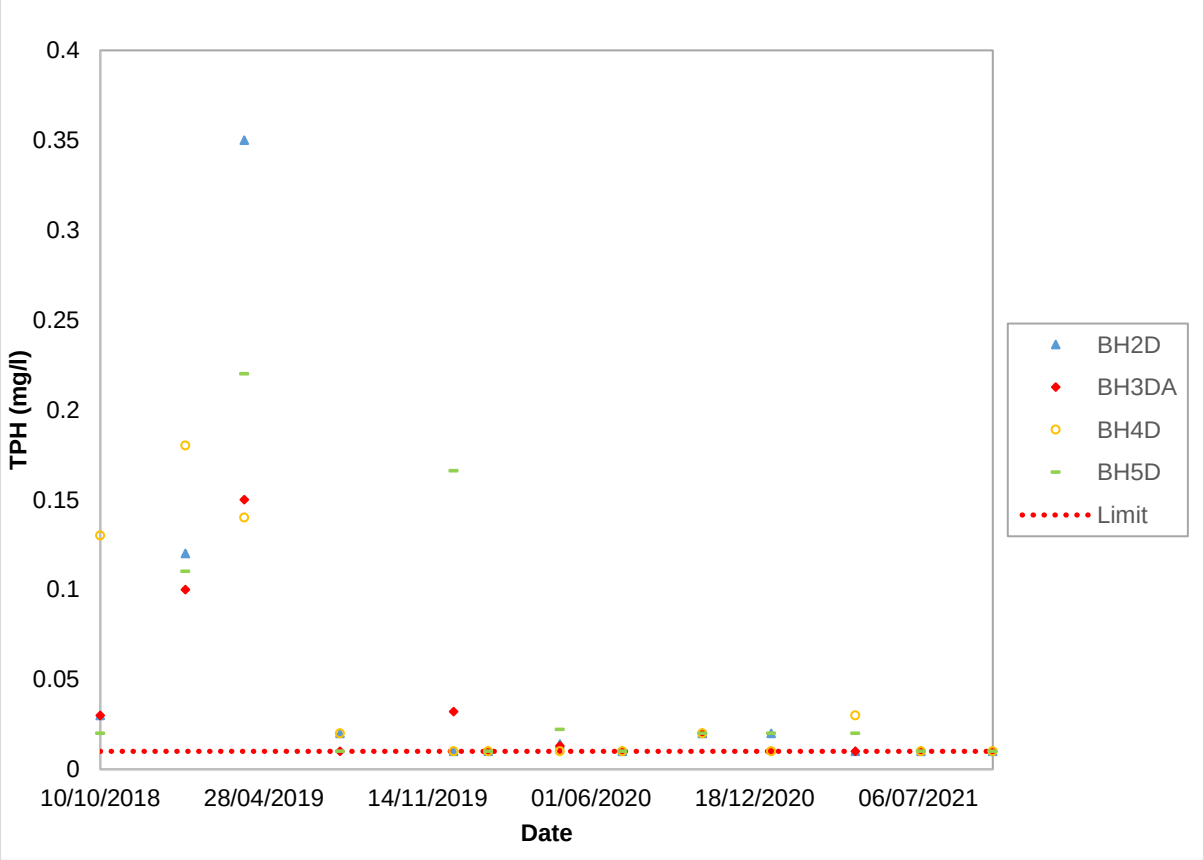


Figure 17. TPH concentrations in groundwater

Table 3. Comparison of TPH above compliance limit versus groundwater flow

Date	Location and TPH concentration (above compliance limit)	Groundwater Flow Direction	Conclusion	Comments
October 2018	BH2D – 0.03 mg/l BH3DA - 0.03 mg/l BH4D - 0.13 mg/l BH5D – 0.02 mg/l	Flow direction not clear. GW direction from BH4D & BH3DA towards the culvert. GW flow to NW for BH2D & BH5D.	TPH elevated at all locations and up hydraulic gradient	Note: boreholes installed in July 2018 and groundwater levels likely to be stabilising/recovering. Lab issue detailed in text. Potential external source indicated
January 2019	BH2D – 0.12 mg/l BH3DA - 0.1 mg/l BH4D - 0.18 mg/l BH5D – 0.11 mg/l	Flow direction unclear. BH4D & BH3DA up hydraulic gradient of base of landfill.	Highest concentration at up-gradient location. Elevated at all locations.	Note: boreholes installed in July 2018 and groundwater levels likely to be stabilising/recovering. Lab issue detailed in text. Potential external source indicated.
April 2019	BH2D – 0.35 mg/l BH3DA - 0.15 mg/l BH4D - 0.14 mg/l BH5D – 0.22 mg/l	Flow direction unclear, BH4D & BH3DA elevated groundwater level in comparison to base of cell. BH5D and BH2D up hydraulic gradient flowing towards NW though potentially input from groundwater in vicinity of site.	Highest concentration at BH2D	Note: boreholes installed in July 2018 and groundwater levels likely to be stabilising/recovering. Lab issue detailed in text. Potential external source indicated. Background concentrations within vicinity of site indicated by concentration at BH3DA & BH4D. Elevated source at BH2D not clear.
July 2019	BH2D – 0.02 mg/l BH3DA - <0.01 mg/l BH4D - 0.02 mg/l BH5D – 0.01 mg/l	Flow direction from BH4D/BH3DA to culvert and to NW from BH5D/BH2D	TPH elevated both all locations	External source indicated. Note background concentrations.
December 2019	BH2D – <0.01 mg/l BH3DA - 0.032 mg/l BH4D - <0.01 mg/l BH5D – 0.166 mg/l	Flow direction from BH2D/BH5D towards south	TPH elevated up gradient of landfill	External source indicated

Date	Location and TPH concentration (above compliance limit)	Groundwater Flow Direction	Conclusion	Comments
April 2020	BH2D – 0.014 mg/l BH3DA - 0.013 mg/l BH4D - 0.01 mg/l BH5D – 0.022 mg/l	Flow from BH3DA/BH4D towards culvert. Flow from BH2D/BH5D to NW	TPH elevated all locations.	Background concentrations/ external source indicated.
October 2020	BH2D – 0.02 mg/l BH3DA - 0.02 mg/l BH4D - 0.02 mg/l BH5D – 0.02 mg/l	Flow from BH2D/BH5D towards south	TPH elevated up and down gradient of the site	External source indicated
January 2021	BH2D – 0.02 mg/l BH3DA - <0.01 mg/l BH4D - <0.01 mg/l BH5D – 0.02 mg/l	Flow from BH2D/BH5D towards south	TPH elevated up-gradient of the site	External source indicated
April 2021	BH2D – 0.01 mg/l BH3DA - 0.01 mg/l BH4D - 0.03 mg/l BH5D – 0.02 mg/	Flow from BH3DA/BH4D towards culvert. Flow to NW from BH2D/BH5D	TPH elevated across site. Highest concentration at BH4D (up-gradient) of landfill	External source indicated

PAH has been recorded on a number of occasions above the permit limit. However, this substance was also detected in background concentrations above the permit limit. It does not appear to show a spatial variation with a clear trend (Appendix C). The recent data from October 2019 onwards shows a total concentration of <0.16µg/l plotted for all points with the majority of the speciated PAH <0.01µg/l. Therefore, it can be deduced that the lab methodology gives an elevated representation of the PAH. Outliers detected just above the compliance limit were identified in the data from the 05/10/2021 as PAH was detected at all locations across the site indicating potential contamination at the lab.

3.4.2 Metal Concentrations

Variable but low concentrations of metals have been detected within the groundwater samples. Analysis of both lead and chromium were below the limit of detection. The majority of the substances are below the DWS with the exception of manganese, iron and aluminium. Manganese concentration varies between 3 - 550µg/l. The boreholes which exceed these substances are located across the site and therefore cannot be attributed to the quarry operations. Iron and aluminium concentrations are mostly below their relevant DWS with one exception each.

BH4D has the highest concentration of iron as well as manganese, suggesting that this boreholes is under redox conditions.

3.4.3 Hazardous Substances Screen

The annual hazardous screen in groundwater detected PAH, diazinon, arsenic, mercury, selenium, MTBE, TPH and fluoride between October 2018 to June 2021 (Appendix D). However, mercury was only detected once above the laboratory limit of detection and that was prior to the placement of waste in October 2018. MTBE has only been detected once above the laboratory limit of detection in October 2020 and has not been detected again since. Arsenic was below both the MRV and DWS throughout the review period. Selenium had high background concentrations detected in October 2018 (100µg/l and 22µg/l) which has only had one exceedance of the DWS of 10µg/l in April 2020. The pesticide concentrations do not exceed the DWS of 0.1µg/l[16] on any one occasion. A number of hydrocarbons, chlorinated hydrocarbons, BTEX, esters, organic acids were identified in the additional SVOC analysis (Appendix C). However, this has only been carried on one occasion and therefore it is not certain how representative this data is. The additional SVOC analysis can be seen in the full summary of data.

Phenol concentrations within the groundwater were all less than the laboratory limit of detection.

Revised compliance limits are proposed in section 3.5 in accordance with the requirements of Improvement Condition 1.3.2.

3.5 Improvement Condition 1.3.2

Groundwater compliance limits were proposed in TerraConsult report referenced 3276/R/001/01[19] for BH3DA and BH5D based on the concentrations of BH4D. However, the groundwater section of the report was not approved by NRW. Therefore, it is assumed that the original permit limits still apply.

TerraConsult report 3276/R/013/01 (2018 Annual review) carried out a review of the background monitoring data for the site prior to the commencement of landfilling operations in January 2019. The data review carried out in Section 4 details the site conditions over the 2018 to 2021 period. This information will be used to justify the reference locations used to establish background conditions, the proposed compliance substances and the compliance points.

3.5.1 Reference Data

All available groundwater data collected by TerraConsult to date will be used for the revision of the action levels and compliance limits. Section 2.8 above states that groundwater in the limestone beneath the site is likely via fracture flow, joins and faults. The hydraulic gradient at the site appears to reverse during winter months as has been described in section 3.3. Therefore, it is not possible to ascertain a downgradient groundwater monitoring point as a compliance point. Data from all boreholes has been utilised, outliers visually excluded to indicate the maximum concentration for each substance.

[19] TerraConsult (2018) Environmental Monitoring Plan, Nant Newydd Landfill site, report referenced 3276/R/001/01

The groundwater monitoring points are detailed on the monitoring plan referenced 3276/4/006 Rev A. Table 2 above summarises the compliance limits associated with the site groundwater respectively.

3.5.2 Compliance Substances

It was proposed to discount BH3DA and BH4D as compliance boreholes as they have higher groundwater levels than those at the base of the site and are therefore considered to up-gradient of the landfill currently.

It is proposed to discount sulphate as a compliance substance at BH5D as concentrations in the groundwater are evidently higher than the worst-case scenario for an inert landfill site (i.e. 1000mg/kg or 100mg/l in leachate). However, limits have been proposed for sulphate concentrations at BH2D based on the Annex J3 method and the DWS of 250mg/l as a compliance limit with an action limit of 225mg/l. . It should be noted that high levels in the background data could also be detected at other locations too as a result of the elevated concentrations detected at BH5D.

Mineral oil is also proposed to be discounted as a compliance substance due to a lack of a discernible spatial relationship for it at the site and its lack of mobility within groundwater. However, it is proposed that it is still incorporated as part of the monitoring schedule.

MTBE is also proposed to be discounted as a compliance substance as there is not an inert WAC limit for MTBE and therefore it is difficult to ascertain a worst-case scenario for MTBE at an inert landfill. Additionally, it has only ever been detected on one occasion just above the laboratory limit of detection since the commencement of monitoring.

The compliance limit for chloride has consistently been exceeded even prior to site operations. It is not considered appropriate to follow the Annex J3 method in this case due to difference between the DWS (250mg/l) and the Tmax (61mg/l). Therefore, it is proposed that this limit will be revised for an action level of 60 mg/l and a compliance limit of 65 mg/l.

The compliance limit for ammoniacal nitrogen has been breached by BH4D on six occasions during winter months. The increase in concentrations of ammoniacal-nitrogen does not coincide with an increase in chloride or have a correlating trend exhibited in sulphate. It should be noted that made ground is present at BH4D which is discussed more in section 2.5 and 5.3. Additionally, immediately adjacent to BH4D there is marsh land which could likely be the source of the elevated ammoniacal-nitrogen and methane due to the presence of decomposing organic material. It is proposed that due to the presence of ammoniacal nitrogen and elevated methane (discussed later in Section 5.2) within this borehole, that there should not be a compliance limit for ammoniacal-nitrogen at BH4D due to the likely influence by other sources. BH4D should still be monitored for ammoniacal-nitrogen for reference purposes only. With two exceptions which appear to be outliers, concentrations of ammoniacal-nitrogen in the remaining boreholes are below the current compliance limit.

The compliance limits for nickel and zinc have been deemed appropriate and are proposed to remain the same. The compliance limit for cadmium is proposed to be removed as the majority of concentrations recorded across the site are below the current limit and DWS. Nickel and zinc also fulfil the role of non-hazardous metal indicator species. Cadmium is no longer classified as hazardous according to JAGTAG[20]. It is proposed to replace cadmium with arsenic as a hazardous metal and the compliance limit for arsenic set at the MRV i.e. 5µg/l[21].

The compliance limit for PAH is based on the total concentration of 16 PAH species. Total PAH concentrations in groundwater have been recorded above the assigned limit prior to the operation of the site as a landfill. This is because the laboratory reporting limit for Total PAH is greater than the current compliance limit. It is proposed to remove PAH as a compliance substance for all boreholes as there are no spatial variations evident from the data that correspond to changes in the groundwater flow regime. It is also proposed that PAH will still be monitored as part of the environmental monitoring regime

The proposed compliance limits and control levels have been proposed based on the following methodology in the now withdrawn H1 Annex J3: hazardous substances have had compliance limits set at the MRV; and non-hazardous substances have compliance limits set at the EAL (DWS)/pre-existing limit.

Non-hazardous pollutant control levels have been set halfway between the compliance limit and maximum concentrations.

Table 4. Proposed Compliance Substances, Compliance Limits and Control Levels for Groundwater

Proposed Compliance Substances						
Location		**Cl**	**Ni**	**Zn**	**As**	**NH4***
		mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**
BH2D BH5D	Compliance Limit	65	0.02	0.13	0.005	0.39
	Control Level	60	0.015	0.08	n/a	0.3
	Max Concentration (at BH2D & BH5D)	50	0.009	0.037	0.0042	0.3

[20] http://wfduk.org/resources/groundwater-hazardous-substances-standards
[21] http://wfduk.org/sites/default/files/Media/UKTAG_Technical%20report_GW_Haz-Subs_ForWebfinal.pdf

Table 5. Proposed Sulphate Compliance Limits and Control Levels for Groundwater

	BH2D
Compliance Limit mg/l	250
Control Level mg/l	225
Max Concentration mg/l	200

4 Surface Water Quality

4.1 Overview

A surface water management plan has been submitted and approved by NRW, the associated monitoring regime is regulated by the environmental permit which imposes quality limits at the point of discharge from the site. Monthly monitoring has been undertaken since the adoption of the surface water management plan in 2018. The surface water quality data has indicated no discernible detrimental impact from site on surface water quality.

As of October 2018, surface water quality was monitored at four locations: SW1, SW2a, SW2b and SW3. Monitoring at SW4 commenced in January 2019. SW1 and SW3 are off-site monitoring points located in the small brook that flows along the southern site boundary. SW1 is upstream (east) of the site and SW3 is downstream (west). SW2a and SW2b are sampled at the two settlement ponds located in the southern extent of the quarry void. SW4 is located at the discharge point of the culvert.

A summary of the surface water compliance substances applicable to SW4 only are detailed in Table 6. A full summary of the surface water quality data and graphs are provided in Appendix E.

Table 6. Summary Statistics of Compliance Substances in Surface Water

		PO4 (mg/l)	Suspended Solids (mg/l)	PAH (Total) (µg/l)	SO4 mg/l	TPH mg/l
Permit Limit (SW4)		1.2 mg/l (or 0.1mg/l *)	628mg/l (or 50mg/l*)	0.1 ug/l	327 mg/l (or 250mg/l*)	0.01mg/l
SW1	Max	0.25	54	0.08	53	0.21
	Ave	0.08	10	0.06	24	0.03
SW2a	Max	0.25	91	0.08	154	0.24
	Ave	0.08	10	0.06	85	0.05
SW2b	Max	0.25	84	0.08	240	0.24
	Ave	0.08	18	0.06	124	0.06
SW3	Max	0.25	55	0.20	94	0.50
	Ave	0.08	11	0.07	41	0.07
SW4	Max	0.25	45	0.10	98	0.16
	Ave	0.07	10	0.07	32	0.02

Note: Shaded cells correspond to a value higher than the following permit limits for SW4. * latter permit limit applies if exceeded on two consecutive occasions. Outliers consisting of the following have been excluded from the statistics: S04 120mg/l; suspended solids 350 mg/l, 280 mg/l, 190 mg/l; TPH 1.31mg/l; PAH 0.43µg/l, 0.4µg/l and 0.35µg/l. Sample with elevated limit of detection (<0.4ug/l) excluded from SW2b. All PAH samples were excluded on 05/10/2021 as sample indicated potential lab contamination. 240mg/l of sulphate previously considered an outlier in 3276/R/015/01 has been included in data above due to the addition of >1year of data.

The only substance that was above the compliance limits set for SW4 is TPH which was initially above the limit of 0.01mg/l. TPH exhibits a decreasing trend in concentration within the surface water over the review period with SW4 mostly compliant with the limit from July 2019 onwards with only two exceptions (Figure 18). TPH concentrations are also recorded at lower concentrations downstream of the site relative to SW1. It should be noted that the surface water monitoring locations are located in proximity to potential other sources of hydrocarbons such as: the B5110 which runs parallel to the stream; and the neighbouring yard The remaining substances concentrations are compliant with the permit limits.

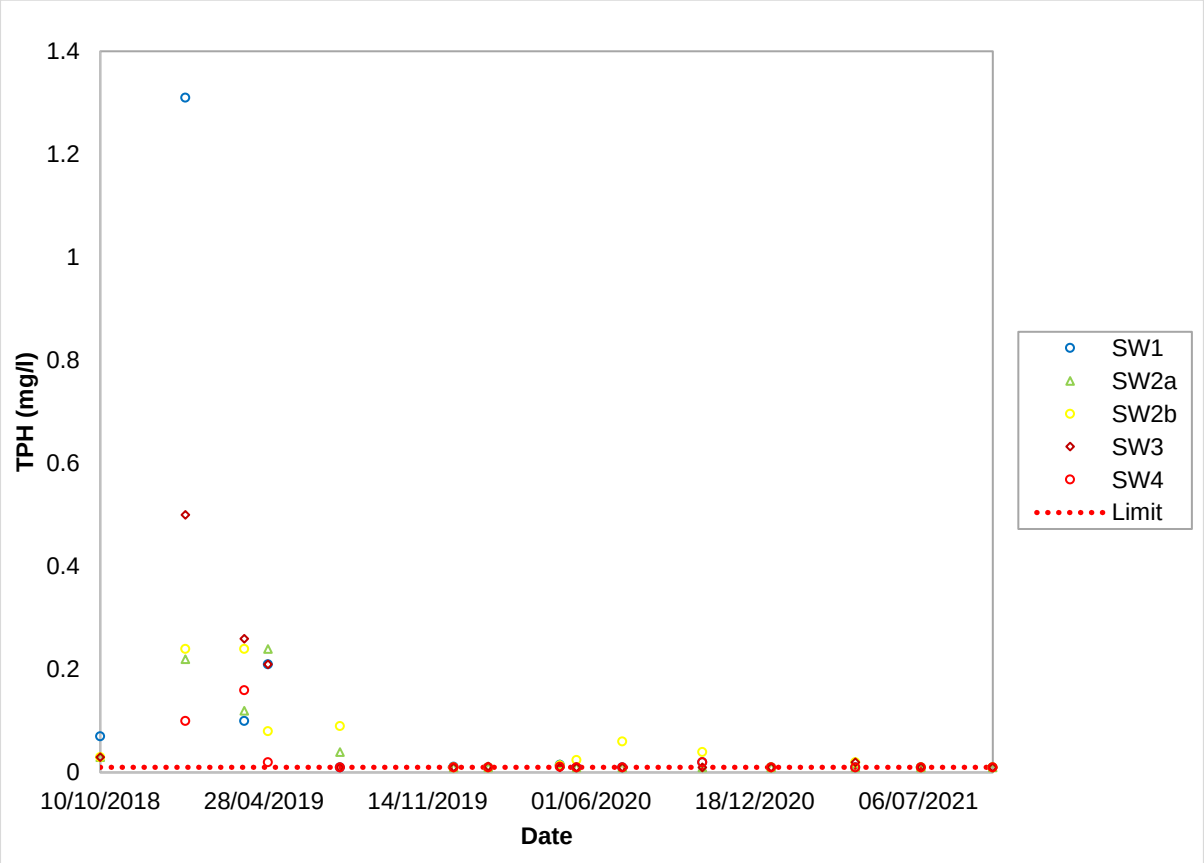


Figure 18. TPH concentrations in surface water

The surface water quality shown in Table 4 demonstrates that sulphate is below the EQS of 400mg/l[22]. Ammoniacal-nitrogen concentrations at all the surface water monitoring points are below 0.33mg/l with the exception of a few outliers shown in Figure 19 & Figure 20. Chloride concentrations at all points are below the EQS of 250mg/l[22].

[22] https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit

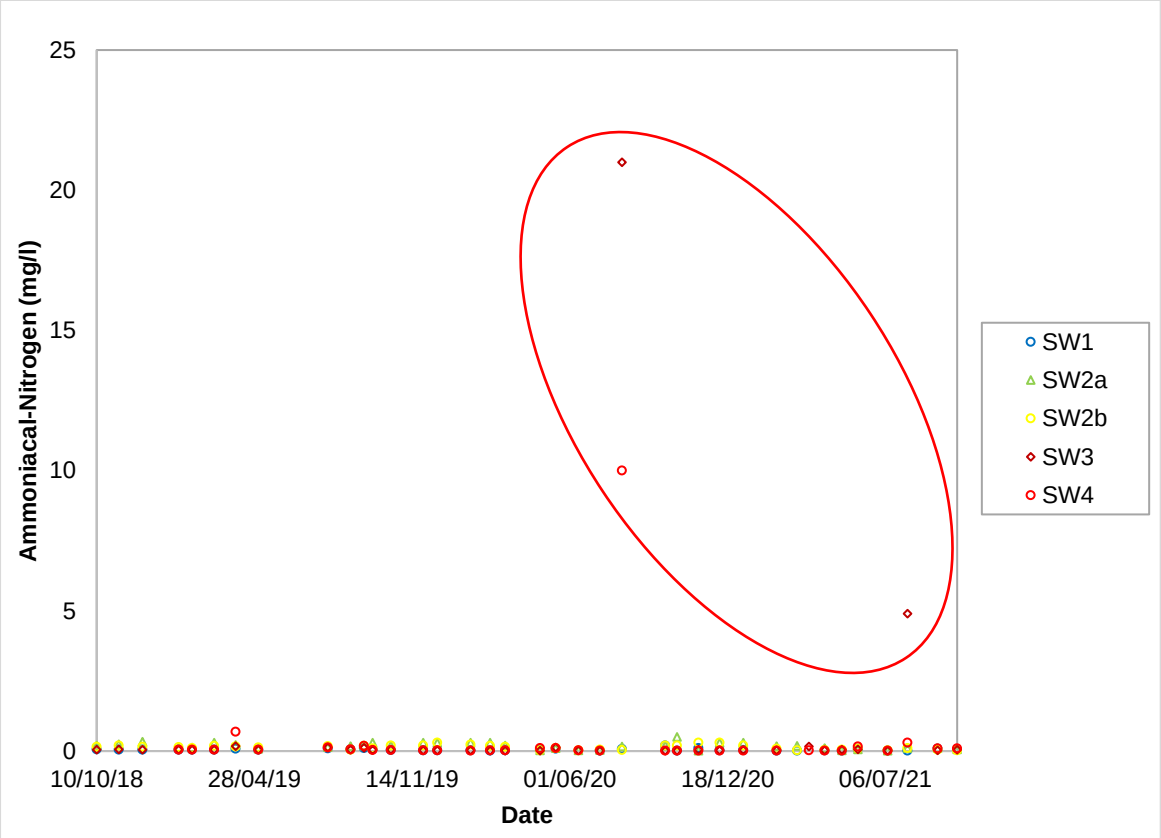


Figure 19. Ammoniacal-nitrogen concentrations in surface water (outliers highlighted)

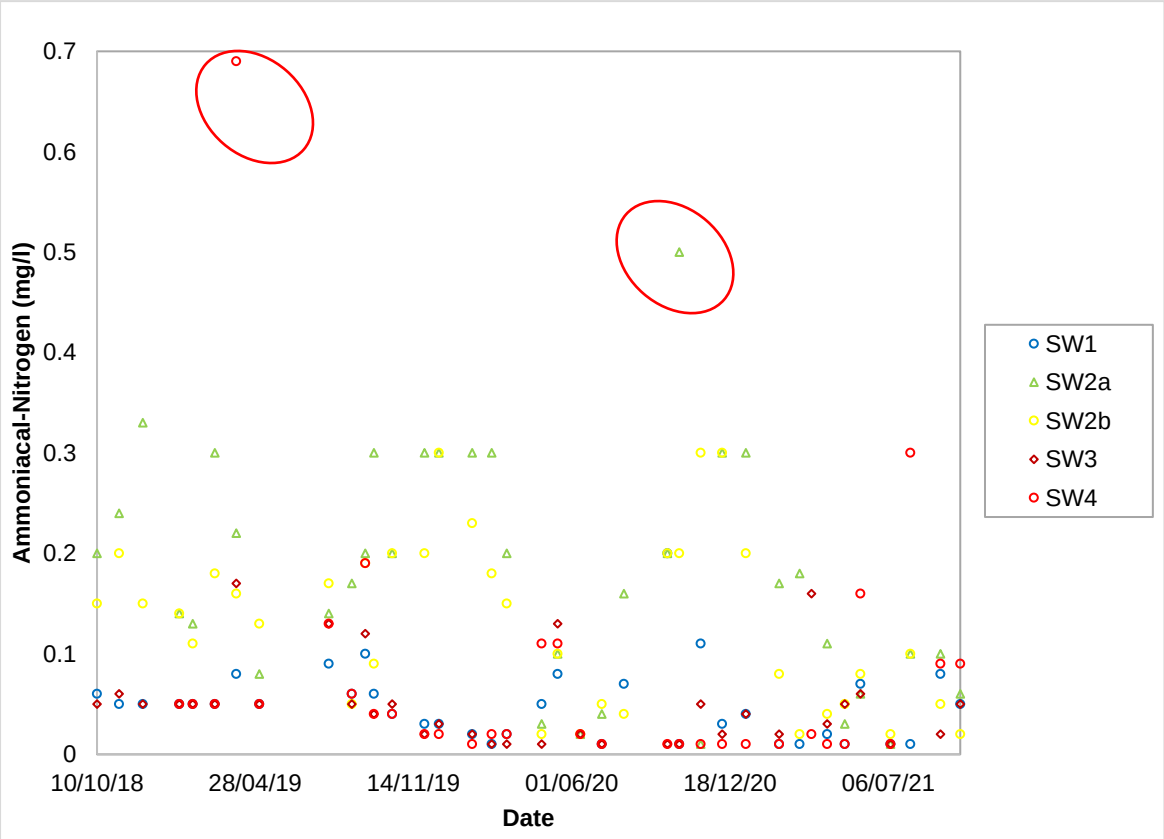


Figure 20. Ammoniacal-Nitrogen concentrations in surface water (outliers highlighted)

The metal concentrations within the surface water are mostly below their relevant EQS with the exception of manganese. Manganese concentrations at SW2A and SW2B are considerably higher than the other surface monitoring points.

The same issue with laboratory reporting limits for Total PAH in groundwater has been identified in the surface water quality data for the review period.

The annual hazardous screen in October 2018 and October 2021 identified cyanide, PAH, mecoprop, mevinphos, lead, PCBs, Dibromomethane and TPH (Appendix F). PCBs, lead, mevinphos and cyanide were only recorded positively in October 2018 and have not been identified since. Mevinphos was detected below the MRV of 0.016µg/l. Mecoprop was detected at positive concentrations in October/November 2019 at SW1 and SW2b and again in October 2020 at SW2a and SW2b below the EQS of 18µg/l. Phenol concentrations where tested were below the laboratory limit of detection.

Additional SVOC analysis identified the following: hydrocarbons; BTEX; organic acids; esters; chlorinated hydrocarbons and phenol. However, these were only identified on one occasion for each location and therefore it is not certain how representative these are. The additional SVOC analysis can be seen in the full summary of data.

4.2 Revised Surface Water Compliance Limits (Improvement Condition 1.3.9)

Surface water compliance limits were proposed in TerraConsult report referenced 3276/R/001/01[23] for SW2. However, it is not clear if these were ever approved by NRW. Therefore, the permit limits provided in V003 have been utilised.

As required by the improvement programme requirements for the site, the Operator is to submit the following to NRW to satisfy improvement programme reference 9:

- acquire 12 months of surface water monitoring data and submit a written report for approval to review and revise post-interim Control Levels and Compliance Limits; and

It is proposed that the current compliance limits are appropriate for SW4 with the exception of TPH and PAH.

It is evident from Figure 18 that the concentrations up stream at SW1 are frequently elevated in comparison to the downstream concentrations. The most recent concentrations of TPH plot at or just above the current compliance limit showing that there are reduced concentrations exhibited downstream. Therefore, it is proposed that the compliance limit for Mineral Oil is removed.

[23] TerraConsult (2018) Environmental Monitoring Plan, Nant Newydd Landfill site, report referenced 3276/R/001/01

The other proposed amendment is for PAH to be removed as a compliance substance as the concentrations at SW1 and SW4 plot consistently at or just above the limit of detection.

The proposed compliance limits and control levels have been proposed in Table 7 based on the following methodology in the now withdrawn H1 Annex J3: non-hazardous substances have had compliance limits set at the EAL (EQS)/pre-existing limit. Hazardous substances have had their limit set at their relevant EQS.

Non-hazardous pollutant control levels have been set halfway between the compliance limit and maximum concentrations with the exception of suspended solids which have been amended to a lower limit of 100mg/l

Table 7. Revised Compliance Limits for SW4

Proposed Compliance Substances				
	Suspended Solids	**PO4**	**Oil & Grease**	**SO4**
	mg/l	**mg/l**	**-**	**mg/l**
Limit Max	100	1.2	None Visible	250
Limit Other	50 (on any 2 consecutive occasions)	0.1 (on any 2 consecutive occasions)	-	-
Max Concentration (all locations)	91	<0.25	-	240
Max Concentration (SW1)	54	<0.25	-	53

5 Landfill Gas Data Review

5.1 Introduction

As required by the improvement programme requirements for the site, the Operator is required to submit the following to Natural Resources Wales (NRW) to satisfy improvement programme reference 1.3.6:

- a review of the Control Levels and Compliance Limits in the Permit (EPR/ RP3337SE/V003);
- where justified, revised post-interim Control Levels and Compliance Limits for Agency approval.

The limits will be derived in accordance with the methodology identified in guidance document 'Perimeter Soil Gas Emissions Criteria and Management Industry Guidance, Version 1.01 dated January 2011'.

The permit refers to gas monitoring points G1 and G2 which no longer exist at the site. The compliance limits proposed in Table S4.3 for the site were based on 0% background concentrations at the site with the following limits:

- Methane 1% above agreed background concentrations
- Carbon Dioxide 1.5% above agreed background concentrations

Interim compliance limits proposed in the Environmental Monitoring Plan (ref. 3276/R/001/01) were the same as those provided in the Permit. The EMP proposed that based on the inert properties of the waste to be accepted that it was highly unlikely to generate any landfill gas. The proposed limits within the EMP were never approved by NRW.

5.2 Current Landfill Gas Monitoring Regime

As of October 2018, ground gas monitoring was conducted monthly at 6 perimeter gas monitoring points in accordance with Tables S4.3 and S4.4 of the permit. The installation details for the boreholes can be seen in Table 8. Monitoring points BH2D, BH3DA , BH4D and BH5D were installed primarily as groundwater monitoring boreholes with BH1S and BH2S installed to monitor shallow ground gas. Gas data was not obtained for BH2D as the slotted pipe is too deep (35mbgl to 41mbgl) to measure shallow ground gas data. A full summary of the landfill gas data is provided in Appendix G.

BH4D has frequently exceeded the limit for methane (1%v/v) throughout the review period with a maximum concentration of 20.9%v/v. The limit for carbon dioxide has been exceeded at all gas monitoring boreholes with the largest exceedance occurring at BH4D of 13.3%v/v.

It is considered that the elevated methane concentrations detected at BH4D indicate that the ground gas regime in the vicinity is being influenced by the neighbouring marsh land. Methane was detected at this location prior to landfilling activities commencing under the current permit.

5.3 Borehole Review

The installation details for the gas boreholes across the site were compared against the groundwater levels. The groundwater levels have been reviewed in section 3.3.

Table 8. Comparison of installation details with groundwater levels

BH	GL (mAOD)	Top of Slotted pipe (mbgl)	Top of Slotted Pipe (mAOD)	Min Groundwater Level (mAOD)	Max Groundwater Level (mAOD)	GW Level above Top of Slotted Pipe? (Y/N)
BH1S	95	1.5	93.5	89.83	89.87	N
BH2S	98	1.5	96.5	Dry	Dry	N
BH2D	98	35	63	77.04	87.46	Y
BH3DA	83	4	79	80.86	82.44	Y
BH4D	85	1.5	83.5	82.49	83.38	N
BH5D	93	28.7	64.3	77.44	86.71	Y

The groundwater levels were recorded as above continuously above the top of the slotted pipe in BH2D, BH3DA, BH5D. There is also a restricted pathway available for gas migration at BH4D. Boreholes BH2D and BH5D are considered to be appropriate groundwater monitoring points but not appropriate for monitoring shallow ground gas due to the depth of the slotted pipe. Additionally, the groundwater level has consistently been above the installed slotted pipe in BH3DA throughout the review period. Gas data has not been monitored at BH2D for the review period as stated in section 5.2.

Additionally, made ground was encountered in BH3DA, BH4D and BH5D as described in section 2.5.

5.4 ICOP Methodology

Action levels and compliance limits are to be set for methane in external landfill gas monitoring boreholes at Nant Newydd Quarry Landfill Site. In accordance with the Industry Code of Practice on Perimeter Soil Gas[24], there will not be any compliance limits set for carbon dioxide at the site. Action levels will be proposed based on the ICOP[25].

Consistent with the Industry Code of Practice ($ICoP_1$) on perimeter soil gas emissions criteria these should be set at a level at which the operator should take action to remain compliant and form an early warning and/or may instigate additional monitoring or emergency procedures. These should be concentrations between background and the compliance limits. Action levels were determined through a review of all available background data taken at the site between October 2018 and October 2021.

[24] Environment Agency (2014) Industry Code of Practice on Perimeter Soil Gas, Available at <https://www.gov.uk/government/publications/position-statement-industry-code-of-practice-on-perimeter-soil-gas>

[25] Industry Code of Practice (ICoP): Perimeter Soil Gas Emissions Criteria and Associated Management. January 2011.

The methodology detailed in the Agency P1-471 guidance[26] is to be used to establish the maximum background level of carbon dioxide. The P1-471 multiple outlier test is a screening tool which 'cleans up' data to estimate baseline statistics. The method standardises and ranks the data (n - mean / standard deviation) and compares the maximum value (T_{Max}) to a Critical Value at P = 1%. If the T_{Max} is greater than the critical value, then the probability that a value as extreme as this could have arisen by chance from a normal population (of data) is less than 1 in 100.

The Action Levels for carbon dioxide will be augmented where applicable by a Factor of Safety (FoS) to make a clear distinction between background and other sources of gas. The application of a FoS is dependent on the stability of the wider historical data set. An unstable data set is suggested to occur when '*…the range in concentration values (between high and low data) is > 8%, but this will be decided on a site-by-site basis*'. A stable data set can therefore be presumed when for example the majority of data points are located within the range 0 – 5 % v/v, 5 - 10 % v/v and so on.

The multiple outlier test identifies and 'removes' data points assumed to be erroneous to the wider data set (be they high or low) leaving a statistically significant distribution of data. An unstable data set will be reflected by the majority of values appearing to be randomly distributed between the maximum and minimum values which may be at least > 8 % v/v apart. An objective assessment of the data set must therefore be made (informed by the statistical analysis) to justify whether a T_{Max} / FoS based action level is appropriate.

Table 9. TMax and FoS Derived Carbon Dioxide Action Levels

T_{Max} Background Carbon Dioxide Concentration	FoS derived Carbon Dioxide Action Level
T_{Max} carbon dioxide concentration in range 0 - 5%	T_{Max} + 1%
T_{Max} carbon dioxide concentration in range 5 – 10%	T_{Max} + 2%
T_{Max} carbon dioxide concentration in range 10 – 20%	T_{Max} + 3%
T_{Max} carbon dioxide concentration in range 20 – 25%	T_{Max} + 4%
T_{Max} carbon dioxide concentration in range >25%	None

The FoS value of between 1 and 5 % v/v will be added to the T_{Max} subject to the distribution and variability of the data set. For example, if data fluctuates in the range 0 to 5 % v/v, 1 % v/v FoS will be added to the T_{Max} e.g. 5 % v/v, then the Action Level will be 6 % v/v. This will allow for future fluctuations above the current T_{Max} or rising trends without the need for immediate further statistical analysis. Table 5 details the FoS applicable to stable data sets according to the T_{Max} background carbon dioxide level.

T_{Max} values for methane will have a 0.5% FoS added to provide the action level as specified in the ICoP as the appropriate FoS to determine the methane action level. The external monitoring boreholes, the

[26] J.C. Ellis, J.A. Turrell and K.M. Blackmore (2002). Techniques for the Interpretation of Landfill Monitoring Data. Final R&D Technical Report P1-471. Environment Agency.

compliance level for methane are 1% above T_{Max} background concentrations as referenced in Table 8.2 of LFTGN03[27].

The data was standardised and the T_{Max} values determined. The TMax values were compared to the table of 'critical values' in the Technical Report P1-471. If the Tmax value was higher than the corresponding critical value, based on the number of data values in the dataset, the Tmax value can be concluded as an outlier. Any outliers will be subsequently 'removed 'from the analysis dataset. An elevated concentration of carbon dioxide was detected at BH2S in September 2021. These were removed as outliers to avoid skewing the results.

5.5 Determining Action Levels and Compliance Limits

The landfill gas data for all external gas monitoring points is attached at Appendix G. It is proposed that gas is not monitored at BH2D, BH3DA and BH5D as Table 8 indicates they are appropriate for groundwater monitoring at the site only. BH1S and BH2S will continue to be sampled for ground gas. No additional monitoring points are proposed due to the low gas generation risk associated with the permitted inert waste deposits.

5.5.1 Carbon dioxide

Table 10 summarises the proposed carbon dioxide action levels and compliance limits to be implemented on site. The spread sheet with the statistical analysis data is attached in Appendix H.

5.5.2 Methane

Only BH4D reported methane at a concentration greater than the instrument detection limit. This is likely due to the marsh land immediately adjacent to the borehole on the eastern boundary. As there are no significant sources of methane associated with the permitted landfilled waste in the immediate vicinity of the borehole, it is proposed that BH4D is monitored for reference only with the action limits detailed in Table 11. A methane action level of 0.6% and a compliance limit of 1.1 % v/v has been proposed for all other monitoring locations as shown below in Table 11..

Table 10. Proposed Action Level for Carbon Dioxide

Monitoring Point	Maximum Background CO_2 Concentration (% v/v)	CO_2 Action Levels (%v/v)
BH1S	3.2	4.2
BH2S	1.0	2.0
BH4D	13.3	16.3

[27] Environment Agency (2014), LFTGN03: Guidance on the management of landfill gas, Available at < https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/321606/LFTGN03.pdf>

Table 11. Proposed Compliance and Action Levels for Methane

Monitoring Point	Maximum Background CH_4 Concentration (including units)	CH_4 Action Levels (including units)	CH_4 Compliance Limit (including units)
BH1S	0.1	0.6	1.1
BH2S	0.1	0.6	1.1
BH4D	20.9*	21.4	N/A

*Please note that the methane concentration of 20.9%v/v was excluded as an outlier in 3276/R/015/01 based on the data available at the time. The additional data available for this update (June 2020 until October 2021) indicated that this was no longer an outlier.

6 Requisite Surveillance

6.1 Overview

The following monitoring schedules for groundwater, surface water and landfill gas are proposed for the site environmental monitoring programme in Table 12,Table 13 and Table 14.

It is proposed to reduce the frequency for groundwater, surface water and landfill gas from monthly to quarterly monitoring. It is proposed to remove sulphate as a compliance substance for surface water. Mineral oil is proposed to remain part of the monitoring suite but not as a compliance substance. It is proposed to add arsenic to the surface water monitoring schedule.

Table 12. Revised Groundwater Monitoring Schedule

Monitoring Borehole	Parameter	Frequency
BH2D BH3DA BH4D BH5D	Water level, Field Temperature, pH, Electrical Conductivity, Dissolved Oxygen, Ammoniacal Nitrogen, Chloride, Zinc, Nickel, Arsenic , PAH, Sulphate	Quarterly
	Nitrate (for TON), COD, Alkalinity, Calcium, Chromium, Copper, Iron, Magnesium, Manganese, Lead, Mercury, Phosphate, Sodium, Selenium, Sodium, TOC, Nitrite, Phenols, Potassium, TPH (including mineral oil range), Diazinon, MTBE, Fluoride	Annually

Table 13. Revised Surface Water Monitoring Schedule

Monitoring Point	Parameter	Frequency
SW1 SW2a SW2b SW3	Field Temperature, pH, Oil & Grease, Electrical Conductivity, Ammoniacal Nitrogen, Chloride, Dissolved Oxygen, BOD, COD, Total Suspended Solids, TOC, Nitrate (for TON) and Nitrite (for TON), Iron, Chromium, Manganese, Lead, Mercury, Nickel, Arsenic, Phosphate, Sulphate, PAH	Quarterly
	TON, Calcium, Cadmium, Mercury, Magnesium, Sodium, Potassium, Alkalinity, Copper, Zinc, TPH (including mineral oil range) , Mecoprop, Dibromomethane	Annually

The amended landfill gas monitoring schedule in Table 12 below reflects the proposed reduced frequency of monitoring to quarterly.

Table 14. Revised Landfill Gas Monitoring Schedule

Borehole	Parameter	Frequency
BH4D BH1S BH2S	Methane, Carbon Dioxide, Oxygen, Atmospheric Pressure, Differential Pressure, Flow Rate, Temperature, Metrological Data	Quarterly

7 Conclusion

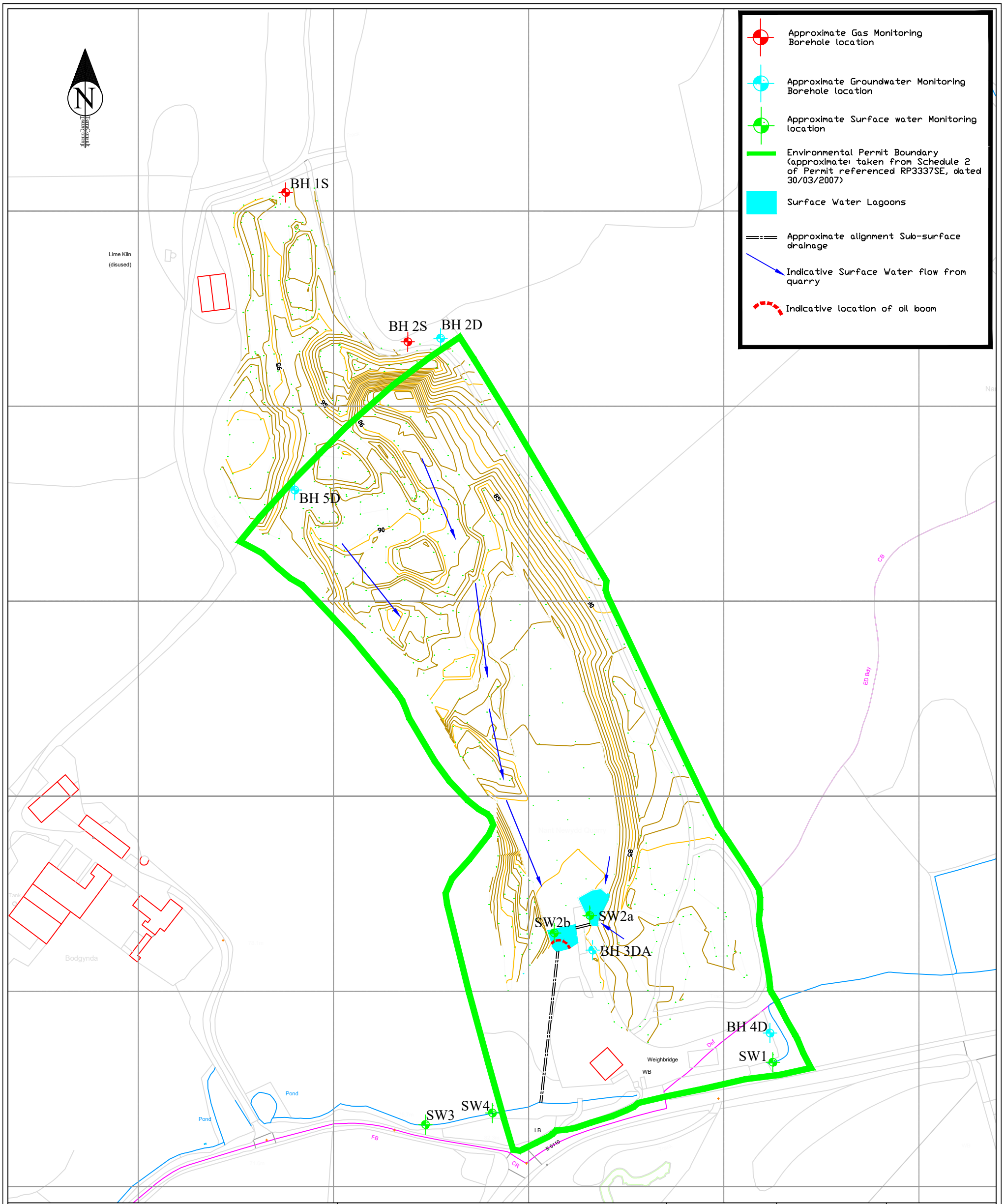
7.1 Overview

A review of the monitoring data from Nant Newydd inert landfill site has been undertaken. The data indicates that there is no discernible impact of the landfill site on the groundwater and surface water.

The landfill gas data indicates that the gas boreholes are most likely not being impacted by gas generation from the inert waste. The high methane detected in BH4D is indicative of a different source.

Variations to the current compliance limits and monitoring schedule have been proposed for groundwater, surface water and landfill gas.

Drawings



TerraConsult

Bold Business Centre, Bold Lane, Sutton, St Helens WA9 4TX

Client

Clive Hurt (Plant Hire) Ltd

Site:

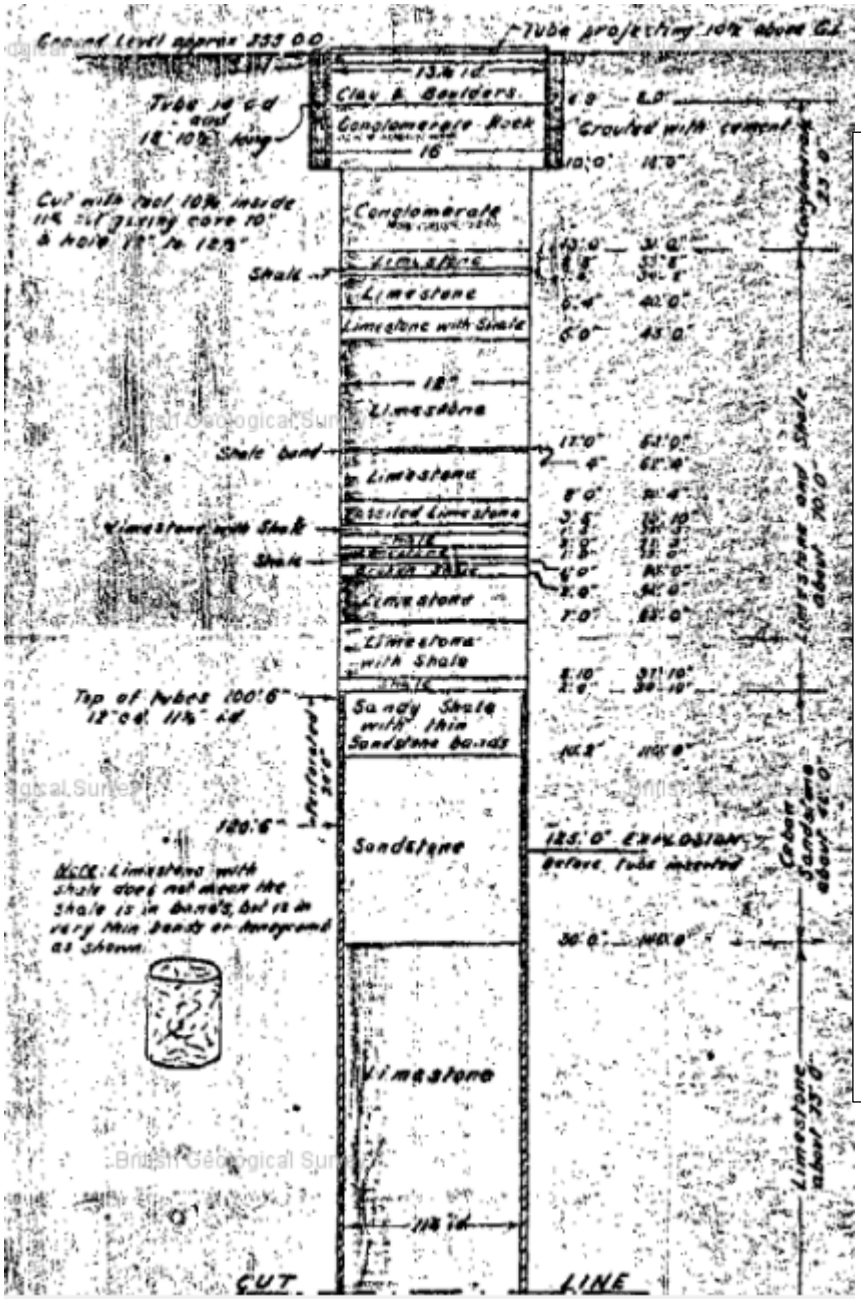
Nant Newydd Quarry

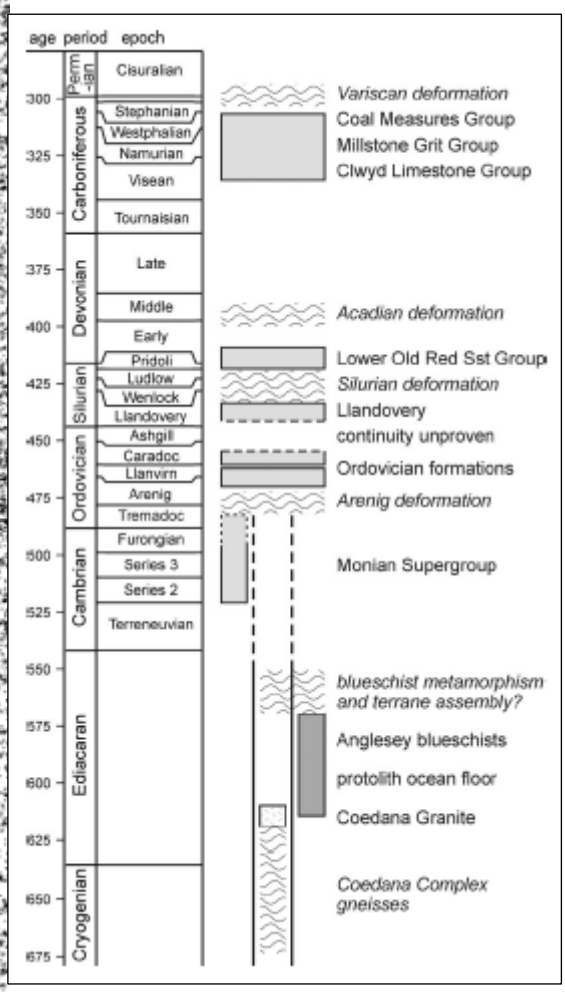
Title:

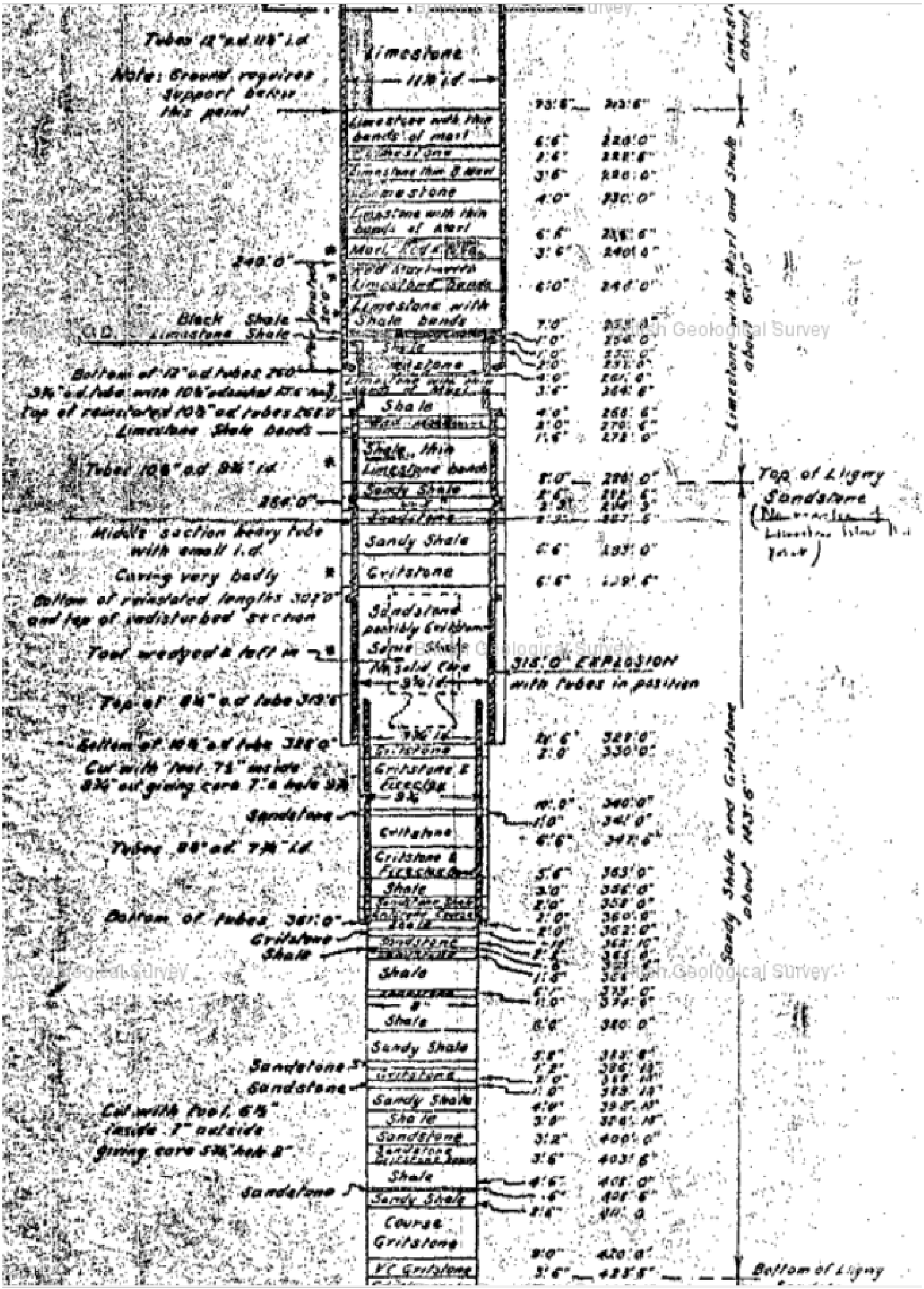
Monitoring Point Location Plan (approximate locations)

Scale	NTS	@ A4	
Drawing No.	3276/4/006 Rev A		
Rev	Date	Description	
A	01/19	Addition of permit boundary and SW4	
File	3276/4/006 Monitoring Point Location.dwg		
Date	01/19	Engineer	SB
Drawn	KMB	Checked	FINAL

Appendix A - BGS BH Log


Ground Level approx 333.00
Tube projecting 10" above G.L.
Clay & Boulders.
Conglomerate Rock
Grouted with cement
Conglomerate
Limestone
Shale
Limestone
Limestone with Shale
Limestone
Shale band
Limestone
Fossiled Limestone
Limestone with Shale
Shale
Limestone
Limestone with Shale
Top of tubes 100'6"
Sandy Shale with thin Sandstone bands
Sandstone
125.0" EXPLOSION before tube inserted
Limestone
CUT
LINE


age
period
epoch
Perm-Trias
Carboniferous
Devonian
Silurian
Ordovician
Cambrian
Ediacaran
Cryogenian
Cisuralian
Stephanian
Westphalian
Namurian
Visean
Tournaisian
Late
Middle
Early
Pridoli
Ludlow
Wenlock
Llandovery
Ashgill
Caradoc
Llanvirn
Arenig
Tremadoc
Furongian
Series 3
Series 2
Terreneuvian
300
325
350
375
400
425
450
475
500
525
550
575
600
625
650
675
Variscan deformation
Coal Measures Group
Millstone Grit Group
Clwyd Limestone Group
Acadian deformation
Lower Old Red Sst Group
Silurian deformation
Llandovery
continuity unproven
Ordovician formations
Arenig deformation
Monian Supergroup
blueschist metamorphism and terrane assembly?
Anglesey blueschists
protolith ocean floor
Coedana Granite
Coedana Complex gneisses



Tubes 12" od 11¼" i.d.
Note: Ground requires support below this point
Limestone
11¼" i.d.
Limestone with thin bands of marl
Limestone
Limestone with thin bands of marl
Marl
Limestone with Shale bands
Black Shale
Limestone Shale
Bottom of 12" od tubes 250'
Shale
Top of reinstated 10¾" od tubes 268'0"
Limestone Shale bands
Shale, thin Limestone bands
Tubes 10¾" o.d. 9¾" i.d.
Sandy Shale
Sandstone
Middle section heavy tube with small i.d.
Sandy Shale
Caving very badly
Gritstone
Bottom of reinstated lengths 302'0" and top of undisturbed section
Sandstone possibly Gritstone
Tool wedged & left in
Some Shale
No Solid Core
315'0" EXPLOSION with tubes in position
Bottom of 10¾" o.d. tube 328'0"
Gritstone & Fireclay
Sandstone
Gritstone
Tubes 8¾" od. 7¾" i.d.
Gritstone & Fireclay
Shale
Bottom of tubes 361'0"
Gritstone
Shale
Shale
Shale
Sandy Shale
Sandstone
Gritstone
Sandstone
Sandy Shale
Shale
Sandstone
Cut with tool, 6¾" inside 7" outside giving core 5¾" hole 8"
Shale
Sandstone
Sandy Shale
Course Gritstone
V.C. Gritstone
Limestone with Marl and Shale about 60'0"
Top of Ligny Sandstone
Sandy Shale and Gritstone about 143'6"
Bottom of Ligny
6'6" 220'0"
3'6" 226'0"
4'0" 230'0"
6'6" 236'6"
3'6" 240'0"
6'0" 246'0"
7'0" 253'0"
8'0" 280'0"
6'6"
6'6"
2'0" 330'0"
10'0" 340'0"
1'0" 341'0"
6'6" 347'6"
3'0" 356'0"
2'0" 358'0"
2'0" 360'0"
2'0" 362'0"
6'0" 380'0"
3'6" 403'6"
9'0" 420'0"
3'6" 423'6"

Appendix B - Site BH logs

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	7.00	02-07-18	02-07-18	IB	Beretta T46			HP	02-07-18	

Location details:

mAOD: 95.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
				(1.20)	Soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is subangular to subrounded fine to coarse of mudstone and limestone. (TOPSOIL)						
			93.80	1.20	Soft brown gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to coarse of mudstone and limestone.						
				(0.50)							
			93.30	1.70	Brown sandy angular coarse GRAVEL of mudstone and limestone with high cobble and boulder content. Cobbles and boulders are angular of limestone and mudstone.						
				(5.30)							
	SP										
			88.00	7.00	Borehole ends at 7.00 m (Termination reason: Complete)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	7.00	1.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH1S

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	41.00	27-06-18	28-06-18	IB	Beretta T46			HP	28-06-18	

Location details:

mAOD: 98.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
				(0.60)	Soft brown slightly gravelly slightly sandy CLAY with frequent rootlets. Gravel is subangular to subrounded fine to coarse of mudstone and limestone. (TOPSOIL)						
			97.40	0.60	Black LIMESTONE						
				(10.40)							
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	41.00	1.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH2D

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	41.00	27-06-18	28-06-18	IB	Beretta T46			HP	28-06-18	

Location details:

mAOD: 98.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
			87.00	11.00	Black LIMESTONE with MUDSTONE bands						
				(10.00)							
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:
18.80	11.70		

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	41.00	1.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH2D

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	41.00	27-06-18	28-06-18	IB	Beretta T46			HP	28-06-18	

Location details:

mAOD: 98.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
			77.00	21.00	Grey MUDSTONE						
				(2.10)							
			74.90	23.10	White LIMESTONE						
				(4.60)							
			70.30	27.70	White LIMESTONE with black MUDSTONE bands						

Inst	Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:
27.70	15.55		

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	41.00	1.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH2D

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	41.00	27-06-18	28-06-18	IB	Beretta T46			HP	28-06-18	

Location details:

mAOD: 98.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
				(13.30)							
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	41.00	1.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH2D

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	41.00	27-06-18	28-06-18	IB	Beretta T46			HP	28-06-18	

Location details:

mAOD: 98.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
	SP		57.00	41.00	Borehole ends at 41.00 m (Termination reason: Complete)						

	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	41.00	1.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH2D

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	7.00	29-06-18	29-06-18	IB	Beretta T46			HP	29-06-18	

Location details:

mAOD: 98.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
					White LIMESTONE with black MUDSTONE bands						
				(7.00)							
	SP		91.00	7.00	Borehole ends at 7.00 m (Termination reason: Complete)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	7.00	

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH2S

Sheet 1 of 1

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	4.50	04-07-18	04-07-18	IB	Beretta T46			HP	04-07-18	

Location details:

mAOD: 83.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
				(4.50)	Black sandy slightly clayey angular to subangular fine to coarse GRAVEL of limestone, macadam, rubber, brick and concrete. (MADE GROUND)						
			78.50	4.50	Borehole ends at 4.50 m (Termination reason: Obstruction)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	4.50	4.00

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH3D

Sheet 1 of 1

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	15.00	04-07-18	05-07-18	IB	Beretta T46			HP	05-07-18	

Location details:

mAOD: 83.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
					Black gravelly slightly clayey coarse SAND. Gravel is angular to subrounded fine to coarse of limestone, mudstone, concrete, brick and macadam. (MADE GROUND)						
				(5.00)							
			78.00	5.00	White LIMESTONE with black MUDSTONE bands						
				(10.00)							
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:
9.60	3.33		

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	15.00	4.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH3DA

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	15.00	04-07-18	05-07-18	IB	Beretta T46			HP	05-07-18	

Location details:

mAOD: 83.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
	SP		68.00	15.00	Borehole ends at 15.00 m (Termination reason: Complete)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	15.00	4.50

Depth related remarks:

From	to:	Remarks:

Flush details:

Depth:	Type:	Return:	Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH3DA

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	9.60	02-07-18	03-07-18	IB	Beretta T46			HP	03-07-18	

Location details:

mAOD: 85.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
				(0.90)	Grey slightly sandy angular fine to coarse GRAVEL of limestone (Hardcore) (MADE GROUND)						
			84.10	0.90							
			84.00	1.00	Firm brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse of limestone and mudstone						
				(0.50)	Firm grey slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse of limestone and mudstone.						
			83.50	1.50	Black MUDSTONE with weathered clay bands						
				(0.50)							
			83.00	2.00	Weathered LIMESTONE						
				(0.50)							
			82.50	2.50	White LIMESTONE with black MUDSTONE bands						
				(7.00)							
SP			75.50	9.50							
					Borehole ends at 9.60 m (Termination reason: Complete)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:
6.50	2.80		

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	9.60	4.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH4D

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	34.70	05-07-18	06-07-18	IB	Beretta T46			HP	06-07-18	

Location details:

mAOD: 93.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
				(4.80)	Firm brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse of limestone and mudstone (MADE GROUND)						
			88.20	4.80	Grey MUDSTONE						
				(1.20)							
			87.00	6.00	White LIMESTONE with black MUDSTONE bands						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	34.70	4.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH5D

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	34.70	05-07-18	06-07-18	IB	Beretta T46			HP	06-07-18	

Location details:

mAOD: 93.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
				(19.70)							
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	34.70	4.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH5D

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	34.70	05-07-18	06-07-18	IB	Beretta T46			HP	06-07-18	

Location details:

mAOD: 93.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
			67.30	25.70	White LIMESTONE						
				(5.80)							
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:
28.70	25.70		

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	34.70	4.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH5D

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	34.70	05-07-18	06-07-18	IB	Beretta T46			HP	06-07-18	

Location details:

mAOD: 93.00
Grid: OSGB

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
			61.50	31.50	Black MUDSTONE						
				(3.20)							
	SP		58.30	34.70	Borehole ends at 34.70 m (Termination reason: Complete)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	34.70	4.50

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: FINAL
Scale: 1:50

Project: Nant Newydd Quarry
Project No: 3276
Client: Clive Hurt

Exploratory position reference:

BH5D

Appendix C – Groundwater Quality and Level Data

BYRNELOOBY

Location	Date	pH	Electrical Conductivity (µS/cm)	Ammoniacal nitrogen (mg/l)	COD (mg/l)	TOC (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Potassium (mg/l)	Chloride (mg/l)	Sulphate (mg/l)	Alkalinity	TON (mg/l)	Nitrate (mg/l)	Nitrite (mg/l)	Diss Oxygen (mg/l)	Ionic Balance (%)	Phosphate (mg/l)	Cd (Dissolved)(µg/l)	Ni (Dissolved) (µg/l)	Zn (Dissolved) (µg/l)	As (Dissolved) (µg/l)	Cr (Dissolved) (µg/l)	Cu (Dissolved) (µg/l)	Fe (Dissolved) (mg/l)	Hg (Dissolved) (µg/l)	Mn (Dissolved) (µg/l)
BH2D	10/10/2018	8.06	1000	<0.05	33	2	94	12	120	3.3	31	99	410	1.8	7.8	<0.1	10		<0.5	0.02	2	14	1	<1	3.4	<0.01	<0.05	16
BH2D	07/11/2018	7.49	1300	<0.05							29	200					5.1			<0.02	2	290						
BH2D	07/12/2018	7.45	1000	<0.05							29	120					8.8			<0.02	1	6						
BH2D	22/01/2019	7.09	790	<0.05	6	2	120	15	29	6.6	40	55	320	4.5	20	<0.1	9.1	-2	<0.5	0.07	<1	9	0.3	<1	<0.5	<0.01	<0.05	7
BH2D	08/02/2019	7.77	750	<0.05							34	54					9.5			<0.02	<1	6						
BH2D	08/03/2019	7.15	750	<0.05							36	47					9.6			0.34	<1	10						
BH2D	04/04/2019	7.32	810	0.07	130	2	130	14	20	6.5	38	43	300	5.3	24	<0.1	9.4	1.4	<0.5	<0.02	<1	7	0.2	<1	<0.5	<0.01	<0.05	3
BH2D	03/05/2019	7.26	700	<0.05							30	53					9.2			<0.02	<1	<2						
BH2D	14/06/2019	7.27	720	0.07							29	56					9.2			<0.02	1	2						
BH2D	30/07/2019	7.49	760	0.11	20	2	98	15	23	2.9	31	61	320	<0.1	<0.5	<0.1	9.2	6	<0.5	0.31	<10	<20	<2.0	<10	<5.0	0.01	<0.50	<10
BH2D	28/08/2019	7.35	740	<0.05							34	51					9.8			<0.02	<1	<2						
BH2D	25/09/2019		703	0.07							28						5			<0.1	<1							
BH2D	18/10/2019	7.5	731	0.02	<5	0.36	130	15	20	3	28	61	276	<0.2	<0.2	<0.01	5.7	6.8	0.02	<0.02	<1	4	<1	<1	<1	0.17	<0.03	4
BH2D	28/11/2019	7.3	734	0.02	-	-	-	-	-	-	32	47	-	-	-	-	9.7	-	-	0.03	<1	16	-	-	-	-	-	-
BH2D	16/12/2019	7.3	731	0.01	-	-	-	-	-	-	34	37	-	-	-	-	10.7	-	-	<0.02	<1	7	-	-	-	-	-	-
BH2D	27/01/2020	7.5	669	0.03	<5	0.85	128	14	13	3	25	34	289	<0.2	<0.2	<0.01	8.2	6.5	<0.01	<0.02	<1	3	<1	<1	<1	<0.01	<0.03	<2
BH2D	21/02/2020	7.6	645	<0.01	-	-	-	-	-	-	27	85	-	-	-	-	10.2	-	-	<0.02	<1	9	-	-	-	-	-	-
BH2D	11/03/2020	7.6	737	0.06	-	-	-	-	-	-	32	110	-	-	-	-	8.8	-	-	<0.02	1	13	-	-	-	-	-	-
BH2D	24/04/2020	7.7	795	0.03	8	1.8	93	3	71	13	35	125	204	6.5	6.5	<0.01	8	1.1	<0.01	<0.02	1	2	<1	<1	<1	<0.01	<0.03	<2
BH2D	14/05/2020	7.4	710	<0.01	-	-	-	-	-	-	30	48	-	-	-	-	6.8	-	-	<0.02	<1	3	-	-	-	-	-	-
BH2D	12/06/2020	7.5	718	0.08	-	-	-	-	-	-	31	50	-	-	-	-	4.4	-	-	<0.02	<1	5	-	-	-	-	-	-
BH2D	09/07/2020	7.6	664	0.18	<5	0.35	132	15	16	3	27	51	287	<0.2	<0.2	<0.01	5.3	6.44050055	<0.01	<0.02	<1	7	<1	<1	<1	<0.01	<0.03	<2
BH2D	06/08/2020	7.8	672	0.07	-	-	-	-	-	-	28	53	-	-	-	-	5.5	-	-	<0.02	<1	6				-		
BH2D	30/09/2020	7.6	710	1	-	-	-	-	-	-	30	53	-	-	-	-	6.2	-	-	0.03	<1	3				-		
BH2D	15/10/2020	7.6	727	<0.02	<5	0.67	125	14	15	3	33	44	277	1.8	1.8	<0.01	6.7	3.964938646	<0.01	<0.02	<1	5	<1	<1	<1	0.01	<0.03	<10
BH2D	11/11/2020	7.7	576	0.11	-	-	-	-	-	-	30	49	-	-	-	-	9	-	-	<0.02	<1	4				-		
BH2D	08/12/2020	7.6	672	<0.01	-	-	-	-	-	-	29	87	-	-	-	-	9.5	-	-	<0.02	<1	3				-		
BH2D	07/01/2021	7.9	703	0.03	6	1.8	104	3	66	<1	25	117	223	3.1	3.1	<0.01	9.5	3.21	<0.01	<0.02	<1	<2	<1	<1	<1	<0.01	<0.03	<2
BH2D	18/02/2021	7.8	625	0.01	-	-	-	-	-	-	20	53	-	-	-	-	11.3	-	-	<0.02	<1	2				-		
BH2D	16/03/2021	7.7	487	0.03	-	-	-	-	-	-	11	35	-	-	-	-	9.2	-	-	<0.02	<1	2				-		
BH2D	20/04/2021	7.5	1200	<0.02	6	1.5	75	3	36	<1	11	38	182	5.9	5.9	<0.01	7.2	3.94	<0.01	<0.02	<1	<2	<1	<1	<1	<0.01	<0.03	<2
BH2D	12/05/2021	7.8	656	<0.01	-	-	-	-	-	-	26	51	-	-	-	-	6.5	-	-	0.03	<1	4				-		
BH2D	01/06/2021	7.6	684	0.02	-	-	-	-	-	-	29	47	-	-	-	-	6.8	-	-	0.04	<1	<2				-		
BH2D	09/07/2021	7.7	693	<0.02	<5	0.67	128	14	13	2	27	48	253	1.5	1.5	<0.01	3.6	9.2	<0.01	<0.02	<1	6	<1	<1	<1	<0.01	<0.03	<2
BH2D	03/08/2021	7.4	714	0.3	-	-	-	-	-	-	27	51	-	-	-	-	3.4	-	-	<0.02	<1	3				-		
BH2D	10/09/2021	7.7	708	0.3	-	-	-	-	-	-	27	55	-	-	-	-	4.2	-	-	<0.02	<1	7				-		
BH2D	05/10/2021	7.7	704	<0.02	8	0.91	121	14	15	2	29	51	294	<0.2	<0.2	<0.01	4.1	1.12	<0.01	0.04	<1	15	<1	<1	<1	0.01	<0.03	3
BH3DA	10/10/2018	7.74	660	0.11	8	2	120	14	12	2.1	26	36	320	<0.1	<0.5	<0.1	10		<0.5	<0.02	1	11	2	<1	<0.5	<0.01	<0.05	130
BH3DA	07/11/2018	7.33	700	0.09							26	31					9			<0.02	1	56						
BH3DA	07/12/2018	7.19	700	0.07							25	32					9.1			<0.02	2	3						
BH3DA	22/01/2019	7.12	710	<0.05	8	2	120	14	19	1.9	26	36	330	<0.1	<0.5	<0.1	9.4	-0.22	<0.5	<0.02	1	7	1.5	<1	<0.5	<0.01	<0.05	110
BH3DA	08/02/2019	7.72	690	<0.05							26	34					9.5			0.02	1	4						
BH3DA	08/03/2019	7.18	700	<0.05							29	37					9.5			0.1	1	10						
BH3DA	04/04/2019	7.28	710	0.1	39	2	130	14	11	4.3	26	34	300	<0.1	<0.5	<0.1	9.6	4.5	<0.5	<0.02	1	5	0.5	<1	<0.5	<0.01	<0.05	91
BH3DA	03/05/2019	7.22	690	0.08							26	34					9.6			<0.02	<1	<2						
BH3DA	14/06/2019	7.25	690	0.2							25	32					9.8			<0.02	1	2						
BH3DA	30/07/2019	7.48	700	0.16	16	2	130	15	15	3.3	26	33	320	<0.1	<0.5	<0.1	9.5	5.7	<0.5	0.29	<10	<20	<2.0	<10	6.3	<0.01	<0.50	39
BH3DA	28/08/2019	7.3	710	0.14							26	32					9.9			<0.02	<1	<2						
BH3DA	25/09/2019	7.4	690	0.1	-	-	-	-	-	-	24	31	-	-	-	-	8.5	-	-	<0.1	1	4	1	-	-	-	-	-
BH3DA	18/10/2019	7.5	701	0.05	<5	0.44	128	15	13	3	25	32	299	<0.2	<0.2	<0.01	11.1	5.9	<0.01	<0.02	1	5	<1	<1	2	0.18	<0.03	44
BH3DA	28/11/2019	7.4	691	<0.01	-	-	-	-	-	-	25	33	-	-	-	-	10.7	-	-	0.03	<1	31	-	-	-	-	-	-
BH3DA	16/12/2019	7.4	684	0.03	-	-	-	-	-	-	26	31	-	-	-	-	10.2	-	-	<0.02	<1	20	-	-	-	-	-	-
BH3DA	27/01/2020	7.5	678	0.02	<5	0.83	116	14	12	3	25	34	295	<0.2	<0.2	<0.01	8.3	1.6	<0.01	<0.02	2	<2	<1	<1	<1	<0.01	<0.03	<2
BH3DA	21/02/2020	7.3	689	0.01	-	-	-	-	-	-	25	32	-	-	-	-	6.5	-	-	<0.02	<1	9	-	-	-	-	-	-
BH3DA	11/03/2020	7.3	704	0.08	-	-	-	-	-	-	29	32	-	-	-	-	8.2	-	-	<0.02	2	10	-	-	-	-	-	-
BH3DA	24/04/2020	7.5	685	0.03	<5	0.55	125	14	12	3	23	32	287	<0.2	<0.2	<0.01	6.6	6.3	<0.01	<0.02	<1	4	<1	<1	<1	<0.01	<0.03	<2
BH3DA	14/05/2020	7.5	698	0.05	-	-	-	-	-	-	27	32	-	-	-	-	6.2	-	-	<0.02	1	4	-	-	-	-	-	-
BH3DA	12/06/2020	7.4	690	0.05	-	-	-	-	-	-	25	33	-	-	-	-	4.7	-	-	<0.02	1	3	-	-	-	-	-	-
BH3DA	09/07/2020	7.6	624	0.1	<5	0.48	130	14	13	3	25	33	304	<0.2	<0.2	<0.01	5.8	5.222173377	<0.01	<0.02	<1	6	<1	<1	<1	<0.01	<0.03	90
BH3DA	06/08/2020	7.8	643	0.09	-	-	-	-	-	-	25	33	-	-	-	-	6.6	-	-	<0.02	<1	2				-		
BH3DA	30/09/2020	7.5	687	0.3	-	-	-	-	-	-	26	32	-	-	-	-	6.1	-	-	<0.02	<1	3				-		
BH3DA	15/10/2020	7.6	682	<0.02	<5	0.76	118	13	13	3	25	31	284	<0.2	<0.2	<0.01	6.8	3.925953417	<0.01	<0.02	<1	3	<1	<1	<1	<0.01	<0.03	30
BH3DA	11/11/2020	7.6	671	0.06	-	-	-	-	-	-	24	32	-	-	-	-	5.2	-	-	<0.02	<1	3				-		
BH3DA	08/12/2020	7.5	605	0.02	-	-	-	-	-	-	23	33	-	-	-	-	9.5	-	-	<0.02	<1	3				-		
BH3DA	07/01/2021	7.7	651	<0.02	<5	0.52	128	14	13	3	25	36	303	<0.2	<0.2	<0.01	9.3	4.29	<0.01	<0.02	<1	2	<1	<1	<1	<0.01	<0.03	<2
BH3DA	18/02/2021	7.6	683	<0.01	-	-	-	-	-	-	25	34	-	-	-	-	7.7	-	-	<0.02	<1	3				-		
BH3DA	16/03/2021	7.7	651	<0.01	-	-	-	-	-	-	23	32	-	-	-	-	6.1	-	-	<0.02	<1	4				-		
BH3DA	20/04/2021	7.6	991	0.08	<5	0.44	131	15	15	3	23	32	290	<0.2	<0.2	<0.01	5.6	8.95	<0.01	<0.02	<1	<2	1	<1	<1	<0.01	<0.03	107
BH3DA	12/05/2021	7.8	634	0.06	-	-	-	-	-	-	24	37	-	-	-	-	5.5	-	-	<0.02	<1	<2				-		
BH3DA	01/06/2021	7.7	674	0.08	-	-	-	-	-	-	25	33	-	-	-	-	5.8	-	-	0.02	<1	<2				-		
BH3DA	09/07/2021	7.7	672	0.04	6	0.74	129	14	13	3	25	33	164	<0.2	<0.2	<0.01	4	28.9	<0.01	<0.02	<1	4	2	<1	<1	0.01	<0.03	45
BH3DA	03/08/2021	7.5	669	0.2	-	-	-	-	-	-	25	34	-	-	-	-	3.1	-	-	<0.02	<1	4				-		
BH3DA	10/09/2021	7.7	666	0.2	-	-	-	-	-	-	24	37	-	-	-	-	3.8	-	-	<0.02	1	7				-		
BH3DA	05/10/2021	7.7	667	0.09	5	0.66	117	13	13	3	24	32	296	<0.2	<0.2	<0.01	4.9	2.29	<0.01	0.05	<1	10	4	<1	<1	0.01	<0.03	115
BH4D	10/10/2018	7.29	910	0.07	94	3	190	9.7	25	1	51	40	720	<0.1	<0.5	<0.1	9.6		<0.5	<0.02	8	8	1.1	<1	<0.5	<0.01	<0.05	300
BH4D	07/11/2018	6.92	900	<0.05							44	35					7.9			<0.02	8	27						
BH4D	07/12/2018	6.85	920	0.07							45	33					8.2			0.03	7	6						
BH4D	22/01/2019	6.64	1000	0.16	160	5	190	14	29	<0.1	45	34	560	0.1	<0.5	0.1	8.1	-4.8	<0.5	<0.02	6	3	0.8	<1	<0.5	0.01	<0.05	550
BH4D	08/02/2019	7.22	920	0.06							40	33					8.9			<0.02	4	<2						
BH4D	08/03/2019	6.74	970	0.1							44	31					9.5			0.08	7	<2						
BH4D	04/04/2019	6.83	980	0.22	420	4	180	13	23	2	42	31	4700	0.2	1	<0.1	6.8	-79	<0.5	0.02	9	<2	0.8	<1	0.7	0.04	<0.05	420
BH4D	03/05/2019	6.89	960	0.09							39	32					8.1			0.05	12	<2						
BH4D	14/06/2019	6.73	1200	0.38							45	55					9			0.03	9	<2						
BH4D	30/07/2019	6.96	1000	0.16	350	5	180	12	25	1	44	28	750	<0.1	<0.5	<0.1	8.7	30	<0.5	0.31	15	<20	<2.0	<10	<5.0	0.03	<0.50	160
BH4D	28/08/2019	6.92	930	0.07							46	31					9.7			0.05	12	<2						
BH4D	25/09/2019	6.9	984	0.14	-	-	-	-	-	-	**46**	**47**	-	-	-	-	2.6	-	-	<0.1	6	**3**	<1	-	-	-	-	-
BH4D	18/10/2019	6.8	994	0.16	12	3.7	196	13	26	5	42	43	427	0.2	<0.2	<0.01	3.1	6.7	0.01	<0.02	7	3	<1	<1	2	0.22	<0.03	256
BH4D	28/11/2019	6.7	1070	0.3	-	-	-	-	-	-	43	32	-	-	-	-	7.9	-	-	0.04	4	22	-	-	-	-	-	-
BH4D	16/12/2019	6.7	1080	0.5	-	-	-	-	-	-	**45**	**33**	-	-	-	-	8.1	-	-	<0.02	3	**8**	-	-	-	-	-	-
BH4D	27/01/2020	7	1030	0.5	11	6.2	201	15	32	3	48	81	424	<0.2	<0.2	<0.01	6.2	5.2	<0.01	<0.02	4	3	<1	<1	1	<0.01	<0.03	359
BH4D	21/02/2020	6.9	982	0.4	-	-	-	-	-	-	40	70	-	-	-	-	1.9	-	-	<0.02	5	3	-	-	-	-	-	-
BH4D	11/03/2020	6.8	1120	0.3	-	-	-	-	-	-	**46**	**55**	-	-	-	-	6.4	-	-	<0.02	7	**<2**	-	-	-	-	-	-
BH4D	24/04/2020	7.2	907	0.08	8	2.7	187	12	21	1	35	28	379	0.5	0.5	<0.01	5.7	10.2	<0.01	0.03	13	2	<1	<1	1	<0.01	<0.03	156
BH4D	14/05/2020	7.1	875	0.05	-	-	-	-	-	-	**40**	**26**	-	-	-	-	5.2	-	-	0.03	4	<2	-	-	-	-	-	-
BH4D	12/06/2020	7.1	858	0.05	-	-	-	-	-	-	**45**	**34**	-	-	-	-	1.6	-	-	0.04	11	**150**	-	-	-	-	-	-
BH4D	09/07/2020	7.3	754	0.14	6	2.7	188	10	24	1	**49**	**41**	392	0.3	0.3	0.01	3.6	5.628256469	**<0.01**	0.03	9	3	<1	<1	2	<0.01	<0.03	87
BH4D	06/08/2020	7.3	774	0.12	-	-	-	-	-	-	**45**	**38**	-	-	-	-	3	-	-	0.02	8	<2				-		
BH4D	30/09/2020	7.1	1030	0.2	-	-	-	-	-	-	**40**	**28**	-	-	-	-	2.4	-	-	0.06	13	**<2**				-		
BH4D	15/10/2020	7.2	959	0.39	7	4	181	12	27	1	37	42	422	0.8	0.8	0.01	3.1	3.919647266	<0.01	<0.02	8	221	<1	<1	3	0.08	<0.03	30
BH4D	11/11/2020	7.2	903	0.15	-	-	-	-	-	-	34	31	-	-	-	-	3.7	-	-	0.06	10	<2				-		
BH4D	08/12/2020	7.1	964	0.5	-	-	-	-	-	-	**36**	**42**	-	-	-	-	4.7	-	-	0.04	8	**<2**				-		
BH4D	07/01/2021	7.4	921	0.39	12	3.5	203	14	23	<1	42	29	444	1.5	1.5	<0.01	4.8	6.87	<0.01	<0.02	4	<2	<1	<1	<1	<0.01	<0.03	448
BH4D	18/02/2021	7.1	1500	0.5	-	-	-	-	-	-	137	28	-	-	-	-	3.6	-	-	0.03	4	<2				-		
BH4D	16/03/2021	6.9	1090	0.3	-	-	-	-	-	-	**61**	**31**	-	-	-	-	1.1	-	-	0.03	5	**70**				-		
BH4D	20/04/2021	7.8	909	0.08	<5	1.3	151	9	19	1	22	25	494	0.7	0.7	<0.01	4	-9.51	<0.01	<0.02	5	<2	<1	<1	<1	<0.01	<0.03	31
BH4D	12/05/2021	7.5	675	0.05	-	-	-	-	-	-	**27**	**36**	-	-	-	-	4.2	-	-	0.04	11	2				-		
BH4D	01/06/2021	7.4	832	0.2	-	-	-	-	-	-	**28**	**31**	-	-	-	-	4.4	-	-	0.03	9	**<2**				-		
BH4D	09/07/2021	7.1	876	0.13	10	3.1	186	11	20	<1	**32**	**30**	184	0.3	0.3	<0.01	2	36.2	<0.01	<0.02	5	22	<1	<1	<1	<0.01	<0.03	261
BH4D	03/08/2021	7.2	894	0.4	-	-	-	-	-	-	**40**	**28**	-	-	-	-	1.5	-	-	0.02	5	<2				-		
BH4D	10/09/2021	7.3	932	0.2	-	-	-	-	-	-	45	60	-	-	-	-	3	-	-	0.02	4	<2				-		
BH4D	05/10/2021	7.3	954	0.39	18	4.8	179	11	24	1	44	51	376	<0.2	<0.2	0.01	2.1	5.57	<0.01	0.06	3	10	<1	<1	<1	0.01	<0.03	356
BH5D	10/10/2018	7.87	2200	0.08	50	6	75	16	400	9.7	68	590	470	6.4	28	1	9.8		<0.5	0.04	9	21	4.2	<1	7.8	0.02	0.42	22

BYRNELOOBY

Location	Date	pH	Electrical Conductivity (µS/cm)	Ammoniacal nitrogen (mg/l)	COD (mg/l)	TOC (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Potassium (mg/l)	Chloride (mg/l)	Sulphate (mg/l)	Alkalinity	TON (mg/l)	Nitrate (mg/l)	Nitrite (mg/l)	Diss Oxygen (mg/l)	Ionic Balance (%)	Phosphate (mg/l)	Cd (Dissolved)(µg/l)	Ni (Dissolved) (µg/l)	Zn (Dissolved) (µg/l)	As (Dissolved) (µg/l)	Cr (Dissolved) (µg/l)	Cu (Dissolved) (µg/l)	Fe (Dissolved) (mg/l)	Hg (Dissolved) (µg/l)	Mn (Dissolved) (µg/l)
BH5D	07/11/2018	7.34	1800	<0.05							50	450					6.9			<0.10	<5	37						
BH5D	07/12/2018	7.41	1600	<0.05							47	360					8.5			<0.02	3	7						
BH5D	22/01/2019	7.2	1300	<0.05	11	3	98	16	190	3.7	39	280	370	<0.1	<0.5	<0.1	9.2	0.86	<0.5	<0.02	3	5	1.8	<1	0.5	<0.01	<0.05	78
BH5D	08/02/2019	7.69	1300	<0.05							38	270					8.9			<0.02	2	6						
BH5D	08/03/2019	7.35	1200	<0.05							40	270					10			0.02	2	6						
BH5D	04/04/2019	7.39	1200	0.06	41	3	100	16	160	6.3	36	220	390	<0.1	<0.5	<0.1	9.5	-0.17	<0.5	<0.02	2	4	1.7	<1	<0.5	<0.01	<0.05	9
BH5D	03/05/2019	7.47	1300	<0.05							37	270					9.4			<0.02	3	<2						
BH5D	14/06/2019	7.43	1200	0.12							35	230					9.9			<0.02	2	3						
BH5D	30/07/2019	7.6	1200	0.12	120	2	110	17	170	5.1	36	230	390	<0.1	<0.5	<0.1	9.5	3.8	<0.5	0.31	<10	<20	<2.0	<10	<5.0	<0.01	<0.50	<10
BH5D	28/08/2019	7.44	1200	<0.05							35	220					9.6			<0.02	1	<2						
BH5D	25/09/2019	7.6	1190	0.05	-	-	-	-	-	-	35	234	-	-	-	-	7.6	-	-	<0.1	1	3	<1	-	-	-	-	-
BH5D	18/10/2019	7.6	1120	0.03	<5	1	105	16	132	6	36	202	340	<0.2	<0.2	<0.01	10.1	1.8	0.02	<0.02	2	6	<1	<1	<1	0.16	<0.03	23
BH5D	28/11/2019	7.4	1100	0.01	-	-	-	-	-	-	33	215	-	-	-	-	9.4	-	-	<0.02	1	10	-	-	-	-	-	-
BH5D	16/12/2019	7.4	1070	0.02	-	-	-	-	-	-	33	194	-	-	-	-	9.5	-	-	<0.02	2	12	-	-	-	-	-	-
BH5D	27/01/2020	6.9	1110	0.4	5	6.6	225	18	30	1	50	44	503	<0.2	<0.2	<0.01	4.7	6.4	<0.01	<0.02	5	<2	<1	<1	3	<0.01	<0.03	156
BH5D	21/02/2020	7.5	1080	0.01	-	-	-	-	-	-	33	194	-	-	-	-	6	-	-	<0.02	1	11	-	-	-	-	-	-
BH5D	11/03/2020	7.4	1090	0.04	-	-	-	-	-	-	33	202	-	-	-	-	8.1	-	-	<0.02	2	5	-	-	-	-	-	-
BH5D	24/04/2020	7.7	1100	0.04	<5	1.1	110	17	123	5	31	209	335	<0.2	<0.2	<0.01	8.7	1.9	<0.01	<0.02	1	<2	1	<1	<1	<0.01	<0.03	<2
BH5D	14/05/2020	7.6	1150	0.06	-	-	-	-	-	-	43	203	-	-	-	-	6.5	-	-	<0.02	2	8	-	-	-	-	-	-
BH5D	12/06/2020	7.7	1150	0.02	-	-	-	-	-	-	33	223	-	-	-	-	4.7	-	-	<0.02	1	<2	-	-	-	-	-	-
BH5D	09/07/2020	7.7	1050	0.04	<5	1.1	113	17	132	6	33	212	343	0.3	0.3	<0.01	6	2.932845486	<0.01	<0.02	1	3	<1	<1	<1	<0.01	<0.03	<2
BH5D	06/08/2020	7.9	1000	0.06	-	-	-	-	-	-	34	190	-	-	-	-	5.4	-	-	<0.02	2	5				-		
BH5D	30/09/2020	7.6	1030	<0.01	-	-	-	-	-	-	34	172	-	-	-	-	5.9	-	-	<0.02	2	3				-		
BH5D	15/10/2020	7.7	957	<0.02	<5	1.1	104	15	82	4	32	144	298	0.3	0.3	<0.01	6.6	1.193640954	<0.01	<0.02	1	4	1	<1	<1	<0.01	<0.03	<10
BH5D	11/11/2020	7.7	944	0.03	-	-	-	-	-	-	31	162	-	-	-	-	5.5	-	-	0.03	1	<2				-		
BH5D	08/12/2020	7.6	905	0.01	-	-	-	-	-	-	30	154	-	-	-	-	8.2	-	-	<0.02	1	5				-		
BH5D	07/01/2021	7.9	890	<0.02	<5	0.82	118	17	80	5	29	159	310	<0.2	<0.2	<0.01	9.5	2.75	<0.01	<0.02	1	<2	<1	<1	<1	<0.01	<0.03	66
BH5D	18/02/2021	7.6	947	<0.01	-	-	-	-	-	-	30	140	-	-	-	-	7.8	-	-	<0.02	1	3				-		
BH5D	16/03/2021	7.9	898	0.02	-	-	-	-	-	-	28	137	-	-	-	-	5.7	-	-	<0.02	2	4				-		
BH5D	20/04/2021	7.8	1020	<0.02	<5	0.72	118	17	84	5	28	145	317	<0.2	<0.2	<0.01	4.7	4.42	<0.01	<0.02	2	4	<1	<1	<1	<0.01	<0.03	117
BH5D	12/05/2021	8	816	<0.01	-	-	-	-	-	-	27	137	-	-	-	-	5.5	-	-	<0.02	1	2				-		
BH5D	01/06/2021	7.8	817	<0.01	-	-	-	-	-	-	28	104	-	-	-	-	6.4	-	-	<0.02	<1	4				-		
BH5D	09/07/2021	7.8	826	<0.02	<5	0.73	104	15	55	4	27	98	189	<0.2	<0.2	<0.01	3.6	15.4	<0.01	<0.02	1	4	1	<1	<1	<0.01	<0.03	224
BH5D	03/08/2021	7.6	853	0.12	-	-	-	-	-	-	29	120	-	-	-	-	2.5	-	-	<0.02	1	<2				-		
BH5D	10/09/2021	7.8	846	0.05	-	-	-	-	-	-	27	129	-	-	-	-	4	-	-	<0.02	<1	5				-		
BH5D	05/10/2021	7.7	867	<0.02	8	0.86	105	15	65	4	28	115	315	<0.2	<0.2	<0.01	4.9	-0.07	<0.01	0.06	<1	8	1	<1	<1	0.02	<0.03	353

Location	Date	Pb (Dissolved) (µg/l)	Methyl tert-Butyl Ether (µg/l)	Phenols (Mono) (mg/l)	Se (Dissolved) (µg/l)	Combined TPH mg/l	TPH (C35-C40) (mg/l)	TPH (C8 - C40) (mg/l)	TPH (C8-C35)(Total) (mg/l)	TPH Band (>C21-C35) mg/l	TPH Band >C10-C12 mg/l	TPH Band >C12-C16 mg/l	TPH Band >C16-C21 mg/l	TPH Band >C8-C10 mg/l	TPH GC mg/l	TPH FTIRPER. mg/l	Aluminium (mg/l)	Silicon (mg/l)	Bromide (mg/l)	Fluoride (mg/l)	Carbonate (mg/l)	Bicarbonate (mg/l)	PAH (Total) (ug/l)	Naphthalene (ug/l)	Acenaphthylene (ug/l)	Acenaphthene (ug/l)	Fluorene (ug/l)	Phenanthrene (ug/l)
BH2D	10/10/2018	<0.3	<1	<0.1	22	0.03	<0.02	0.03	0.03								0.05	<5	<0.50	0.4		<10	0.21	<0.01	<0.01	<0.01	<0.01	<0.01
BH2D	07/11/2018																											
BH2D	07/12/2018																											
BH2D	22/01/2019	<0.3	<1	<0.1	5.4	0.12	<0.10	0.12	0.12								<0.02	<5	<0.50	0.34	<10	390	0.15	0.01	0.01	<0.01	<0.01	0.01
BH2D	08/02/2019																											
BH2D	08/03/2019																											
BH2D	04/04/2019	<0.3	<1	<0.1	4	0.35	0.05	0.35	0.3								<0.02	<5	<0.50	0.35	<10	370	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BH2D	03/05/2019																											
BH2D	14/06/2019																											
BH2D	30/07/2019	<3.0	<1	<0.1	3.7	0.02	<0.01	0.02	0.02								0.02	<5	<0.05	0.46	<10	390	0.11	<0.01	<0.01	0.01	0.01	0.01
BH2D	28/08/2019																											
BH2D	25/09/2019																											
BH2D	18/10/2019	<1	< 10.0	<0.0005	2					-	-	-	-	-	-	<0.3							< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH2D	28/11/2019	-	-	-	-					-	-	-	-	-	-								-					
BH2D	16/12/2019	-	-	-	-	0.01				< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010								-					
BH2D	27/01/2020	<1	<1	<0.0005	<1	0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01								< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH2D	21/02/2020	-	-	-	-					-	-	-	-	-	-								-					
BH2D	11/03/2020	-	-	-	-					-	-	-	-	-	-								-					
BH2D	24/04/2020	<1	<1	<0.0005	15	0.014				0.01	< 0.010	< 0.010	< 0.010	< 0.010	0.014								< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH2D	14/05/2020	-	-	-	-					-	-	-	-	-	-								-					
BH2D	12/06/2020	-	-	-	-					-	-	-	-	-	-								-					
BH2D	09/07/2020	<1	<10	<0.05	<1					<0.01	<0.01	<0.01	<0.01	<0.01	0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH2D	06/08/2020		-	-						-	-	-	-	-	-								-					
BH2D	30/09/2020		-	-						-	-	-	-	-	-								-					
BH2D	15/10/2020	<1	<10		1					0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.3							<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH2D	11/11/2020		-							-	-	-	-	-	-								-					
BH2D	08/12/2020		-							-	-	-	-	-	-								-					
BH2D	07/01/2021	<1	<10		10					0.01	<0.01	<0.01	<0.01	<0.01	0.02								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH2D	18/02/2021		-							-	-	-	-	-	-								-					
BH2D	16/03/2021		-							-	-	-	-	-	-								-					
BH2D	20/04/2021	<1	<10		4					<0.01	<0.01	<0.01	<0.01	<0.01	0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH2D	12/05/2021		-							-	-	-	-	-	-								-					
BH2D	01/06/2021		-							-	-	-	-	-	-								-					
BH2D	09/07/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH2D	03/08/2021		-							-	-	-	-	-	-								-					
BH2D	10/09/2021		-							-	-	-	-	-	-								-					
BH2D	05/10/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.3							0.16	0.01	<0.01	<0.01	<0.01	<0.01
BH3DA	10/10/2018	<0.3	<1	<0.1	<0.5	0.03	<0.02	0.03	0.03								<0.02	<5	<0.50	0.38		<10	0.13	<0.01	<0.01	<0.01	<0.01	<0.01
BH3DA	07/11/2018																											
BH3DA	07/12/2018																											
BH3DA	22/01/2019	<0.3	<1	<0.1	<0.5	0.1	<0.10	<0.10	<0.10								0.02	<5	<0.50	0.34	<10	400	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
BH3DA	08/02/2019																											
BH3DA	08/03/2019																											
BH3DA	04/04/2019	<0.3	<1	<0.1	<0.5	0.15	<0.02	0.15	0.15								<0.02	<5	<0.50	0.38	<10	370	0.02	0.02	<0.01	<0.01	<0.01	<0.01
BH3DA	03/05/2019																											
BH3DA	14/06/2019																											
BH3DA	30/07/2019	<3.0	<1	<0.1	<3.0	0.01	<0.01	<0.01	<0.01								<0.02	<5	<0.05	0.33	<10	390	0.12	0.01	<0.01	<0.01	0.01	<0.01
BH3DA	28/08/2019																											
BH3DA	25/09/2019	-	-	-	-		-	-	-														-					
BH3DA	18/10/2019	<1	< 10.0	<0.0005	<1					-	-	-	-	-	-	<0.3							< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH3DA	28/11/2019	-	-	-	-					-	-	-	-	-	-								-					
BH3DA	16/12/2019	-	-	-	-	0.032				0.027	< 0.010	< 0.010	< 0.010	< 0.010	0.032								-					
BH3DA	27/01/2020	<1	<1	<0.0005	<1	0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01								< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH3DA	21/02/2020	-	-	-	-					-	-	-	-	-	-								-					
BH3DA	11/03/2020	-	-	-	-					-	-	-	-	-	-								-					
BH3DA	24/04/2020	<1	<1	<0.0005	<1	0.013				< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.013								< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH3DA	14/05/2020	-	-	-	-					-	-	-	-	-	-								-					
BH3DA	12/06/2020	-	-	-	-					-	-	-	-	-	-								-					
BH3DA	09/07/2020	<1	<10	<0.05	<1					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH3DA	06/08/2020		-	-						-	-	-	-	-	-								-					
BH3DA	30/09/2020		-	-						-	-	-	-	-	-								-					
BH3DA	15/10/2020	<1	<10		<1					0.02	<0.01	<0.01	<0.01	<0.01	0.02	<0.3							<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH3DA	11/11/2020		-							-	-	-	-	-	-								-					
BH3DA	08/12/2020		-							-	-	-	-	-	-								-					
BH3DA	07/01/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH3DA	18/02/2021		-							-	-	-	-	-	-								-					
BH3DA	16/03/2021		-							-	-	-	-	-	-								-					
BH3DA	20/04/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH3DA	12/05/2021		-							-	-	-	-	-	-								-					
BH3DA	01/06/2021		-							-	-	-	-	-	-								-					
BH3DA	09/07/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH3DA	03/08/2021		-							-	-	-	-	-	-								-					

BYRNELOOBY

Location	Date	Pb (Dissolved) (µg/l)	Methyl tert-Butyl Ether (µg/l)	Phenols (Mono) (mg/l)	Se (Dissolved) (µg/l)	Combined TPH mg/l	TPH (C35-C40) (mg/l)	TPH (C8 - C40) (mg/l)	TPH (C8-C35)(Total) (mg/l)	TPH Band (>C21-C35) mg/l	TPH Band >C10-C12 mg/l	TPH Band >C12-C16 mg/l	TPH Band >C16-C21 mg/l	TPH Band >C8-C10 mg/l	TPH GC mg/l	TPH FTIRPER. mg/l	Aluminium (mg/l)	Silicon (mg/l)	Bromide (mg/l)	Fluoride (mg/l)	Carbonate (mg/l)	Bicarbonate (mg/l)	PAH (Total) (ug/l)	Naphthalene (ug/l)	Acenaphthylene (ug/l)	Acenaphthene (ug/l)	Fluorene (ug/l)	Phenanthrene (ug/l)
BH3DA	10/09/2021		-							-	-	-	-	-	-								-					
BH3DA	05/10/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.3							0.17	0.02	<0.01	<0.01	<0.01	<0.01
BH4D	10/10/2018	<0.3	<1	<0.1	<0.5	0.13	0.02	0.13	0.11								0.37	<5	<0.50	0.08		<10	0.03	0.03	<0.01	<0.01	<0.01	<0.01
BH4D	07/11/2018																											
BH4D	07/12/2018																											
BH4D	22/01/2019	<0.3	<1	<0.1	<0.5	0.18	<0.10	0.18	0.18								<0.02	<5	<0.50	0.09	<10	680	0.21	<0.01	0.01	0.01	0.01	0.03
BH4D	08/02/2019																											
BH4D	08/03/2019																											
BH4D	04/04/2019	<0.3	<1	<0.1	<0.5	0.14	<0.02	0.14	0.14								0.04	<5	<0.50	0.11	<10	5700	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BH4D	03/05/2019																											
BH4D	14/06/2019																											
BH4D	30/07/2019	<3.0	<1	<0.1	<3.0	0.02	<0.01	0.02	0.02								0.04	<5	<0.05	0.11	<10	920	0.09	0.01	<0.01	<0.01	0.01	0.01
BH4D	28/08/2019																											
BH4D	25/09/2019	-	-	-	-		-	-	-														-					
BH4D	18/10/2019	<1	< 10.0	<0.0005	<1					-	-	-	-	-	-	<0.3							< 0.16	0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH4D	28/11/2019	-	-	-	-					-	-	-	-	-	-								-					
BH4D	16/12/2019	-	-	-	-	0.01				< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010								-					
BH4D	27/01/2020	<1	<1	<0.0005	<1	0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01								< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH4D	21/02/2020	-	-	-	-					-	-	-	-	-	-								-					
BH4D	11/03/2020	-	-	-	-					-	-	-	-	-	-								-					
BH4D	24/04/2020	<1	<1	<0.0005	<1	0.01				< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.01								< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH4D	14/05/2020	-	-	-	-					-	-	-	-	-	-								-					
BH4D	12/06/2020	-	-	-	-					-	-	-	-	-	-								-					
BH4D	09/07/2020	<1	<10	<0.05	<1					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH4D	06/08/2020		-	-						-	-	-	-	-	-								-					
BH4D	30/09/2020		-	-						-	-	-	-	-	-								-					
BH4D	15/10/2020	<1	<1	<0.1	<1					0.02	<0.01	<0.01	<0.01	<0.01	0.01	<0.3							<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH4D	11/11/2020		-							-	-	-	-	-	-								-					
BH4D	08/12/2020		-							-	-	-	-	-	-								-					
BH4D	07/01/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH4D	18/02/2021		-							-	-	-	-	-	-								-					
BH4D	16/03/2021		-							-	-	-	-	-	-								-					
BH4D	20/04/2021	<1	<10		2					<0.01	<0.01	<0.01	<0.01	<0.01	0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH4D	12/05/2021		-							-	-	-	-	-	-								-					
BH4D	01/06/2021		-							-	-	-	-	-	-								-					
BH4D	09/07/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH4D	03/08/2021		-							-	-	-	-	-	-								-					
BH4D	10/09/2021		-							-	-	-	-	-	-								-					
BH4D	05/10/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.3							0.16	0.01	<0.01	<0.01	<0.01	<0.01
BH5D	10/10/2018	<0.3	<1	<0.1	100	0.02	<0.02	<0.02	<0.02								0.04	<5	<0.50	0.15		<10	0.6	0.01	0.01	<0.01	<0.01	0.01
BH5D	07/11/2018																											
BH5D	07/12/2018																											
BH5D	22/01/2019	<0.3	<1	<0.1	1.8	0.11	<0.10	0.11	0.11								<0.02	<5	<0.50	0.22	<10	450	0.05	<0.01	<0.01	<0.01	0.01	<0.01
BH5D	08/02/2019																											
BH5D	08/03/2019																											
BH5D	04/04/2019	<0.3	<1	<0.1	1.6	0.22	0.02	0.22	0.2								<0.02	<5	<0.50	0.23	<10	480	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BH5D	03/05/2019																											
BH5D	14/06/2019																											
BH5D	30/07/2019	<3.0	<1	<0.1	3.3	0.01	<0.01	0.01	0.01								<0.02	<5	<0.05	0.19	<10	480	0.05	<0.01	<0.01	0.01	<0.01	<0.01
BH5D	28/08/2019																											
BH5D	25/09/2019	-	-	-	-		-	-	-														-					
BH5D	18/10/2019	<1	< 10.0	<0.0005	<1					-	-	-	-	-	-	<0.3							< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH5D	28/11/2019	-	-	-	-					-	-	-	-	-	-								-					
BH5D	16/12/2019	-	-	-	-	0.166				0.159	< 0.010	< 0.010	< 0.010	< 0.010	0.166								-					
BH5D	27/01/2020	<1	<1	<0.0005	<1	0.01				< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01								< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH5D	21/02/2020	-	-	-	-					-	-	-	-	-	-								-					
BH5D	11/03/2020	-	-	-	-					-	-	-	-	-	-								-					
BH5D	24/04/2020	<1	<1	<0.0005	1	0.022				0.017	< 0.010	< 0.010	< 0.010	< 0.010	0.022								< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
BH5D	14/05/2020	-	-	-	-					-	-	-	-	-	-								-					
BH5D	12/06/2020	-	-	-	-					-	-	-	-	-	-								-					
BH5D	09/07/2020	<1	<10	<0.05	2					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH5D	06/08/2020		-	-						-	-	-	-	-	-								-					
BH5D	30/09/2020		-	-						-	-	-	-	-	-								-					
BH5D	15/10/2020	<1	11		<1					0.02	<0.01	<0.01	<0.01	<0.01	0.02	<0.3							<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH5D	11/11/2020		-							-	-	-	-	-	-								-					
BH5D	08/12/2020		-							-	-	-	-	-	-								-					
BH5D	07/01/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	0.02								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH5D	18/02/2021		-							-	-	-	-	-	-								-					
BH5D	16/03/2021		-							-	-	-	-	-	-								-					
BH5D	20/04/2021	<1	<10		2					<0.01	<0.01	<0.01	<0.01	<0.01	0.02								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH5D	12/05/2021		-							-	-	-	-	-	-								-					
BH5D	01/06/2021		-							-	-	-	-	-	-								-					
BH5D	09/07/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01								<0.16	<0.01	<0.01	<0.01	<0.01	<0.01
BH5D	03/08/2021		-							-	-	-	-	-	-								-					
BH5D	10/09/2021		-							-	-	-	-	-	-								-					
BH5D	05/10/2021	<1	<10		<1					<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.3							0.16	0.01	<0.01	<0.01	<0.01	<0.01

Location	Date	Anthracene (ug/l)	Fluoranthene (ug/l)	Pyrene (ug/l)	Benzo(a)Anthracene (ug/l)	Chrysene (ug/l)	Benzo(b)fluoranthene (ug/l)	Benzo(k)fluoranthene (ug/l)	Benzo(a)Pyrene (ug/l)	Indeno(123-cd)Pyrene (ug/l)	Dibenzo(ah)Anthracene (ug/l)	Benzo(ghi)Perylene (ug/l)	Phenol ug/l	Benzene ug/l	Toluene ug/l	EthylBenzene ug/l	M/P Xylene ug/l	O Xylene ug/l	Xylenes µg/l	Total Anions meq c	Total Cations meq c	Cresols mg/l	Dimethylphenols mg/l	Trimethylphenols mg/l	Acidity as CaCO3 mg	Barium as Ba mg/l	Strontium as Sr mg/l	Methylphenols mg/l	Total Phenols mg/l
BH2D	10/10/2018	<0.01	0.04	0.04	0.01	0.03	0.02	0.02	0.01	0.02	<0.01	0.02	<10	<1	<1	<1	<1	<1											
BH2D	07/11/2018																												
BH2D	07/12/2018																												
BH2D	22/01/2019	<0.01	0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.01	<0.01	0.01																	
BH2D	08/02/2019																												
BH2D	08/03/2019																												
BH2D	04/04/2019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01																	
BH2D	03/05/2019																												
BH2D	14/06/2019																												
BH2D	30/07/2019	<0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01																	
BH2D	28/08/2019																												
BH2D	25/09/2019																												
BH2D	18/10/2019	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<15	7.6	8.7	<0.0005	<0.0005	<0.0005					
BH2D	28/11/2019																												
BH2D	16/12/2019																												
BH2D	27/01/2020	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.5	<1	<1	<1	<1	<1	<2	7.2	8.2	<0.0005	<0.0005	<0.0005					
BH2D	21/02/2020																												
BH2D	11/03/2020																												
BH2D	24/04/2020	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		<1	<1	<1	<1	<1	<2	8.1	8.3	<0.0005	<0.0005	<0.0005					
BH2D	14/05/2020																												
BH2D	12/06/2020																												
BH2D	09/07/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<7.6	<8.6		<0.05	<0.05	Nil	0.07	0.49	<0.05	<0.20
BH2D	06/08/2020												-										-		-	-	-	-	-
BH2D	30/09/2020												-										-		-	-	-	-	-
BH2D	15/10/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<1		<1							<0.05	<0.05	Nil	0.07	0.51	<0.05	<0.20
BH2D	11/11/2020												-										-		-	-	-	-	-
BH2D	08/12/2020												-										-		-	-	-	-	-
BH2D	07/01/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<7.82	<8.34		<0.05	<0.05	Nil	0.01	0.13	<0.05	<0.20
BH2D	18/02/2021												-										-		-	-	-	-	-
BH2D	16/03/2021												-										-		-	-	-	-	-
BH2D	20/04/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<5.16	<5.58		<0.05	<0.05	Nil	<0.01	0.11	<0.05	<0.20
BH2D	12/05/2021												-										-		-	-	-	-	-

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Location	Date	Anthracene (ug/l)	Fluoranthene (ug/l)	Pyrene (ug/l)	Benzo(a)Anthracene (ug/l)	Chrysene (ug/l)	Benzo(b)fluoranthene (ug/l)	Benzo(k)fluoranthene (ug/l)	Benzo(a)Pyrene (ug/l)	Indeno(123-cd)Pyrene (ug/l)	Dibenzo(ah)Anthracene (ug/l)	Benzo(ghi)Perylene (ug/l)	Phenol ug/l	Benzene ug/l	Toluene ug/l	EthylBenzene ug/l	M/P Xylene ug/l	O Xylene ug/l	Xylenes µg/l	Total Anions meq c	Total Cations meq c	Cresols mg/l	Dimethylphenols mg/l	Trimethylphenols mg/l	Acidity as CaCO3 mg	Barium as Ba mg/	Strontium as Sr mg	Methylphenols mg/	Total Phenols mg/l
BH2D	01/06/2021												-										-		-	-	-	-	-
BH2D	09/07/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	6.93	8.33		<0.05	<0.05	8	0.07	0.5	<0.05	<0.20
BH2D	03/08/2021												-										-		-	-	-	-	-
BH2D	10/09/2021												-										-		-	-	-	-	-
BH2D	05/10/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<1		<1				7.77	7.95		<0.05	<0.05	Nil	0.07	0.46	<0.05	<0.20
BH3DA	10/10/2018	<0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.02	<0.01	0.02	<10	<1	<1	<1	<1	<1											
BH3DA	07/11/2018																												
BH3DA	07/12/2018																												
BH3DA	22/01/2019	<0.01	0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01																	
BH3DA	08/02/2019																												
BH3DA	08/03/2019																												
BH3DA	04/04/2019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01																	
BH3DA	03/05/2019																												
BH3DA	14/06/2019																												
BH3DA	30/07/2019	<0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	<0.01	0.01																	
BH3DA	28/08/2019																												
BH3DA	25/09/2019																												
BH3DA	18/10/2019	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<15	7.3	8.3	<0.0005	<0.0005	<0.0005					
BH3DA	28/11/2019																												
BH3DA	16/12/2019																												
BH3DA	27/01/2020	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.5	<1	<1	<1	<1	<1	<2	7.3	7.5	<0.0005	<0.0005	<0.0005					
BH3DA	21/02/2020																												
BH3DA	11/03/2020																												
BH3DA	24/04/2020	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		<1	<1	<1	<1	<1	<2	7	8	<0.0005	<0.0005	<0.0005					
BH3DA	14/05/2020																												
BH3DA	12/06/2020																												
BH3DA	09/07/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<7.5	<8.3		<0.05	<0.05	Nil	0.13	0.64	<0.05	<0.20
BH3DA	06/08/2020												-										-		-	-	-	-	-
BH3DA	30/09/2020												-										-		-	-	-	-	-
BH3DA	15/10/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<1		<1							<0.05	<0.05	Nil	0.11	0.59	<0.05	<0.20
BH3DA	11/11/2020												-										-	-	-	-	-	-	-
BH3DA	08/12/2020												-										-	-	-	-	-	-	-
BH3DA	07/01/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<7.53	<8.20		<0.05	<0.05	Nil	0.12	0.63	<0.05	<0.20
BH3DA	18/02/2021												-										-		-	-	-	-	-
BH3DA	16/03/2021												-										-		-	-	-	-	-
BH3DA	20/04/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<7.13	<8.53		<0.05	<0.05	Nil	0.14	0.65	<0.05	<0.20
BH3DA	12/05/2021												-										-		-	-	-	-	-
BH3DA	01/06/2021												-										-		-	-	-	-	-
BH3DA	09/07/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	4.68	8.49		<0.05	<0.05	12	0.13	0.65	<0.05	<0.20
BH3DA	03/08/2021												-										-		-	-	-	-	-
BH3DA	10/09/2021												-										-		-	-	-	-	-
BH3DA	05/10/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<1		<1				7.27	7.62		<0.05	<0.05	Nil	0.13	0.6	<0.05	<0.20
BH4D	10/10/2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<10	<1	<1	<1	<1	<1											
BH4D	07/11/2018																												
BH4D	07/12/2018																												
BH4D	22/01/2019	0.01	0.03	0.03	0.01	0.02	0.01	0.01	0.01	0.01	<0.01	0.01																	
BH4D	08/02/2019																												
BH4D	08/03/2019																												
BH4D	04/04/2019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01																	
BH4D	03/05/2019																												
BH4D	14/06/2019																												
BH4D	30/07/2019	<0.01	0.01	0.01	0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01																	
BH4D	28/08/2019																												
BH4D	25/09/2019																												
BH4D	18/10/2019	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<15	10.6	12.1	<0.0005	<0.0005	<0.0005					
BH4D	28/11/2019																												
BH4D	16/12/2019																												
BH4D	27/01/2020	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.5	<1	<1	<1	<1	<1	<2	11.5	12.8	<0.0005	<0.0005	<0.0005					
BH4D	21/02/2020																												
BH4D	11/03/2020																												
BH4D	24/04/2020	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		<1	<1	<1	<1	<1	<2	9.2	11.3	<0.0005	<0.0005	<0.0005					
BH4D	14/05/2020																												
BH4D	12/06/2020																												
BH4D	09/07/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<10.1	<11.3		<0.05	<0.05	Nil	0.09	0.42	<0.05	<0.20
BH4D	06/08/2020												-										-		-	-	-	-	-
BH4D	30/09/2020												-										-		-	-	-	-	-
BH4D	15/10/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<1		<1							<0.05	<0.05	Nil	0.3	0.42	<0.05	<0.20
BH4D	11/11/2020												-										-	-	-	-	-	-	-
BH4D	08/12/2020												-										-	-	-	-	-	-	-
BH4D	07/01/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<10.8	<12.4		<0.05	<0.05	Nil	0.1	0.45	<0.05	<0.20
BH4D	18/02/2021												-										-		-	-	-	-	-
BH4D	16/03/2021												-										-		-	-	-	-	-
BH4D	20/04/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<11.1	<9.14		<0.05	<0.05	Nil	0.08	0.39	<0.05	<0.20
BH4D	12/05/2021												-										-		-	-	-	-	-
BH4D	01/06/2021												-										-		-	-	-	-	-
BH4D	09/07/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	5.23	11.2		<0.05	<0.05	Nil	0.1	0.43	<0.05	<0.20
BH4D	03/08/2021												-										-		-	-	-	-	-
BH4D	10/09/2021												-										-		-	-	-	-	-
BH4D	05/10/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<1		<1				9.83	11		<0.05	<0.05	Nil	0.08	0.42	<0.05	<0.20
BH5D	10/10/2018	<0.01	0.1	0.1	0.04	0.05	0.06	0.05	0.05	0.06	0.01	0.05	<10	<1	<1	<1	<1	<1											
BH5D	07/11/2018																												
BH5D	07/12/2018																												
BH5D	22/01/2019	<0.01	0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01																	
BH5D	08/02/2019																												
BH5D	08/03/2019																												
BH5D	04/04/2019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01																	
BH5D	03/05/2019																												
BH5D	14/06/2019																												
BH5D	30/07/2019	<0.01	<0.01	0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01																	
BH5D	28/08/2019																												
BH5D	25/09/2019																												
BH5D	18/10/2019	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<15	12	12.5	<0.0005	<0.0005	<0.0005					
BH5D	28/11/2019																												
BH5D	16/12/2019																												
BH5D	27/01/2020	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.5	<1	<1	<1	<1	<1	<2	12.4	14.1	<0.0005	<0.0005	<0.0005					
BH5D	21/02/2020																												
BH5D	11/03/2020																												
BH5D	24/04/2020	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		<1	<1	<1	<1	<1	<2	11.9	12.4	<0.0005	<0.0005	<0.0005					
BH5D	14/05/2020																												
BH5D	12/06/2020																												
BH5D	09/07/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<12.2	<13.0		<0.05	<0.05	Nil	0.05	1.04	<0.05	<0.20
BH5D	06/08/2020												-										-		-	-	-	-	-
BH5D	30/09/2020												-										-		-	-	-	-	-
BH5D	15/10/2020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<1		<1							<0.05	<0.05	Nil	0.04	0.99	<0.05	<0.20
BH5D	11/11/2020												-										-	-	-	-	-	-	-
BH5D	08/12/2020												-										-	-	-	-	-	-	-
BH5D	07/01/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<10.3	<10.9		<0.05	<0.05	Nil	0.05	1.09	<0.05	<0.20
BH5D	18/02/2021												-										-		-	-	-	-	-
BH5D	16/03/2021												-										-		-	-	-	-	-
BH5D	20/04/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	<10.2	<11.1		<0.05	<0.05	Nil	0.05	1.08	<0.05	<0.20
BH5D	12/05/2021												-										-		-	-	-	-	-
BH5D	01/06/2021												-										-		-	-	-	-	-

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Location	Date	Anthracene (ug/l)	Fluoranthene (ug/l)	Pyrene (ug/l)	Benzo(a)Anthracene (ug/l)	Chrysene (ug/l)	Benzo(b)fluoranthene (ug/l)	Benzo(k)fluoranthene (ug/l)	Benzo(a)Pyrene (ug/l)	Indeno(123-cd)Pyrene (ug/l)	Dibenzo(ah)Anthracene (ug/l)	Benzo(ghi)Perylene (ug/l)	Phenol ug/l	Benzene ug/l	Toluene ug/l	EthylBenzene ug/l	M/P Xylene ug/l	O Xylene ug/l	Xylenes µg/l	Total Anions meq c	Total Cations meq c	Cresols mg/l	Dimethylphenols mg/l	Trimethylphenols mg/l	Acidity as CaCO3 mg	Barium as Ba mg/	Strontium as Sr mg	Methylphenols mg/	Total Phenols mg/l
BH5D	09/07/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50						-	6.59	8.99		<0.05	<0.05	Nil	0.05	1.01	<0.05	<0.20
BH5D	03/08/2021												-										-		-	-	-	-	-
BH5D	10/09/2021												-										-		-	-	-	-	-
BH5D	05/10/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<50	<1		<1				9.49	9.48		<0.05	<0.05	Nil	0.05	1.03	<0.05	<0.20

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	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D
	10/10/2018	10/10/2018	10/10/2018	10/10/2018	18/10/2019	18/10/2019	18/10/2019	18/10/2019	15/10/2020	15/10/2020	15/10/2020	15/10/2020	05/10/2021	05/10/2021	05/10/2021	05/10/2021
Hexachlorocyclohexane (sum of alpha, beta and gamma) ug/l	<0.01	<0.01	<0.01	<0.01												
Hexachlorobenzene ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aldrin ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor epoxide ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlordane ug/l	<0.01	<0.01	<0.01	<0.01												
Endosulphan ug/l	<0.01	<0.01	<0.01	<0.01												
DDE ug/l	<0.01	<0.01	<0.01	<0.01												
Dieldrin ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
DDD ug/l	<0.01	<0.01	<0.01	<0.01												
DDT ug/l	<0.01	<0.01	<0.01	<0.01												
Dichlorvos ug/l	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mevinphos ug/l	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dimethoate ug/l	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Diazinon ug/l	<0.01	<0.01	<0.01	<0.01	0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pirimiphos methyl ug/l	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Malathion ug/l	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fenitrothion ug/l	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Parathion ug/l	<0.01	<0.01	<0.01	<0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos methyl ug/l	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tributyl tin ug/l	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Triphenyl Tin ug/l	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
PCB BZ#28 ug/l	<0.005	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#52 ug/l	<0.005	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#101 ug/l	<0.005	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#118 ug/l	<0.005	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#153 ug/l	<0.005	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#138 ug/l	<0.005	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#180 ug/l	<0.005	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bis (2-chloroethyl) ether ug/l	<10	<10	<10	<10												
2-Chlorophenol ug/l	<10	<10	<10	<10												
1,3-Dichlorobenzene ug/l	<10	<10	<10	<10	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene ug/l	<10	<10	<10	<10	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene ug/l	<10	<10	<10	<10	< 5.0	< 5.0	< 5.0	< 5.0	<5	<5	<5	<5	<5	<5	<5	<5
Bis (2-chloroisopropyl) ether ug/l	<10	<10	<10	<10												
2-methyl phenol ug/l	<10	<10	<10	<10												
3/4-Methylphenol ug/l	<10	<10	<10	<10												
Hexachloroethane ug/l	<10	<10	<10	<10												
Nitrobenzene ug/l	<10	<10	<10	<10												
Isophorone ug/l	<10	<10	<10	<10												
2-Nitrophenol ug/l	<10	<10	<10	<10												
2,4-Dimethylphenol ug/l	<10	<10	<10	<10												
Bis (2-chloroethoxy) methane ug/l	<10	<10	<10	<10												
2,4-Dichlorophenol ug/l	<10	<10	<10	<10												
1,2,4-Trichlorobenzene ug/l	<10	<10	<10	<10	< 5.0	< 5.0	< 5.0	< 5.0	<5	<5	<5	<5	<5	<5	<5	<5
4-Chloroaniline ug/l	<10	<10	<10	<10												
Hexachlorobutadiene ug/l	<10	<10	<10	<10	< 5.0	< 5.0	< 5.0	< 5.0	<5	<5	<5	<5	<5	<5	<5	<5
4-Chloro-3-methylphenol ug/l	<10	<10	<10	<10												
2-Methylnaphthalene ug/l	<10	<10	<10	<10												
2,4,6-Trichlorophenol ug/l	<10	<10	<10	<10												
2,4,5-Trichlorophenol ug/l	<10	<10	<10	<10												
2-Chloronaphthalene ug/l	<10	<10	<10	<10												
2-Nitroaniline ug/l	<10	<10	<10	<10												
Dimethyl phthalate ug/l	<10	<10	<10	<10												
2,6-Dinitrotoluene ug/l	<10	<10	<10	<10												
3-Nitroaniline ug/l	<10	<10	<10	<10												
Dibenzofuran ug/l	<10	<10	<10	<10												
2,4-Dinitrotoluene ug/l	<10	<10	<10	<10												

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	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D
	10/10/2018	10/10/2018	10/10/2018	10/10/2018	18/10/2019	18/10/2019	18/10/2019	18/10/2019	15/10/2020	15/10/2020	15/10/2020	15/10/2020	05/10/2021	05/10/2021	05/10/2021	05/10/2021
Diethyl phthalate ug/l	<10	<10	<10	<10												
4-Chlorophenyl phenylether ug/l	<10	<10	<10	<10												
4-Nitroaniline ug/l	<10	<10	<10	<10												
Azobenzene ug/l	<10	<10	<10	<10												
4-Bromophenyl phenylether ug/l	<10	<10	<10	<10												
Hexachlorobenzene ug/l	<10	<10	<10	<10												
Carbazole ug/l	<10	<10	<10	<10												
Di-n-butylphthalate ug/l	<10	<10	<10	<10												
Butyl benzylphthalate ug/l	<10	<10	<10	<10												
Bis (2-ethylhexyl)phthalate ug/l	<10	<10	<10	<10												
Di-n-octylphthalate ug/l	<10	<10	<10	<10												
2,4-Dinitrophenol ug/l	<10	<10	<10	<10					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorocyclopentadiene ug/l	<10	<10	<10	<10												
Pentachlorophenol ug/l	<10	<10	<10	<10	< 0.02	< 0.02	< 0.02	< 0.02	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
SVOC screen (extra peaks) ug/l	<10	<10	<10	<10												
Dichlorodifluoromethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5
Trichlorofluoromethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethylene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Dichloromethane ug/l	<50	<50	<50	<50												
Trans-1,2-Dichloroethene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-Dichloroethylene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5
2,2-Dichloropropane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethylene ug/l	<1	<1	<1	<1												
Bromodichloromethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,3-Dichloropropene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5
Chlorodibromomethane ug/l	<1	<1	<1	<1												
1,2-dibromoethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Styrene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Isopropyl benzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
n-Propylbenzene ug/l	<1	<1	<1	<1												
Bromobenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
T-Butylbenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
S-Butylbenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
2-Chlorotoluene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
4-Chlorotoluene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1

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	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D
	10/10/2018	10/10/2018	10/10/2018	10/10/2018	18/10/2019	18/10/2019	18/10/2019	18/10/2019	15/10/2020	15/10/2020	15/10/2020	15/10/2020	05/10/2021	05/10/2021	05/10/2021	05/10/2021
1,3-Dichlorobenzene ug/l	<1	<1	<1	<1												
1,4-Dichlorobenzene ug/l	<1	<1	<1	<1												
1,2-Dichlorobenzene ug/l	<1	<1	<1	<1												
VOC Screen (Extra Peaks) ug/l	<10	<10	<10	<10												
Naphthalene ug/l					< 5.0	< 5.0	< 5.0	< 5.0	<5	<5	<5	<5	<5	<5	<5	<5
Endosulfan I ug/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan ug/l					< 0.02	< 0.02	< 0.02	< 0.01								
Endosulfan Sulfate ug/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
o,p-DDE ug/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
P,P'-DDE ug/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
O,P'-DDD µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
P,P'-DDD µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
O,P'-DDT µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
P,P'-DDT µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
m/p Xylenes µg/l					< 10.0	< 10.0	< 10.0	< 10.0	<1	<1	<1	<1	<1	<1	<1	<1
o Xylene µg/l					< 5.0	< 5.0	< 5.0	< 5.0	<1	<1	<1	<1	<1	<1	<1	<1
Toluene µg/l					< 5.0	< 5.0	< 5.0	< 5.0	<1	<1	<1	<1	<1	<1	<1	<1
Benzene µg/l					< 5.0	< 5.0	< 5.0	< 5.0								
Ethyl Benzene µg/l					< 5.0	< 5.0	< 5.0	< 5.0								
n-Butylbenzene µg/l					< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
HCH-alpha µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
HCH-beta µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
HCH-gamma µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Delta-HCH µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benazolin µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Bentazon µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Parathion ethyl µg/l					< 0.01	< 0.02	< 0.02	< 0.02								
Parathion-methyl µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin Ketone µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ethion µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Etrimphos µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fenthion µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluroxypyr µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Ioxynil µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Isodrin µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MCPA µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
MCPB µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methacrifos µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Methoxychlor µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pendimethalin µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pentachlorobenzene µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phosalone µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phosphamidon µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Picloram µg/l					< 0.02	< 0.02	< 0.02	< 0.02								
Pirimiphos-Ethyl µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Propetamphos µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Propylbenzene µg/l					< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Propyzamide µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silvex µg/l					< 0.02	< 0.02	< 0.02	< 0.02								
Tecnazene µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bromoxynil µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Carbofenthion µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyriphos-Methyl µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorthalonil µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cis-Chlordan µg/le					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cis-Permethrin µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Clopyralid µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cyanide (Total) as CN mg/l					<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dibromochloromethane µg/l					< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1
Dibutyl Tin as Sn ng/l					<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20

	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D	BH2D	BH3DA	BH4D	BH5D
	10/10/2018	10/10/2018	10/10/2018	10/10/2018	18/10/2019	18/10/2019	18/10/2019	18/10/2019	15/10/2020	15/10/2020	15/10/2020	15/10/2020	05/10/2021	05/10/2021	05/10/2021	05/10/2021
Dicamba µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Dichloroprop µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2,3,4-Tetrachlorobenzene µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,2,3-Trichlorobenzene µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,2,3-Trichlorobenzene µg/l					< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane µg/l					< 5.0	< 5.0	< 5.0	< 5.0	<5	<5	<5	<5	<5	<5	<5	<5
1,3,5-Trichlorobenzene µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
2,3,6-TBA µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
2,4,5-T µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
2,4-D µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
2,4-DB µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
2,6-Dichlorobenzonitrile µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos-Ethyl µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trans-Chlordane µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trans-Permethrin µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Triadimefon µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Triallate µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Triazophos µg/l					< 0.01	< 0.02	< 0.02	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trichloroethene µg/l					< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5
Triclopyr µg/l					< 0.02	< 0.02	< 0.02	< 0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trifluralin µg/l					< 0.02	< 0.02	< 0.02	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SVOC_TICS_01 mg/l					[Octane=0.046]	[Octane=0.050]	[Cyclotrisiloxane, hexamethyl-=0.596]	[Octane=0.028]								
SVOC_TICS_02 mg/l					[Ethene, tetrachloro-=0.013]	[Ethene, tetrachloro-=0.014]		[2-Hexene, 2,5,5-trimethyl-=0.010]								
SVOC_TICS_03 mg/l					[2-Hexene, 2,5,5-trimethyl-=0.017]	[2-Hexene, 2,5,5-trimethyl-=0.017]		[Pentane, 2,2,3-trimethyl-=0.010]								
SVOC_TICS_04 mg/l					[2-Hexene, 3,5,5-trimethyl-=0.004]	[Pentane, 2,2,4-trimethyl-=0.146]		[Tetrachloroethylene=0.013]								
SVOC_TICS_05 mg/l					[Hexane, 2,2-dimethyl-=0.255]			[2-Hexene, 2,5,5-trimethyl-=0.018]								
SVOC_TICS_06 mg/l					[Aniline, N-methyl-=0.012]			[Aniline, N-methyl-=0.013]								
SVOC_TICS_07 mg/l					[1,1'-Biphenyl, 2-fluoro-=0.037]			[Benzenamine, N,N-dimethyl-=2.644]								
SVOC_TICS_08 mg/l					[Benzene, 1,3,5-tribromo-2-methoxy-=0.021]			[Hexadecanoic acid, methyl ester=0.014]								
SVOC_TICS_09 mg/l					[Hexadecanoic acid, methyl ester=0.019]			[Octadecanoic acid, methyl ester=0.021]								
SVOC_TICS_10 mg/l					[Octadecanoic acid, methyl ester=0.020]											
SVOC_TICS_11 mg/l																
SVOC_TICS_12 mg/l																
SVOC_TICS_13 mg/l																
DNOC ug/l									<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Fenoprop ug/l									<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Endosulfan II ug/l									<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MTBE ug/l									<1	<1	<1	<1	<1	<1	<1	<1

Date	Location	Depth to Base (m bgl)	Water Depth (m bgl)	Ground level (mAOD)	Groundwater Level (mAOD)
10/10/2018	BH1S	5.15	DAMP	95	
07/11/2018	BH1S	5.15	5.13	95	89.87
07/12/2018	BH1S	5.18	5.17	95	89.83
22/01/2019	BH1S	15.13	Dry	95	
08/02/2019	BH1S	5.13	Dry	95	
08/03/2019	BH1S	5.14	Dry	95	
05/04/2019	BH1S	5.15	Dry	95	
03/05/2019	BH1S	5.15	5.13	95	89.87
14/06/2019	BH1S	5.15	Dry	95	
30/07/2019	BH1S	5.13	Dry	95	
28/08/2019	BH1S	5.12	Dry	95	
25/09/2019	BH1S	5.12	Dry	95	
18/10/2019	BH1S	5.12	Dry	95	
28/11/2019	BH1S	5.12	Dry	95	
16/12/2019	BH1S	5.12	Dry	95	
27/01/2020	BH1S	5.12	Dry	95	
21/02/2020	BH1S	5.12	Dry	95	
11/03/2020	BH1S	-	Dry	95	
24/04/2020	BH1S	-	Dry	95	
14/05/2020	BH1S	-	Dry	95	
12/06/2020	BH1S	5.16	Dry	95	
09/07/20	BH1S	5.13	Dry	95	
06/08/20	BH1S	5.13	Dry	95	
30/09/20	BH1S	5.14	Dry	95	
15/10/20	BH1S	5.14	Dry	95	
11/11/20	BH1S	5.14	Dry	95	
08/12/20	BH1S	5.14	Dry	95	
07/01/21	BH1S	5.14	Dry	95	
18/02/21	BH1S	5.14	Dry	95	
16/03/21	BH1S	5.14	Dry	95	
20/04/21	BH1S	5.12	Dry	95	
12/05/21	BH1S	5.12	Dry	95	
01/06/21	BH1S	5.12	Dry	95	
09/07/21	BH1S	5.27	Dry	95	
03/08/21	BH1S	5.27	Dry	95	
10/09/21	BH1S	5.27	Dry	95	
05/10/21	BH1S	5.27	Dry	95	
10/10/2018	BH2D	41.06	18.91	98	79.09
07/11/2018	BH2D	41.06	14.64	98	83.36
07/12/2018	BH2D	41.15	10.58	98	87.42
22/01/2019	BH2D	41.15	16.08	98	81.92
08/02/2019	BH2D	41.15	11.15	98	86.85
08/03/2019	BH2D	41.15	11.95	98	86.05
05/04/2019	BH2D	41.15	14.64	98	83.36
03/05/2019	BH2D	41.15	17.81	98	80.19
14/06/2019	BH2D	41.15	18.67	98	79.33

Date	Location	Depth to Base (m bgl)	Water Depth (m bgl)	Ground level (mAOD)	Groundwater Level (mAOD)
30/07/2019	BH2D	41.15	19.60	98	78.40
28/08/2019	BH2D	41.15	19.88	98	78.12
25/09/2019	BH2D	41.15	20.18	98	77.82
18/10/2019	BH2D	41.65	11.65	98	86.35
28/11/2019	BH2D	41.65	11.25	98	86.75
16/12/2019	BH2D	41.65	10.79	98	87.21
27/01/2020	BH2D	41.65	10.59	98	87.41
21/02/2020	BH2D	41.65	10.54	98	87.46
11/03/2020	BH2D	-	13.32	98	84.68
24/04/2020	BH2D	-	18.02	98	79.98
14/05/2020	BH2D	-	19.50	98	78.50
12/06/2020	BH2D	-	20.96	98	77.04
09/07/20	BH2D	-	19.81	98	78.19
06/08/20	BH2D	-	15.05	98	82.95
30/09/20	BH2D	41.07	17.09	98	80.91
15/10/20	BH2D	41.07	12.30	98	85.70
11/11/20	BH2D	41.07	12.44	98	85.56
08/12/20	BH2D	41.07	11.70	98	86.30
07/01/21	BH2D	41.07	12.01	98	85.99
18/02/21	BH2D	41.07	13.55	98	84.45
16/03/21	BH2D	41.07	11.57	98	86.43
20/04/21	BH2D	41.11	17.13	98	80.87
12/05/21	BH2D	41.11	18.19	98	79.81
01/06/21	BH2D	41.11	14.21	98	83.79
09/07/21	BH2D	41.47	17.74	98	80.26
03/08/21	BH2D	41.47	19.73	98	78.27
10/09/21	BH2D	41.47	20.53	98	77.47
05/10/21	BH2D	41.47	17.14	98	80.86
10/10/2018	BH2S	6.99	DRY	98	
07/11/2018	BH2S	7	DRY	98	
07/12/2018	BH2S	6.98	DRY	98	
22/01/2019	BH2S	6.98	Dry	98	
08/02/2019	BH2S	6.98	Dry	98	
08/03/2019	BH2S	6.98	Dry	98	
05/04/2019	BH2S	6.98	Dry	98	
03/05/2019	BH2S	6.98	Dry	98	
14/06/2019	BH2S	6.98	Dry	98	
30/07/2019	BH2S	6.99	Dry	98	
28/08/2019	BH2S	6.99	Dry	98	
25/09/2019	BH2S	7.00	Dry	98	
18/10/2019	BH2S	6.99	Dry	98	
28/11/2019	BH2S	6.99	Dry	98	
16/12/2019	BH2S	6.99	Dry	98	
27/01/2020	BH2S	6.99	Dry	98	
21/02/2020	BH2S	6.99	Dry	98	
11/03/2020	BH2S	6.99	Dry	98	

Date	Location	Depth to Base (m bgl)	Water Depth (m bgl)	Ground level (mAOD)	Groundwater Level (mAOD)
24/04/2020	BH2S	-	Dry	98	
14/05/2020	BH2S	-	Dry	98	
12/06/2020	BH2S	7.02	Dry	98	
09/07/20	BH2S	7.00	Dry	98	
06/08/20	BH2S	7.00	Dry	98	
30/09/20	BH2S	7.00	Dry	98	
15/10/20	BH2S	7.00	Dry	98	
11/11/20	BH2S	6.99	Dry	98	
08/12/20	BH2S	6.99	Dry	98	
07/01/21	BH2S	7.00	Dry	98	
18/02/21	BH2S	7.00	Dry	98	
16/03/21	BH2S	7.00	Dry	98	
20/04/21	BH2S	7.00	Dry	98	
12/05/21	BH2S	6.99	Dry	98	
01/06/21	BH2S	6.99	Dry	98	
09/07/21	BH2S	7.03	Dry	98	
03/08/21	BH2S	6.95	Dry	98	
10/09/21	BH2S	6.95	Dry	98	
05/10/21	BH2S	6.95	Dry	98	
10/10/2018	BH3DA	15.08	2.07	83	80.93
07/11/2018	BH3DA	15.07	1.23	83	81.77
07/12/2018	BH3DA	15.06	0.56	83	82.44
22/01/2019	BH3DA	15.06	1.36	83	81.64
08/02/2019	BH3DA	15.06	0.68	83	82.32
08/03/2019	BH3DA	15.06	0.69	83	82.31
05/04/2019	BH3DA	15.06	1.12	83	81.88
03/05/2019	BH3DA	15.06	1.70	83	81.30
14/06/2019	BH3DA	15.06	1.37	83	81.63
30/07/2019	BH3DA	15.06	1.94	83	81.06
28/08/2019	BH3DA	15.06	1.87	83	81.13
25/09/2019	BH3DA	15.06	1.87	83	81.13
18/10/2019	BH3DA	15.07	0.72	83	82.28
28/11/2019	BH3DA	15.07	0.95	83	82.05
16/12/2019	BH3DA	15.07	0.72	83	82.28
27/01/2020	BH3DA	15.07	0.70	83	82.30
21/02/2020	BH3DA	15.07	1.35	83	81.65
11/03/2020	BH3DA	-	1.73	83	81.27
24/04/2020	BH3DA	-	1.91	83	81.09
14/05/2020	BH3DA	-	2.10	83	80.90
12/06/2020	BH3DA	-	2.14	83	80.86
09/07/20	BH3DA	-	1.59	83	81.41
06/08/20	BH3DA	-	1.14	83	81.86
30/09/20	BH3DA	15.09	1.53	83	81.47
15/10/20	BH3DA	15.09	0.88	83	82.12
11/11/20	BH3DA	15.09	0.82	83	82.18
08/12/20	BH3DA	15.09	0.75	83	82.25

Date	Location	Depth to Base (m bgl)	Water Depth (m bgl)	Ground level (mAOD)	Groundwater Level (mAOD)
07/01/21	BH3DA	15.09	0.86	83	82.14
18/02/21	BH3DA	15.09	1.07	83	81.93
16/03/21	BH3DA	15.09	0.88	83	82.12
20/04/21	BH3DA	15.09	1.57	83	81.43
12/05/21	BH3DA	15.09	1.57	83	81.43
01/06/21	BH3DA	15.09	1.11	83	81.89
09/07/21	BH3DA	15.70	1.83	83	81.17
03/08/21	BH3DA	15.70	2.03	83	80.97
10/09/21	BH3DA	15.70	1.98	83	81.02
05/10/21	BH3DA	15.70	1.89	83	81.11
10/10/2018	BH4D	9.29	2.22	85	82.78
07/11/2018	BH4D	9.27	1.86	85	83.14
07/12/2018	BH4D	9.26	1.65	85	83.35
22/01/2019	BH4D	9.26	1.89	85	83.11
08/02/2019	BH4D	9.26	1.62	85	83.38
08/03/2019	BH4D	9.26	1.72	85	83.28
05/04/2019	BH4D	9.26	1.83	85	83.17
03/05/2019	BH4D	9.26	2.06	85	82.94
14/06/2019	BH4D	9.26	1.92	85	83.08
30/07/2019	BH4D	9.26	2.34	85	82.66
28/08/2019	BH4D	9.26	2.34	85	82.66
25/09/2019	BH4D	9.26	2.32	85	82.68
18/10/2019	BH4D	8.70	1.70	85	83.30
28/11/2019	BH4D	8.70	1.95	85	83.05
16/12/2019	BH4D	8.70	1.73	85	83.27
27/01/2020	BH4D	8.70	1.68	85	83.32
21/02/2020	BH4D	8.70	2.36	85	82.64
11/03/2020	BH4D	-	2.42	85	82.58
24/04/2020	BH4D	-	2.20	85	82.80
14/05/2020	BH4D	-	2.29	85	82.71
12/06/2020	BH4D	-	2.51	85	82.49
09/07/20	BH4D	-	2.10	85	82.90
06/08/20	BH4D	-	1.87	85	83.13
30/09/20	BH4D	8.52	1.92	85	83.08
15/10/20	BH4D	8.52	1.77	85	83.23
11/11/20	BH4D	8.52	1.74	85	83.26
08/12/20	BH4D	8.52	1.67	85	83.33
07/01/21	BH4D	8.52	1.75	85	83.25
18/02/21	BH4D	8.52	1.78	85	83.22
16/03/21	BH4D	8.52	1.68	85	83.32
20/04/21	BH4D	8.16	2.02	85	82.98
12/05/21	BH4D	8.16	1.90	85	83.10
01/06/21	BH4D	8.16	1.84	85	83.16
09/07/21	BH4D	7.93	2.11	85	82.89
03/08/21	BH4D	7.93	2.24	85	82.76
10/09/21	BH4D	7.93	2.34	85	82.66

Date	Location	Depth to Base (m bgl)	Water Depth (m bgl)	Ground level (mAOD)	Groundwater Level (mAOD)
05/10/21	BH4D	7.98	1.85	85	83.15
10/10/2018	BH5D	34.55	14	93	79.00
07/11/2018	BH5D	34.56	9.74	93	83.26
07/12/2018	BH5D	34.55	6.38	93	86.62
22/01/2019	BH5D	34.55	11.13	93	81.87
08/02/2019	BH5D	34.55	6.87	93	86.13
08/03/2019	BH5D	34.55	9.60	93	83.40
05/04/2019	BH5D	34.55	9.98	93	83.02
03/05/2019	BH5D	34.55	12.56	93	80.44
14/06/2019	BH5D	34.55	13.14	93	79.86
30/07/2019	BH5D	34.55	15.56	93	77.44
28/08/2019	BH5D	34.55	14.84	93	78.16
25/09/2019	BH5D	34.55	15.10	93	77.90
18/10/2019	BH5D	34.60	7.24	93	85.76
28/11/2019	BH5D	34.60	6.98	93	86.02
16/12/2019	BH5D	34.6	6.82	93	86.18
27/01/2020	BH5D	34.6	6.71	93	86.29
21/02/2020	BH5D	34.6	6.29	93	86.71
11/03/2020	BH5D	-	8.91	93	84.09
24/04/2020	BH5D	-	13.14	93	79.86
14/05/2020	BH5D	-	14.33	93	78.67
12/06/2020	BH5D	-	15.29	93	77.71
09/07/20	BH5D	-	14.37	93	78.63
06/08/20	BH5D	-	10.06	93	82.94
30/09/20	BH5D	34.62	12.20	93	80.80
15/10/20	BH5D	34.62	7.77	93	85.23
11/11/20	BH5D	34.62	7.82	93	85.18
08/12/20	BH5D	34.62	7.27	93	85.73
07/01/21	BH5D	34.62	7.48	93	85.52
18/02/21	BH5D	34.62	8.87	93	84.13
16/03/21	BH5D	34.62	7.05	93	85.95
20/04/21	BH5D	34.58	12.19	93	80.81
12/05/21	BH5D	34.58	13.11	93	79.89
01/06/21	BH5D	34.58	9.48	93	83.52
09/07/21	BH5D	34.56	13.74	93	79.26
03/08/21	BH5D	34.56	14.73	93	78.27
10/09/21	BH5D	34.56	14.82	93	78.18
05/10/21	BH5D	34.56	14.21	93	78.79

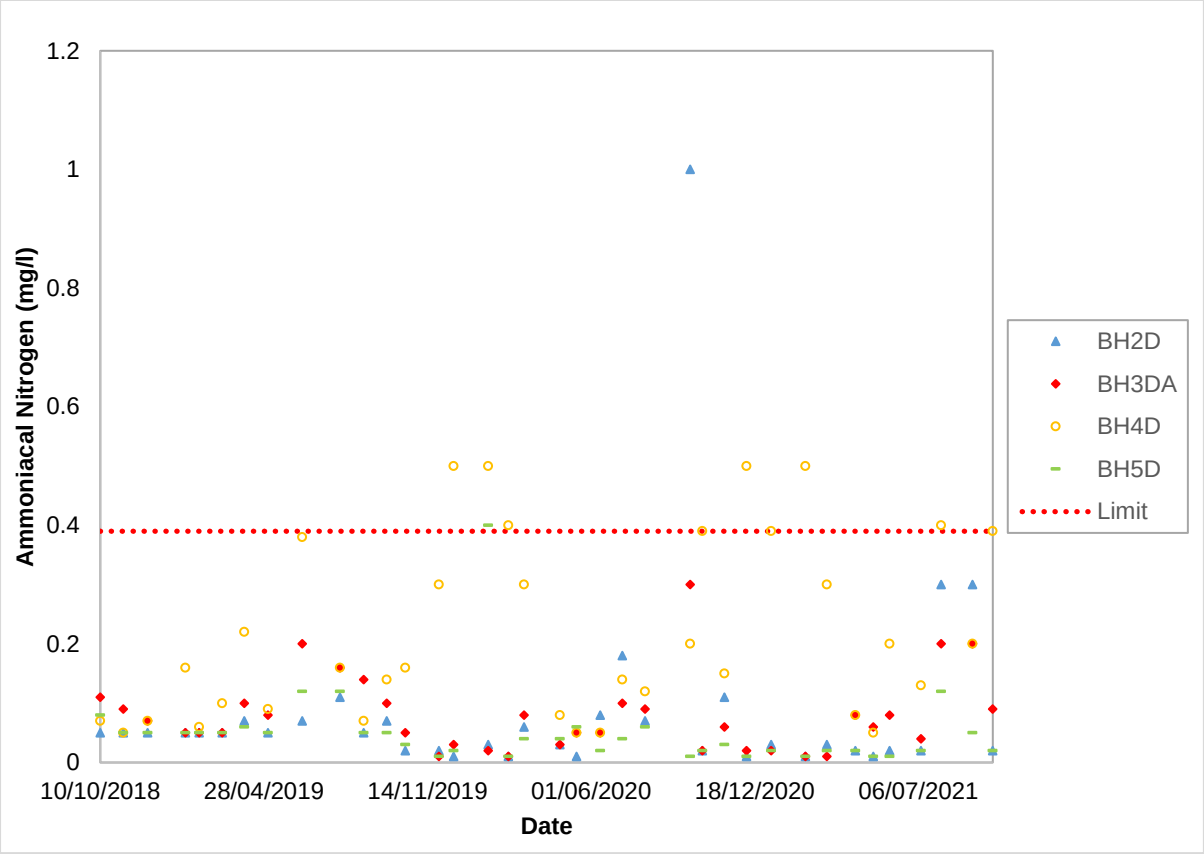

Figure C.1 Ammoniacal-Nitrogen concentrations in groundwater

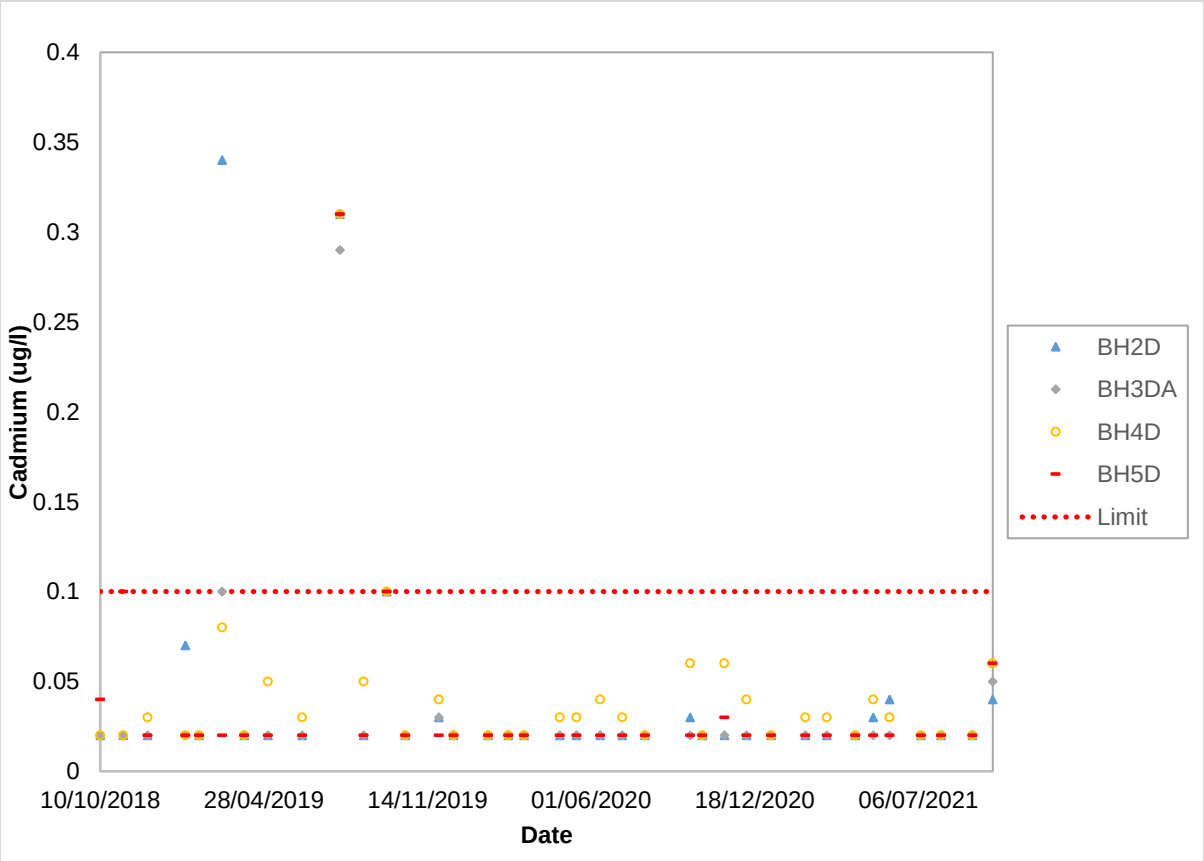

Figure C.2 Cadmium concentrations in groundwater

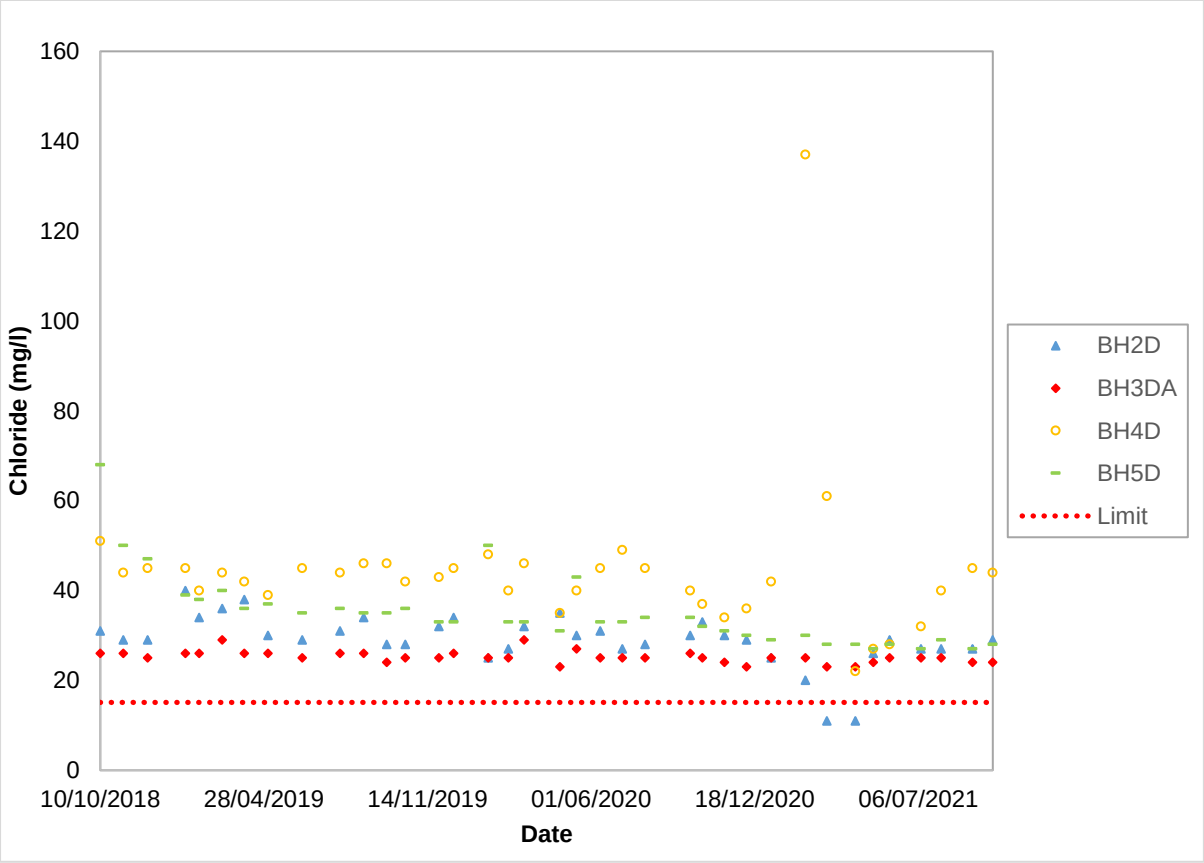

Figure C.3 Chloride concentrations in groundwater

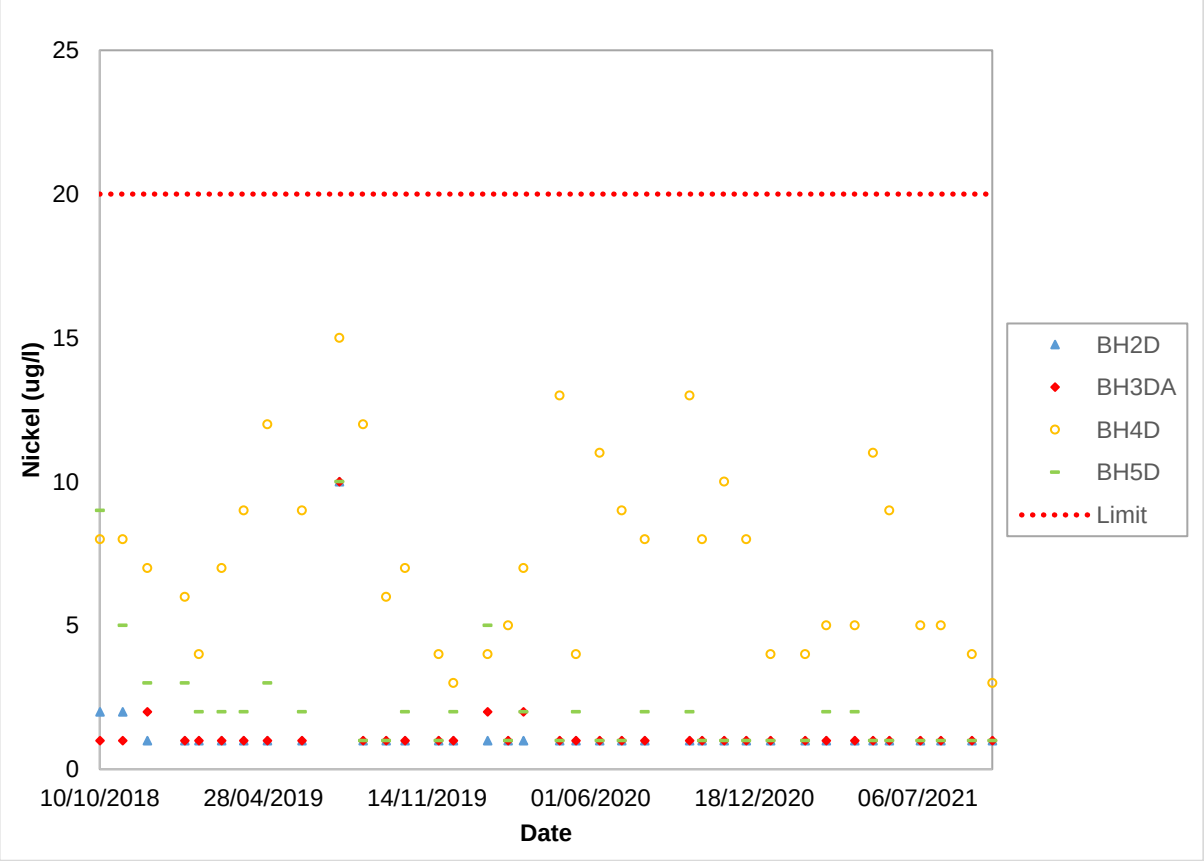

Figure C.4 Nickel concentrations in groundwater

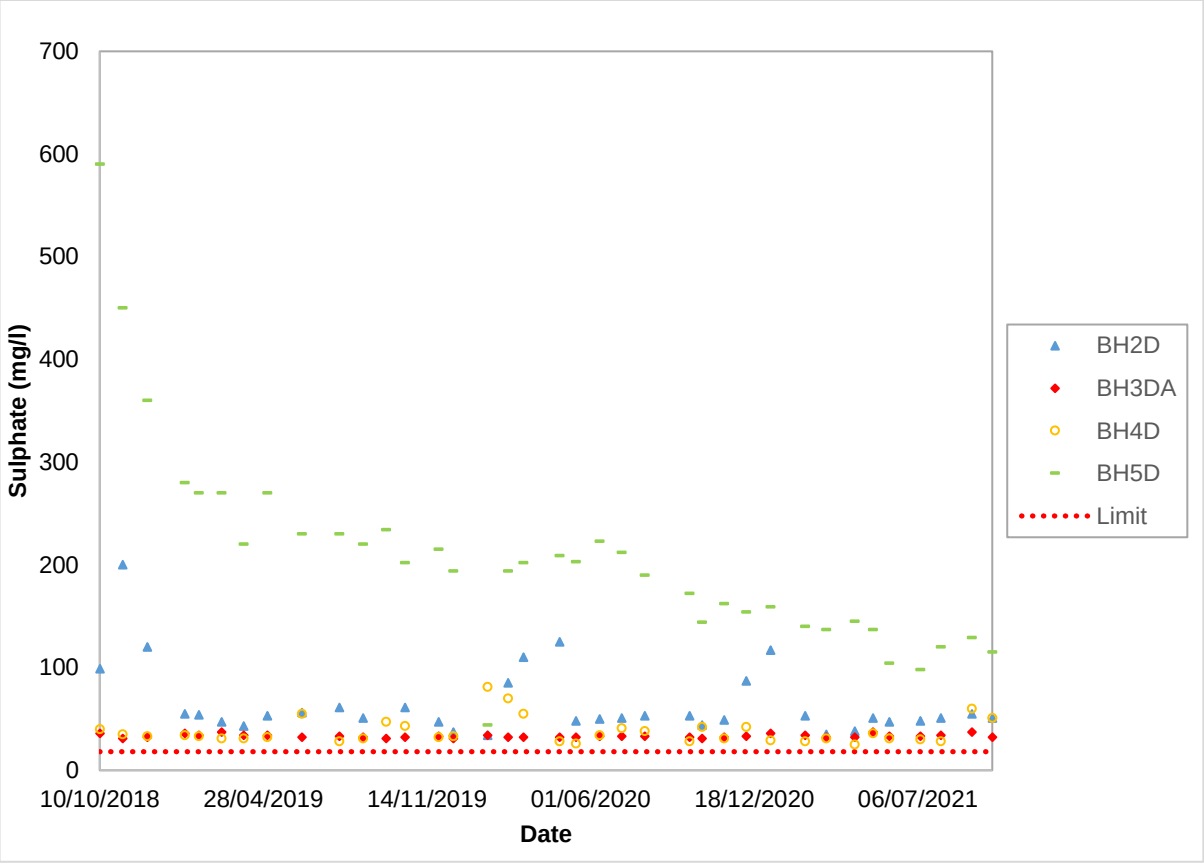

Figure C.5 Sulphate concentrations in groundwater

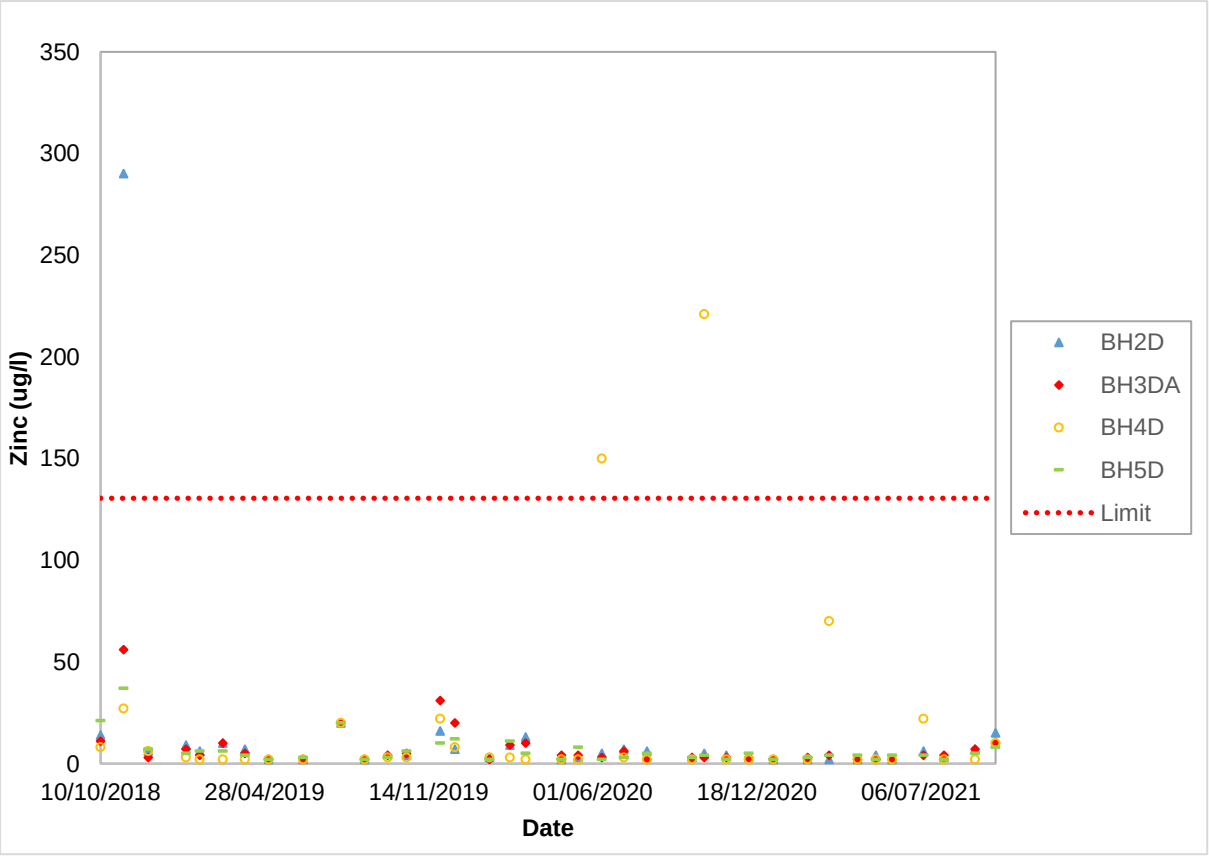

Figure C.6 Zinc concentrations in groundwater

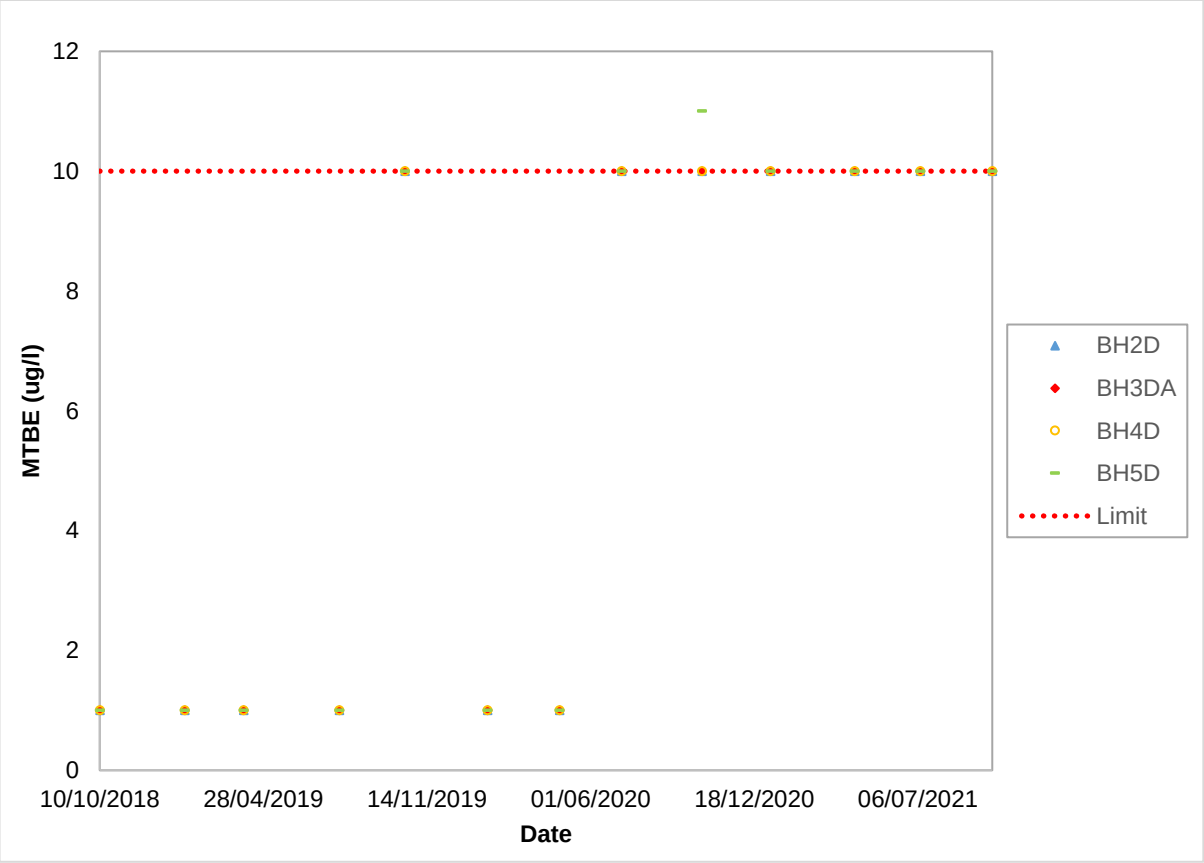

Figure C.7 MTBE concentrations in groundwater

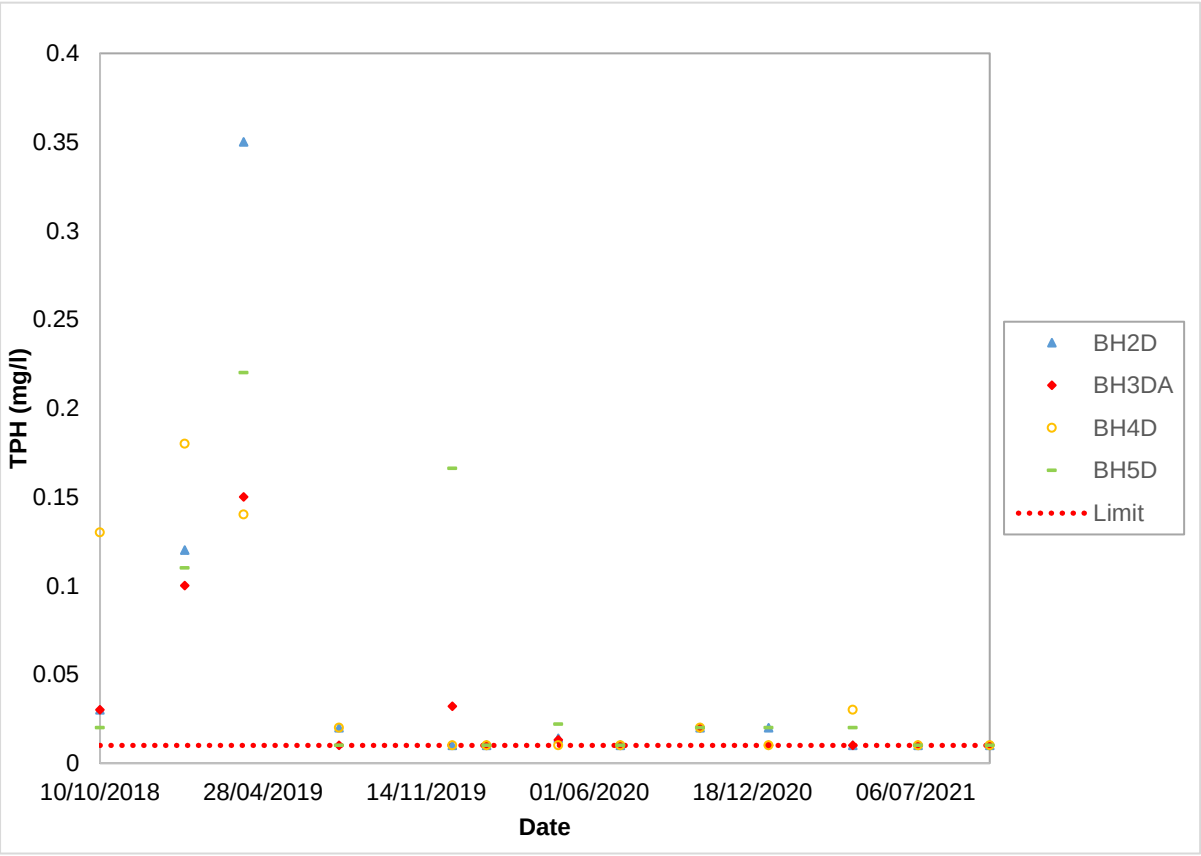

Figure C.8 TPH concentrations in groundwater

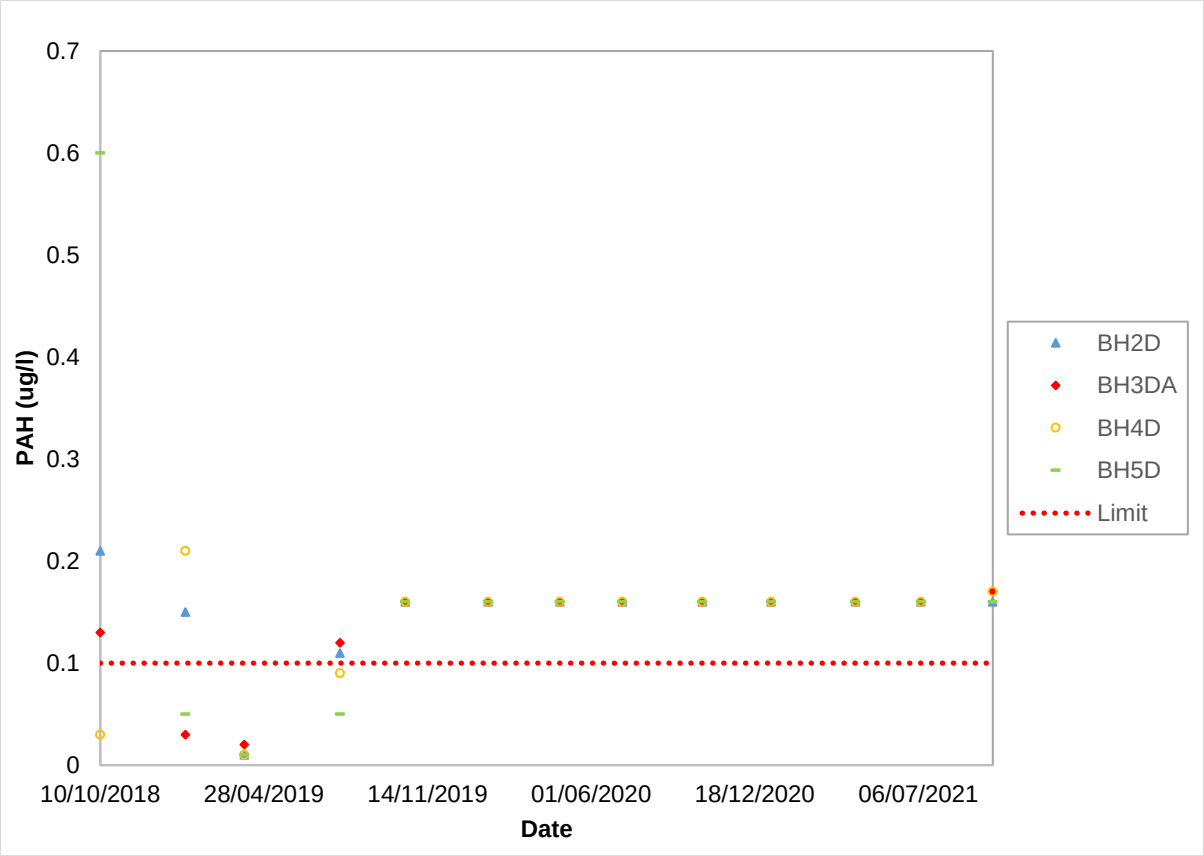

Figure C.9 PAH concentrations in groundwater

Appendix D – Groundwater Hazardous Screen

	Count	25th Percentile	Median	85th Percentile	95th Percentile	Max
BTEX and Substituted PAH						
PAH (Total) (ug/l)	17	0.05	0.13	0.194	0.288	0.6
Naphthalene (ug/l)	11	0.01	0.01	0.02	0.025	0.03
Acenaphthylene (ug/l)	3	0.01	0.01	0.01	0.01	0.01
Acenaphthene (ug/l)	3	0.01	0.01	0.01	0.01	0.01
Fluorene (ug/l)	5	0.01	0.01	0.01	0.01	0.01
Phenanthrene (ug/l)	5	0.01	0.01	0.018	0.026	0.03
Anthracene (ug/l)	1	0.01	0.01	0.01	0.01	0.01
Fluoranthene (ug/l)	10	0.01	0.01	0.0365	0.073	0.1
Pyrene (ug/l)	11	0.01	0.02	0.035	0.07	0.1
Benzo(a)Anthracene (ug/l)	14	0.01	0.01	0.01	0.0205	0.04
Chrysene (ug/l)	11	0.01	0.01	0.025	0.04	0.05
Benzo(b)fluoranthene (ug/l)	9	0.01	0.01	0.018	0.044	0.06
Benzo(k)fluoranthene (ug/l)	8	0.01	0.01	0.0195	0.0395	0.05
Benzo(a)Pyrene (ug/l)	7	0.01	0.01	0.014	0.038	0.05
Indeno(123-cd)Pyrene (ug/l)	6	0.01	0.015	0.03	0.05	0.06
Dibenzo(ah)Anthracene (ug/l)	1	0.01	0.01	0.01	0.01	0.01
Benzo(ghi)Perylene (ug/l)	6	0.01	0.015	0.0275	0.0425	0.05
Herbicides and Pesticides						
Diazinon ug/l	1	0.01	0.01	0.01	0.01	0.01
Other						
As (Dissolved) (µg/l)	20	0.95	1	2	4.01	4.2
Hg (Dissolved) (µg/l)	1	0.42	0.42	0.42	0.42	0.42
Se (Dissolved) (µg/l)	16	1.95	3.5	13.75	41.5	100
Methyl tert-Butyl Ether (µg/l)	1	11	11	11	11	11

	>10 counts
	10 - 50 ug/l
	50 - 250 ug/l
	>250ug/l

Table D.1 Hazardous substance screen (µg/l)

	Count	25th Percentile	Median	85th Percentile	95th Percentile	Max
Herbicides and Pesticides						
Phosphate (mg/l)	3	0.015	0.02	0.02	0.02	0.02
Other						
Combined TPH mg/l	28	0.01	0.021	0.1495	0.206	0.35
TPH (C35-C40) (mg/l)	3	0.02	0.02	0.041	0.047	0.05
TPH (C8 - C40) (mg/l)	13	0.03	0.12	0.188	0.272	0.35
TPH (C8-C35)(Total) (mg/l)	13	0.03	0.11	0.184	0.24	0.3
TPH Band (>C21-C35) mg/l	10	0.01175	0.02	0.02455	0.0996	0.159
TPH GC mg/l	18	0.01075	0.02	0.0256	0.0521	0.166
Fluoride (mg/l)	16	0.14	0.28	0.38	0.415	0.46

>10 counts
0.01 - 0.05 mg/l
0.05 - 0.25 mg/l
>0.25 mg/l

Table D.2 Hazardous substance screen (mg/l)

Appendix E – Surface Water Data

BYRNELOOBY

Location	Date	Ammoniacal nitrogen (mg/l)	BOD (mg/l)	COD (mg/l)	Chloride (mg/l)	Cr (Dissolved) (µg/l)	Diss Oxygen (mg/l)	Electrical Conductivity (µS/cm)	Fe (Dissolved) (mg/l)	Mn (Dissolved) (µg/l)	Ni (Dissolved) (µg/l)	Nitrate (mg/l)	Nitrite (mg/l)	Pb (Dissolved) (µg/l)	pH	Phosphate (mg/l)	Sulphate (mg/l)	Suspended Solids (mg/l)	TOC (mg/l)	TON (mg/l)	Alkalinity (mg/l)	Calcium (mg/l)	Cd (Dissolved) (µg/l)	Cu (Dissolved) (µg/l)	Hg (Dissolved) (µg/l)	Magnesium (mg/l)
SW1	10/10/18	0.06	<3	19	36	<1	10	690	0.03	10	<1	10	<0.1	<0.3	7.91	<0.5	45	<10	4	2.3	280	140	<0.02	0.5	<0.05	5.5
SW1	07/11/18	<0.05	<3	15	31	<1	9.3	620	<0.01	5	1	<0.3	<0.1	<0.3	7.54	<0.5	40	<10	5	3.1	-	-	-	-	-	-
SW1	07/12/18	<0.05	<3	20	26	<1	9.2	470	0.05	3	<1	16	<0.1	<0.3	7.38	<0.5	19	<10	5	3.7	-		-	-	-	-
SW1	22/01/19	<0.05	<3	17	65	<1	11	690	0.02	12	<1	14	<0.1	<0.3	7.62	<0.5	31	17	5	3.1	240	110	<0.02	1	<0.05	4.1
SW1	08/02/19	<0.05	<3	18	30	<1	10	450	0.03	2	<1	16	<0.1	<0.3	7.55	<0.5	17	<10	5	3.5						
SW1	08/03/19	<0.05	<3	13	31	<1	11	540	0.01	2	<1	17	<0.1	<0.3	7.56	<0.5	18	12	4	3.8						
SW1	04/04/19	0.08	<3	25	<1	38	10	560	0.03	3	<1	11	<0.1	<0.3	7.71	<0.5	23	<10	5	2.5	200	110	<0.02	0.8	<0.05	3.6
SW1	03/05/19	<0.05	<3	9	31	<1	10	610	0.03	13	<1	11	<0.1	<0.3	7.77	<0.5	25	<10	4	2.4						
SW1	30/07/19	0.09	<3	14	29	<10	9.3	680	<0.01	<10	<10	13	<0.1	<3.0	7.82	<0.5	25	<10	3	2.9	300	140	2.8	6.5	<0.50	4.7
SW1	28/08/19	0.06	<3	17	33	<1	9.5	670	0.02	<1	1	12	<0.1	<0.3	7.76	<0.5	24	26	4	2.7						
SW1	14/09/19	0.1	<3	6	23	<1	10	590	0.05	3	<1	8.6	<0.1	<0.3	7.69	<0.5	26	<10	18	1.9						
SW1	25/09/19	0.06	<1.0	8	29	<1	-	655	0.08	<2	<1	1.9	<0.01	<1	7.9	0.02	24	6	-	1.9	-	-	-	-	-	-
SW1	18/10/19	0.04	1.4	19	21	<1		526	0.18	<2	<1	2.1	<0.01	<1	7.6	0.03		8	7.2	2.1	213	102	<0.02	1	<0.03	5
SW1	28/11/19	0.03	<1.0	10	20	<1		572	0.01	<2	<1	1.6	<0.01	<1	7.7	<0.01		6	4.2	1.6	-	-	-	-	-	-
SW1	16/12/19	0.03	<1.0	8	22	<1		575	0.01	5	<1	2.7	<0.01	<1	7.6	<0.01		<5	3.1	2.7	-	-	-	-	-	-
SW1	27/01/20	0.02	<1.0	<5	25	<1		577	0.01	<2	<1	2.4	<0.01	<1	7.8	<0.01		9	3.3	2.4	243	119	<0.02	<1	<0.03	4
SW1	21/02/20	<0.01	<1.0	<5	24	<1		523	0.01	<2	<1	2.5	<0.01	<1	7.6	0.02		7	2.9	2.5	-	-	-	-	-	-
SW1	11/03/20	0.02	<1.0	7	26	<1		568	0.01	<2	<1	2.4	<0.01	<1	7.9	<0.01		8	2.5	2.4	-	-	-	-	-	-
SW1	24/04/20	0.05	1	6	23	<1		587	0.01	<2	<1	1.2	<0.01	<1	7.9	<0.01		54	1.8	1.2	256	118	<0.02	<1	<0.03	4
SW1	14/05/20	0.08	<1.0	<5	24	<1		617	0.03	7	<1	1.1	<0.01	<1	7.9	<0.01		5	1.3	1.1	-	-	-	-	-	-
SW1	12/06/20	Dry																								
SW1	09/07/20	<0.01	<1.4	19	27	<1		567	0.06	<2	2	1.1	<0.01	<1	8.1	<0.01	53	34	7.4	1.1	197	111	<0.02	2	<0.03	4
SW1	06/08/20	0.07	<1.4	13	22	<1		603	0.01	<2	<1	1.6	0.04	<1	8	<0.01	31	<5	5.2	1.6	-	-				-
SW1	30/09/20	0.2	<1.4	10	24	<1		620	0.02	<2	<1	1.3	<0.01	<1	7.8	<0.01	23	52	4.5	1.3	-	-				-
SW1	15/10/20	<0.01	1	<5	19	<1		605	0.01	2	<1	2	<0.01	<1	7.9	0.01	20	11	2.9	2	256	120	<0.02	1	<0.03	4
SW1	11/11/20	0.11	<1.0	12	21	<1		803	0.02	358	3	<0.2	<0.01	<1	7.6	0.01	110	<5	0.95	<0.2	-	-				-
SW1	08/12/20	0.03	1	8	23	<1		561	0.01	<2	<1	2.1	<0.01	<1	7.8	<0.01	18	7	2.5	2.1	-	-				-
SW1	07/01/21	0.04	<1.0	5	27	<1		583	<0.01	4	<1	2.5	<0.01	<1	8	<0.01	18	6	1.6	2.5	252	126	<0.02	<1	<0.03	4
SW1	18/02/21	0.01	<1.0	<5	32	<1		573	0.01	11	<1	2.4	<0.01	<1	8	<0.01	18	8	3	2.4	-	-				-
SW1	16/03/21	<0.01	<1.0	7	19	<1		523	0.01	7	<1	2.2	<0.01	<1	8	<0.01	15	6	2.2	2.2	-	-				-
SW1	20/04/21	0.02	1.2	<5	20	<1		740	0.11	<2	<1	1.7	<0.01	<1	8	<0.01	17	11	1.4	1.7	236	123	<0.02	<1	<0.03	4
SW1	12/05/21	<0.01	1.2	<5	23	<1		553	0.01	<2	<1	0.7	<0.01	<1	8	<0.01	23	<5	2.3	0.7	-	-				-
SW1	01/06/21	0.07	<1.0	<5	18	<1		587	<0.01	<2	<1	1.7	0.02	<1	7.8	<0.01	17	<5	2	1.7	-	-				-
SW1	09/07/21	<0.01	<1.0	<5	26	<1		824	0.02	<2	<1	<0.2	<0.01	<1	7.8	<0.01	18	<5	1.8	<0.2	144	123	<0.02	<1	<0.03	4
SW1	03/08/21	<0.01	1.4	<5	24	<1		615	0.02	<2	<1	0.7	<0.01	<1	7.8	<0.01	24	<5	2	0.7	-	-				-
SW1	10/09/21	0.08	<1.0	12	25	<1		594	0.03	<2	1	2.9	0.16	<1	7.8	0.02	42	6	4.9	3.1	-	-				-
SW1	05/10/21	0.05	<1.0	27	20	<1		489	0.05	3	<1	1.5	0.02	<1	7.9	<0.01	28	<5	8.2	1.5	198	89	0.07	1	<0.03	3
SW2a	10/10/18	0.2	<3	9	34	<1	10	940	0.04	1200	6	3.1	<0.1	<0.3	7.83	<0.5	92	<10	4	0.7	370	200	0.04	1.8	<0.05	8.7
SW2a	07/11/18	0.24	<3	22	29	<1	9.5	800	<0.01	1000	5	7.6	<0.1	<0.3	7.25	<0.5	92	66	5	1.7	-	-	-	-	-	-
SW2a	07/12/18	0.33	<3	19	29	<1	9.4	910	0.02	1200	5	7.4	<0.1	<0.3	7.28	<0.5	140	17	5	1.7	-		-	-	-	-
SW2a	22/01/19	0.14	<3	18	19	<1	10	470	<0.01	390	2	5.1	<0.1	<0.3	7.29	<0.5	77	91	3	1.1	150	86	<0.02	1.9	<0.05	5.2
SW2a	08/02/19	0.13	<3	32	24	<1	9.2	620	0.01	360	2	7.7	0.1	<0.3	7.52	<0.5	100	350	4	1.8						
SW2a	08/03/19	0.3	<3	12	29	<1	9.6	830	<0.01	870	2	19	<0.1	<0.3	7.21	<0.5	100	<10	5	4.2						
SW2a	04/04/19	0.22	<3	27	<1	30	9.4	800	<0.01	580	2	8.3	<0.1	<0.3	7.46	<0.5	99	12	5	1.9	260	150	<0.02	1.4	<0.05	7.5
SW2a	03/05/19	0.08	<3	16	30	<1	10	770	0.02	400	3	8.2	<0.1	<0.3	7.38	<0.5	87	<10	4	1.9						
SW2a	30/07/19	0.14	<3	21	33	<10	9.4	810	0.03	<10	<10	<0.5	<0.1	7.5	7.43	<0.5	86	11	4	<0.1	310	150	0.58	<5.0	<0.50	8
SW2a	28/08/19	0.17	<3	19	33	<1	10	880	0.01	2	2	0.8	0.1	<0.3	7.24	<0.5	86	<10	4	0.2						
SW2a	14/09/19	0.2	<3	14	27	<1	10	820	0.02	590	3	4.6	<0.1	<0.3	7.4	<0.5	94	<10	14	1						
SW2a	25/09/19	0.3	1.1	9	32	<1	-	882	0.11	484	3	0.4	0.05	<1	7.2	<0.01	81	<5	-	0.5	-	-	-	-	-	-
SW2a	18/10/19	0.2	<2.0	9	25	<1		891	0.22	744	3	0.6	<0.01	<1	7.4	0.02		7	4.6	0.6	308	189	<0.02	2	<0.03	9
SW2a	28/11/19	0.3	<1.0	9	23	<1		798	<0.01	742	3	0.8	<0.01	<1	7.4	<0.01		<5	4	0.8	-	-	-	-	-	-
SW2a	16/12/19	0.3	<1.0	10	24	<1		793	0.01	840	2	1.4	<0.01	<1	7.3	<0.01		7	4	1.4	-	-	-	-	-	-
SW2a	27/01/20	0.3	<1.0	<5	25	<1		773	0.01	655	2	1.5	<0.01	<1	7.5	<0.01		7	3.6	1.5	294	164	<0.02	1	<0.03	7
SW2a	21/02/20	0.3	<1.0	7	24	<1		803	<0.01	680	4	1.2	0.01	<1	7.3	<0.01		7	3.9	1.2	-	-	-	-	-	-
SW2a	11/03/20	0.2	<1.0	10	24	<1		747	0.01	503	2	1.1	0.01	<1	7.4	<0.01		6	3.3	1.1	-	-	-	-	-	-
SW2a	24/04/20	0.03	1.4	10	25	<1		753	0.07	27	1	<0.2	<0.01	<1	7.8	<0.01		<5	3.3	<0.2	270	152	<0.02	1	<0.03	7
SW2a	14/05/20	0.1	1.1	6	28	<1		757	0.03	35	1	0.6	<0.01	<1	7.7	<0.01		<5	2.6	0.6	-	-	-	-	-	-
SW2a	12/06/20	0.02	1.2	8	33	<1		679	0.05	<2	<1	0.2	<0.01	<1	7.7	0.01		<5	3.2	0.2	-	-	-	-	-	-
SW2a	09/07/20	0.04	<1.4	15	28	<1		829	0.01	118	2	0.6	<0.01	<1	7.9	<0.01	154	7	5.1	0.6	247	167	<0.02	2	<0.03	10
SW2a	06/08/20	0.16	<1.4	12	24	<1		726	0.02	394	3	0.5	0.02	<1	7.8	<0.01	96	<5	4.6	0.5	-	-				-

BYRNELOOBY

Location	Date	Ammoniacal nitrogen (mg/l)	BOD (mg/l)	COD (mg/l)	Chloride (mg/l)	Cr (Dissolved) (µg/l)	Diss Oxygen (mg/l)	Electrical Conductivity (µS/cm)	Fe (Dissolved) (mg/l)	Mn (Dissolved) (µg/l)	Ni (Dissolved) (µg/l)	Nitrate (mg/l)	Nitrite (mg/l)	Pb (Dissolved) (µg/l)	pH	Phosphate (mg/l)	Sulphate (mg/l)	Suspended Solids (mg/l)	TOC (mg/l)	TON (mg/l)	Alkalinity (mg/l)	Calcium (mg/l)	Cd (Dissolved) (µg/l)	Cu (Dissolved) (µg/l)	Hg (Dissolved) (µg/l)	Magnesium (mg/l)
SW2a	30/09/20	0.2	2.1	10	25	<1		784	0.05	171	2	0.3	0.01	<1	7.6	<0.01	70	14	4.1	0.3	-	-				-
SW2a	15/10/20	0.5	1.1	<5	18	<1		780	0.01	697	2	0.3	<0.01	<1	7.6	<0.01	74	5	4.5	0.3	312	158	<0.02	2	<0.03	6
SW2a	11/11/20	<0.01	<1.0	8	22	<1		584	<0.01	<2	<1	1.9	<0.01	<1	7.9	<0.01	19	<5	1.3	1.9	-	-				-
SW2a	08/12/20	0.3	<1.0	12	16	<1		738	0.01	623	2	0.6	<0.01	<1	7.4	<0.01	82	<5	3.5	0.6	-	-				-
SW2a	07/01/21	0.3	<1.0	8	20	<1		771	0.01	751	3	0.9	<0.01	<1	7.7	<0.01	110	5	3.3	0.9	291	178	<0.02	<1	<0.03	8
SW2a	18/02/21	0.17	<1.0	8	22	<1		733	0.01	383	2	1.5	0.01	<1	7.7	<0.01	84	<5	3.2	1.5	-	-				-
SW2a	16/03/21	0.18	<1.0	9	17	<1		678	0.01	439	2	1.8	<0.01	<1	7.9	<0.01	72	<5	2.8	1.8	-	-				-
SW2a	20/04/21	0.11	1.2	<5	20	<1		853	0.04	416	2	1.2	<0.01	<1	7.9	<0.01	52	7	2.4	1.2	288	155	<0.02	<1	<0.03	6
SW2a	12/05/21	0.03	<1.0	<5	21	<1		737	0.02	159	2	<0.2	<0.01	<1	7.7	<0.01	69	<5	2.7	<0.2	-	-				-
SW2a	01/06/21	0.06	3.7	10	20	<1		746	<0.01	211	1	1.3	<0.01	<1	7.6	<0.01	65	<5	3.6	1.3	-	-				-
SW2a	09/07/21	<0.01	<1.0	8	21	<1		597	0.1	306	2	1.2	<0.01	<1	8	<0.01	67	7	3	1.2	166	161	<0.02	1	<0.03	6
SW2a	03/08/21	0.1	3.7	10	29	<1		796	0.06	130	1	<0.2	0.05	<1	7.5	<0.01	55	6	3.5	<0.2	-	-				-
SW2a	10/09/21	0.1	1.4	8	24	<1		756	0.01	<2	1	<0.2	0.02	<1	7.6	<0.01	88	9	3.7	<0.2	-	-				-
SW2a	05/10/21	0.06	<1.0	23	15	<1		811	0.02	96	2	<0.2	0.01	<1	7.8	<0.01	209	<5	7	<0.2	214	157	0.06	2	<0.03	12
SW2b	10/10/18	0.15	<3	16	33	<1	10	920	0.02	1000	7	3.1	<0.1	<0.3	7.8	<0.5	120	<10	5	0.7	340	200	0.02	11	<0.05	9
SW2b	07/11/18	0.2	<3	25	27	<1	9.7	830	<0.01	880	5	5.6	<0.1	<0.3	7.29	<0.5	130	84	5	1.3	-	-	-	-	-	-
SW2b	07/12/18	0.15	<3	16	24	<1	10	1000	0.01	610	7	17	<0.1	<0.3	7.38	<0.5	240	21	4	3.7	-		-	-	-	-
SW2b	22/01/19	0.14	<3	17	24	<1	10	560	0.01	490	2	6.2	<0.1	<0.3	7.35	<0.5	88	65	3	1.4	170	110	<0.02	1.2	<0.05	6.1
SW2b	08/02/19	0.11	<3	33	22	<1	9	510	0.01	150	1	5.1	0.1	<0.3	7.53	<0.5	98	280	3	1.2						
SW2b	08/03/19	0.18	<3	13	29	<1	10	870	<0.01	540	2	13	<0.1	<0.3	7.28	<0.5	140	<10	5	2.9						
SW2b	04/04/19	0.16	<3	27	<1	27	10	830	0.01	470	4	13	<0.1	<0.3	7.47	<0.5	140	33	5	2.9	200	160	<0.02	1.3	<0.05	8.6
SW2b	03/05/19	0.13	<3	17	30	<1	10	790	0.02	530	3	6.2	<0.1	<0.3	7.35	<0.5	85	<10	4	1.4						
SW2b	30/07/19	0.17	<3	29	35	<10	9.3	980	0.02	14	<10	<0.5	<0.1	<3.0	7.51	<0.5	140	<10	5	<0.1	320	200	0.22	12	<0.50	11
SW2b	28/08/19	<0.05	<3	51	28	<1	9.7	770	<0.01	2	2	0.6	<0.1	<0.3	7.38	<0.5	130	68	7	0.2						
SW2b	14/09/19	0.19	<3	12	26	<1	10	860	0.01	390	3	15	<0.1	<0.3	7.37	<0.5	170	<10	13	3.3						
SW2b	25/09/19	0.09	1.1	12	31	<1	-	882	0.15	251	3	0.3	0.02	<1	7.4	<0.01	102	6	-	0.3	-	-	-	-	-	-
SW2b	18/10/19	0.2	<1.0	12	24	<1		842	0.21	562	4	1.4	<0.01	<1	7.4	0.02		26	4.1	1.4	-	-	-	-	-	-
SW2b	28/11/19	0.2	<1.0	12	26	<1		790	<0.01	658	3	0.6	<0.01	<1	7.4	<0.01		16	4.6	0.6	256	162	0.03	2	<0.03	8
SW2b	16/12/19	0.3	<1.0	11	26	<1		840	<0.01	748	3	1.4	<0.01	<1	7.4	<0.01		11	4.1	1.5	-	-	-	-	-	-
SW2b	27/01/20	0.23	<1.0	7	27	<1		796	<0.01	651	2	1.6	0.01	<1	7.5	<0.01		13	3.8	1.6	280	166	<0.02	1	<0.03	8
SW2b	21/02/20	0.18	<1.0	9	28	<1		877	<0.01	568	4	1.3	0.02	<1	7.4	0.01		9	4.7	1.4	-	-	-	-	-	-
SW2b	11/03/20	0.15	<1.0	10	25	<1		775	0.01	379	2	1	0.01	<1	7.4	<0.01		35	3.9	1	-	-	-	-	-	-
SW2b	24/04/20	0.02	1.3	9	24	<1		719	0.05	44	2	0.3	<0.01	<1	7.8	<0.01		<5	3.1	0.3	267	142	<0.02	1	<0.03	7
SW2b	14/05/20	0.1	1.5	7	28	<1		719	0.04	<2	1	<0.2	<0.01	<1	7.9	<0.01		26	3	<0.2	-	-	-	-	-	-
SW2b	12/06/20	0.02	1.4	13	27	<1		753	0.04	<2	2	0.7	<0.01	<1	7.8	<0.01		23	3.7	0.7	-	-	-	-	-	-
SW2b	09/07/20	0.05	<1.4	14	26	<1		902	0.03	258	3	0.3	0.02	<1	8	<0.01	228	6	5.7	0.3	227	187	<0.02	2	<0.03	11
SW2b	06/08/20	0.04	<1.4	8	18	<1		732	0.04	109	4	3.8	<0.01	<1	8	<0.01	159	<5	2.5	3.8	-	-				-
SW2b	30/09/20	0.2	<1.4	17	22	<1		729	0.04	14	2	<0.2	0.02	<1	7.5	<0.01	104	23	5.8	<0.2	-	-				-
SW2b	15/10/20	0.2	1.3	20	20	<1		874	<0.01	345	3	<0.2	0.01	<1	7.7	<0.01	125	57	5.3	<0.2	318	177	<0.02	1	<0.03	8
SW2b	11/11/20	0.3	<1.0	14	20	<1		850	0.01	498	3	0.3	0.01	<1	7.5	<0.01	133	9	8.6	0.3	-	-				-
SW2b	08/12/20	0.3	<1.0	16	17	<1		761	0.01	658	2	0.6	<0.01	<1	7.4	<0.01	98	<5	3.8	0.6	-	-				-
SW2b	07/01/21	0.2	<1.0	12	20	<1		762	0.01	690	2	1.8	<0.01	<1	7.7	<0.01	100	13	3	1.8	298	172	<0.02	<1	<0.03	7
SW2b	18/02/21	0.08	<1.0	9	22	<1		756	<0.01	303	2	1.4	0.01	<1	7.7	<0.01	92	<5	3.2	1.4	-	-				-
SW2b	16/03/21	0.02	<1.0	7	17	<1		729	0.01	174	5	3.2	<0.01	<1	8	<0.01	144	11	2.4	3.2	-	-				-
SW2b	20/04/21	0.04	<1.0	7	20	<1		836	0.02	161	1	1.1	<0.01	<1	7.8	<0.01	54	<5	2.4	1.1	283	154	<0.02	<1	<0.03	6
SW2b	12/05/21	0.05	<1.0	16	24	<1		593	0.02	46	2	0.4	<0.01	<1	7.9	<0.01	213	20	6.6	0.4	-	-				-
SW2b	01/06/21	0.08	2.2	6	19	<1		700	<0.01	71	1	3.6	0.01	<1	7.7	<0.01	95	12	3	3.6	-	-				-
SW2b	09/07/21	0.02	1.1	7	21	<1		735	0.03	29	1	0.3	<0.01	<1	7.9	<0.01	68	<5	3.2	0.3	140	157	<0.02	<1	<0.03	7
SW2b	03/08/21	0.1	2.2	8	25	<1		778	0.05	<2	1	<0.2	<0.01	<1	7.6	<0.01	66	9	3.4	<0.2	-	-				-
SW2b	10/09/21	0.05	2.1	12	13	<1		567	0.01	<2	2	<0.2	<0.01	<1	7.7	<0.01	117	11	4.7	<0.2	-	-				-
SW2b	05/10/21	0.02	1.9	11	14	<1		822	0.02	85	7	3.1	<0.01	<1	8.1	<0.01	239	10	2.8	3.1	181	164	0.06	<1	<0.03	11
SW3	10/10/18	<0.05	<3	31	35	<1	9.9	740	0.01	5	2	7.2	<0.1	<0.3	7.85	<0.5	86	12	4	1.6	340	160	<0.02	1	<0.05	6.9
SW3	07/11/18	0.06	<3	21	30	<1	8.9	660	<0.01	72	2	14	<0.1	<0.3	7.7	<0.5	63	16	5	3.1	-	-	-	-	-	-
SW3	07/12/18	<0.05	<3	18	26	<1	9.7	530	0.05	28	1	17	<0.1	<0.3	7.61	<0.5	41	<10	5	3.7	-		-	-	-	-
SW3	22/01/19	<0.05	<3	19	64	<1	10	670	0.02	14	<1	13	<0.1	<0.3	7.7	<0.5	31	15	5	3	230	110	<0.02	1.4	<0.05	4.1
SW3	08/02/19	<0.05	<3	17	30	<1	10	450	<0.01	2	<1	16	<0.1	<0.3	7.75	<0.5	17	17	5	3.5						
SW3	08/03/19	<0.05	<3	9	32	<1	11	550	0.01	5	<1	17	<0.1	<0.3	7.77	<0.5	19	<10	4	3.9						
SW3	04/04/19	0.17	<3	27	<1	31	10	790	0.01	430	4	9.6	<0.1	<0.3	7.71	<0.5	120	30	5	2.2	220	150	<0.02	1.4	<0.05	8.1
SW3	03/05/19	<0.05	<3	23	31	<1	10	660	0.02	60	1	9.1	<0.1	<0.3	7.85	<0.5	51	<10	4	2						
SW3	30/07/19	0.13	<3	11	30	<10	8.9	690	<0.01	16	<10	8.5	<0.1	<3.0	7.72	<0.5	51	<10	3	1.9	260	140	0.27	9.7	<0.50	6

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Location	Date	Ammoniacal nitrogen (mg/l)	BOD (mg/l)	COD (mg/l)	Chloride (mg/l)	Cr (Dissolved) (µg/l)	Diss Oxygen (mg/l)	Electrical Conductivity (µS/cm)	Fe (Dissolved) (mg/l)	Mn (Dissolved) (µg/l)	Ni (Dissolved) (µg/l)	Nitrate (mg/l)	Nitrite (mg/l)	Pb (Dissolved) (µg/l)	pH	Phosphate (mg/l)	Sulphate (mg/l)	Suspended Solids (mg/l)	TOC (mg/l)	TON (mg/l)	Alkalinity (mg/l)	Calcium (mg/l)	Cd (Dissolved) (µg/l)	Cu (Dissolved) (µg/l)	Hg (Dissolved) (µg/l)	Magnesium (mg/l)
SW3	28/08/19	<0.05	<3	17	31	<1	10	740	<0.01	<1	1	6.9	<0.1	<0.3	7.83	<0.5	63	<10	4	1.5						
SW3	14/09/19	0.12	<3	<5	24	<1	10	630	0.04	16	1	9.2	<0.1	<0.3	7.78	<0.5	47	<10	10	2.1						
SW3	25/09/19	0.04	<1.0	10	30	<1	-	721	0.09	5	1	1.2	<0.01	<1	7.9	0.02	51	9	-	1.2	-	-	-	-	-	-
SW3	18/10/19	0.05	1.1	19	20	<1		565	0.19	10	1	2	<0.01	<1	7.8	0.11		10	6.7	2	-	-	-	-	-	-
SW3	28/11/19	0.02	<1.0	9	21	<1		570	0.01	<2	<1	1.6	<0.01	<1	7.8	<0.01		<5	4	1.6	247	121	<0.02	<1	<0.03	4
SW3	16/12/19	0.03	<1.0	8	23	<1		573	0.01	6	<1	2.6	<0.01	<1	7.7	<0.01		<5	3	2.6	-	-	-	-	-	-
SW3	27/01/20	0.02	<1.0	<5	24	<1		574	0.01	<2	<1	2.6	<0.01	<1	7.9	0.01		9	3.2	2.6	241	119	<0.02	<1	<0.03	4
SW3	21/02/20	0.01	<1.0	5	24	<1		521	0.01	<2	<1	2.5	<0.01	<1	7.7	0.02		17	2.8	2.5	-	-	-	-	-	-
SW3	11/03/20	<0.01	<1.0	6	24	<1		564	0.01	<2	<1	2.2	<0.01	<1	8	<0.01		<5	2.3	2.2	-	-	-	-	-	-
SW3	24/04/20	0.01	<1.0	5	24	<1		574	0.01	<2	<1	1.1	<0.01	<1	8	<0.01		22	1.5	1.1	239	115	<0.02	<1	<0.03	4
SW3	14/05/20	0.13	1.1	<5	24	<1		598	0.01	<2	<1	0.8	<0.01	<1	8	<0.01		33	1.5	0.8	-	-	-	-	-	-
SW3	12/06/20	0.02	1.9	9	28	<1		716	0.02	<2	2	0.3	<0.01	<1	7.7	<0.01		55	3.5	0.3	-	-	-	-	-	-
SW3	09/07/20	<0.01	<1.4	18	26	<1		630	0.04	<2	2	0.9	<0.01	<1	8.1	<0.01	94	13	7	0.9	193	126	<0.02	2	<0.03	5
SW3	06/08/20	21	<1.4	13	22	<1		634	0.01	<2	1	1.6	0.03	<1	8	<0.01	48	6	4.9	1.7	-	-				-
SW3	30/09/20	0.01	<1.4	11	22	<1		687	0.01	<2	1	1	<0.01	<1	7.9	<0.01	59	27	4.3	1	-	-				-
SW3	15/10/20	<0.01	<1.0	<5	19	<1		641	0.01	46	<1	1.5	<0.01	<1	8	0.02	37	<5	3.1	1.5	265	130	<0.02	<1	<0.03	4
SW3	11/11/20	0.05	<1.0	10	20	<1		633	0.01	81	1	1.6	<0.01	<1	7.9	<0.01	39	<5	1.2	1.6	-	-				-
SW3	08/12/20	0.02	1.2	7	23	<1		597	0.01	17	<1	2.1	<0.01	<1	7.9	<0.01	34	<5	2.4	2	-	-				-
SW3	07/01/21	0.04	1.1	7	25	<1		609	0.01	83	<1	2.8	<0.01	<1	8	<0.01	35	<5	1.9	2.8	259	134	<0.02	<1	<0.03	4
SW3	18/02/21	0.02	<1.0	8	31	<1		578	0.01	17	<1	2.6	<0.01	<1	8.1	<0.01	30	9	2.8	2.6	-	-				-
SW3	31/03/21	0.16	1.7	8	22	<1		577	<0.01	<2	<1	1.8	<0.01	<1	7.8	0.02	29	<5	2.3	1.8	-	-				-
SW3	20/04/21	0.03	1.6	<5	20	<1		612	<0.01	<2	<1	1.7	<0.01	<1	8	<0.01	21	<5	1.5	1.7	239	116	<0.02	<1	<0.03	4
SW3	12/05/21	0.05	1	<5	24	<1		596	0.01	<2	<1	0.5	<0.01	<1	8	<0.01	38	18	2.7	0.5	-	-				-
SW3	01/06/21	0.06	<1.0	5	26	<1		643	<0.01	<2	<1	1.6	0.02	<1	7.9	<0.01	28	5	2.3	1.6	-	-				-
SW3	09/07/21	<0.01	<1.0	<5	20	<1		653	0.01	<2	<1	0.9	<0.01	<1	8	<0.01	37	<5	2.1	0.9	154	135	<0.02	<1	<0.03	5
SW3	03/08/21	4.9	1.3	5	24	<1		698	0.02	<2	<1	0.5	<0.01	<1	7.8	<0.01	52	20	2.5	0.5	-	-				-
SW3	10/09/21	0.02	1.8	12	23	<1		626	0.02	<2	1	1.6	<0.01	<1	7.8	0.01	81	94	4.9	1.6	-	-				-
SW3	05/10/21	0.05	<1.0	26	19	<1		525	0.05	21	1	1.7	0.02	<1	8	<0.01	48	7	7.5	1.7	204	99	0.07	1	<0.03	4
SW4	22/01/19	<0.05	<3	17	63	<1	9.8	690	0.01	47	1	13	<0.1	<0.3	8.02	<0.5	43	33	4	2.9	220	110	<0.02	1.1	<0.05	4.6
SW4	08/02/19	<0.05	<3	17	30	<1	10	460	0.03	3	<1	16	<0.1	<0.3	7.75	<0.5	22	<10	5	3.5						
SW4	08/03/19	<0.05	<3	8	32	<1	11	570	0.01	7	1	17	<0.1	<0.3	7.72	<0.5	32	10	4	3.8						
SW4	04/04/19	0.69	<3	26	<1	32	10	600	0.02	51	1	11	<0.1	<0.3	7.91	<0.5	43	<10	5	2.4	230	120	<0.02	0.9	<0.05	4.4
SW4	03/05/19	<0.05	<3	14	31	<1	10	610	0.02	3	<1	10	<0.1	<0.3	7.98	<0.5	26	<10	4	2.3						
SW4	30/07/19	0.13	<3	55	32	<10	10	850	<0.01	<10	<10	0.8	<0.1	<3.0	7.55	<0.5	98	190	4	0.2	320	140	0.32	5.7	<0.50	8.1
SW4	28/08/19	0.06	<3	27	31	<1	11	830	<0.01	1	1	3.2	<0.1	<0.3	7.56	<0.5	92	36	4	0.7						
SW4	14/09/19	0.19	<3	<5	23	<1	10	590	0.04	2	<1	8.6	<0.1	<0.3	7.82	<0.5	27	<10	9	1.9						
SW4	25/09/19	0.04	<1.0	8	30	<1	-	645	0.08	<2	<1	1.6	<0.01	<1	8	0.03	24	<5	-	1.6	-	-	-	-	-	-
SW4	18/10/19	0.04	<1.0	19	20	<1		527	0.19	<2	<1	2	<0.01	<1	7.8	0.03		6	7	2	-	-	-	-	-	-
SW4	28/11/19	0.02	<1.0	10	21	<1		584	0.02	4	<1	1.6	<0.01	<1	7.8	<0.01		<5	4.2	1.6	249	123	<0.02	<1	<0.03	4
SW4	16/12/19	0.02	<1.0	7	23	<1		573	0.01	6	<1	2.6	<0.01	<1	7.7	<0.01		<5	2.9	2.6	-	-	-	-	-	-
SW4	27/01/20	0.01	<1.0	<5	25	<1		576	0.01	<2	<1	2.6	<0.01	<1	7.9	<0.01		6	3.1	2.6	243	119	<0.02	<1	<0.03	4
SW4	21/02/20	0.02	<1.0	8	24	<1		524	0.01	<2	<1	2.5	<0.01	<1	7.8	0.04		8	2.7	2.5	-	-	-	-	-	-
SW4	11/03/20	0.02	<1.0	6	38	<1		620	0.01	<2	<1	2	<0.01	<1	8	<0.01		7	2.4	2	-	-	-	-	-	-
SW4	24/04/20	0.11	<1.0	<5	24	<1		578	0.01	<2	<1	1.1	<0.01	<1	8.1	<0.01		15	1.6	1.1	248	118	<0.02	<1	<0.03	4
SW4	14/05/20	0.11	1.2	<5	24	<1		603	<0.01	<2	<1	0.9	<0.01	<1	8.1	<0.01		10	1.4	0.9	-	-	-	-	-	-
SW4	12/06/20	0.02	1.5	9	30	<1		754	0.02	<2	1	0.3	<0.01	<1	7.8	<0.01		45	3.7	0.3	-	-	-	-	-	-
SW4	09/07/20	<0.01	<1.4	18	25	<1		568	0.06	<2	1	0.8	<0.01	<1	8.1	<0.01	56	12	7.5	0.8	195	116	<0.02	2	<0.03	4
SW4	06/08/20	10	<1.4	14	21	<1		597	0.01	<2	<1	1.6	0.04	<1	8.1	0.01	35	<5	5.2	1.6	-	-				-
SW4	30/09/20	<0.01	<1.4	10	25	<1		629	0.02	<2	<1	1.4	<0.01	<1	8	<0.01	26	11	3.8	1.4	-	-				-
SW4	15/10/20	<0.01	<1.0	<5	19	<1		602	0.01	<2	<1	1.6	<0.01	<1	8.1	0.02	21	<5	2.8	1.6	260	123	<0.02	<1	<0.03	4
SW4	11/11/20	<0.01	<1.0	6	20	<1		579	<0.01	<2	<1	1.9	<0.01	<1	8	0.03	20	<5	2.9	1.9	-	-				-
SW4	08/12/20	<0.01	1.1	7	23	<1		567	0.01	<2	<1	2.2	<0.01	<1	8	<0.01	19	<5	2.4	2.2	-	-				-
SW4	07/01/21	0.01	<1.0	9	27	<1		577	<0.01	4	<1	2.4	<0.01	<1	8	<0.01	19	7	2.7	2.4	250	129	<0.02	<1	<0.03	4
SW4	18/02/21	0.01	<1.0	7	32	<1		543	0.01	2	<1	1.7	<0.01	<1	8.1	<0.01	19	11	2.7	1.7	-	-				-
SW4	31/03/21	0.02	<1.0	6	21	<1		547	0.01	<2	<1	2	<0.01	<1	8	0.01	17	6	2	2	-	-				-
SW4	20/04/21	<0.01	<1.0	<5	20	<1		687	<0.01	<2	<1	1.7	<0.01	<1	8	<0.01	18	9	1.4	1.7	242	114	<0.02	<1	<0.03	4
SW4	12/05/21	<0.01	1.2	6	26	<1		549	0.01	<2	<1	0.8	<0.01	<1	8.1	<0.01	23	22	2.6	0.8	-	-				-
SW4	01/06/21	0.16	<1.0	8	20	<1		595	<0.01	<2	<1	1.7	0.02	<1	7.9	<0.01	17	<5	2.5	1.7	-	-				-
SW4	09/07/21	<0.01	<1.0	6	20	<1		583	0.01	<2	<1	1.2	<0.01	<1	8.1	0.01	18	<5	1.7	1.2	157	116	<0.02	<1	<0.03	4
SW4	03/08/21	0.3	1.5	5	24	<1		676	0.01	<2	<1	0.6	<0.01	<1	7.7	<0.01	47	110	2.3	0.6	-	-				-

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Location	Date	Ammoniacal nitrogen (mg/l)	BOD (mg/l)	COD (mg/l)	Chloride (mg/l)	Cr (Dissolved) (µg/l)	Diss Oxygen (mg/l)	Electrical Conductivity (µS/cm)	Fe (Dissolved) (mg/l)	Mn (Dissolved) (µg/l)	Ni (Dissolved) (µg/l)	Nitrate (mg/l)	Nitrite (mg/l)	Pb (Dissolved) (µg/l)	pH	Phosphate (mg/l)	Sulphate (mg/l)	Suspended Solids (mg/l)	TOC (mg/l)	TON (mg/l)	Alkalinity (mg/l)	Calcium (mg/l)	Cd (Dissolved) (µg/l)	Cu (Dissolved) (µg/l)	Hg (Dissolved) (µg/l)	Magnesium (mg/l)
SW4	10/09/21	0.09	1.8	10	24	<1		611	0.02	<2	2	1.8	0.02	<1	7.9	0.01	68	12	5	1.8	-	-				-
SW4	05/10/21	0.09	3.2	16	14	<1		760	0.02	245	4	1.8	<0.01	<1	7.8	<0.01	179	<5	4	1.8	208	149	0.07	1	<0.03	9

Location	Date	Methyl tert-Butyl Ether (µg/l)	Potassium (mg/l)	Sodium (mg/l)	TPH (C35-C40) (mg/l)	TPH (C8 - C40) (mg/l)	TPH (C8-C35)(Total) (mg/l)	Zn (Dissolved) (µg/l)	PAH (Total) (µg/l)	Naphthalene (ug/l)	Acenaphthylene (ug/l)	Acenaphthene (ug/l)	Fluorene (ug/l)	Phenanthrene (ug/l)	Anthracene (ug/l)	Fluoranthene (ug/l)	Pyrene (ug/l)	Benzo(a)Anthracene (ug/l)	Chrysene (ug/l)	Benzo(b)fluoranthene (ug/l)	Benzo(k)fluoranthene (ug/l)	Benzo(a)Pyrene (ug/l)	Indeno(123-cd)Pyrene (ug/l)	Dibenzo(ah)Anthracene (ug/l)	Benzo(ghi)Perylene (ug/l)	TPH Band (>C21-C35) mg/l
SW1	10/10/18	<1	2	17	<0.03	0.07	0.07	6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW1	07/11/18	-	-	-	-	-	-	-	-																	
SW1	07/12/18	-	-	-	-	-	-	-	-																	
SW1	22/01/19	<1	<0.1	38	0.11	1.31	1.2	6	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
SW1	08/02/19																									
SW1	08/03/19																									
SW1	04/04/19	<1	2.4	11	<0.02	0.1	0.1	3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW1	03/05/19				0.03	0.21	0.18																			
SW1	30/07/19	<1	2.1	17	<0.01	<0.01	<0.01	<20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW1	28/08/19																									
SW1	14/09/19																									
SW1	25/09/19	-	-	-	-	-	-	-	-																	
SW1	18/10/19	< 10.0	4	20				3	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-
SW1	28/11/19	-	-	-				-	-																	-
SW1	16/12/19	-	-	-				-	-																	< 0.010
SW1	27/01/20	<1	1	13				2	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
SW1	21/02/20	-	-	-				-	-																	-
SW1	11/03/20	-	-	-				-	-																	-
SW1	24/04/20	<1	1	11				<2	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.011
SW1	14/05/20	-	-	-				-	-																	-
SW1	12/06/20																									
SW1	09/07/20	<10	2	15				28	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW1	06/08/20	-	-	-					-																	-
SW1	30/09/20	-	-	-					-																	-
SW1	15/10/20	<10	2	12				5	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
SW1	11/11/20	-	-	-					-																	-
SW1	08/12/20	-	-	-					-																	-
SW1	07/01/21	<10	2	15				6	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW1	18/02/21	-	-	-					-																	-
SW1	16/03/21	-	-	-					-																	-
SW1	20/04/21	<10	1	15				<2	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW1	12/05/21	-	-	-					-																	-
SW1	01/06/21	-	-	-					-																	-
SW1	09/07/21	<10	1	13				<2	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW1	03/08/21	-	-	-					-																	-
SW1	10/09/21	-	-	-					-																	-
SW1	05/10/21	<10	2	12				10	0.17	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW2a	10/10/18	<1	3	16	<0.03	<0.03	<0.03	16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW2a	07/11/18	-	-	-	-	-	-	-	-																	
SW2a	07/12/18	-	-	-	-	-	-	-	-																	
SW2a	22/01/19	<1	0.9	11	<0.10	0.22	0.22	4	0.43	0.23	<0.02	<0.02	<0.02	0.03	<0.02	0.04	0.04	0.03	0.03	0.03	<0.02	<0.02	<0.02	<0.02	0.03	
SW2a	08/02/19																									
SW2a	08/03/19																									
SW2a	04/04/19	<1	4.4	13	<0.02	0.12	0.12	3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW2a	03/05/19				<0.02	0.24	0.24																			
SW2a	30/07/19	<1	4.3	20	<0.01	0.04	0.04	54	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW2a	28/08/19																									
SW2a	14/09/19																									
SW2a	25/09/19	-	-	-	-	-	-	-	-																	
SW2a	18/10/19	< 10.0	5	18				10	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-
SW2a	28/11/19	-	-	-				-	-																	-
SW2a	16/12/19	-	-	-				-	-																	< 0.010
SW2a	27/01/20	<1	3	15				<2	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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Location	Date	Methyl tert-Butyl Ether (µg/l)	Potassium (mg/l)	Sodium (mg/l)	TPH (C35-C40) (mg/l)	TPH (C8 - C40) (mg/l)	TPH (C8-C35)(Total) (mg/l)	Zn (Dissolved) (µg/l)	PAH (Total) (µg/l)	Naphthalene (ug/l)	Acenaphthylene (ug/l)	Acenaphthene (ug/l)	Fluorene (ug/l)	Phenanthrene (ug/l)	Anthracene (ug/l)	Fluoranthene (ug/l)	Pyrene (ug/l)	Benzo(a)Anthracene (ug/l)	Chrysene (ug/l)	Benzo(b)fluoranthene (ug/l)	Benzo(k)fluoranthene (ug/l)	Benzo(a)Pyrene (ug/l)	Indeno(123-cd)Pyrene (ug/l)	Dibenzo(ah)Anthracene (ug/l)	Benzo(ghi)Perylene (ug/l)	TPH Band (>C21-C35) mg/l
SW2a	21/02/20	-	-	-				-	-																	-
SW2a	11/03/20	-	-	-				-	-																	-
SW2a	24/04/20	<1	3	15				<2	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
SW2a	14/05/20	-	-	-				-	-																	-
SW2a	12/06/20	-	-	-				-	-																	-
SW2a	09/07/20	<10	4	19				25	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW2a	06/08/20	-	-	-					-																	-
SW2a	30/09/20	-	-	-					-																	-
SW2a	15/10/20	<10	3	15				6	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
SW2a	11/11/20	-	-	-					-																	-
SW2a	08/12/20	-	-	-					-																	-
SW2a	07/01/21	<10	3	15				3	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW2a	18/02/21	-	-	-					-																	-
SW2a	16/03/21	-	-	-					-																	-
SW2a	20/04/21	<10	3	16				2	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW2a	12/05/21	-	-	-					-																	-
SW2a	01/06/21	-	-	-					-																	-
SW2a	09/07/21	<10	3	15				6	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW2a	03/08/21	-	-	-					-																	-
SW2a	10/09/21	-	-	-					-																	-
SW2a	05/10/21	<10	3	14				10	0.16	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW2b	10/10/18	<1	3	16	<0.03	<0.03	<0.03	11	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	
SW2b	07/11/18	-	-	-	-	-	-	-	-																		
SW2b	07/12/18	-	-	-	-	-	-	-	-																		
SW2b	22/01/19	<1	<0.1	15	<0.10	0.24	0.24	5	0.35	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03	<0.02	0.04	
SW2b	08/02/19																									
SW2b	08/03/19																									
SW2b	04/04/19	<1	4	14	0.04	0.24	0.2	2	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW2b	03/05/19				<0.02	0.08	0.08																			
SW2b	30/07/19	<1	4.6	23	<0.01	0.09	0.09	1900	0.03	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW2b	28/08/19																									
SW2b	14/09/19																									
SW2b	25/09/19	-	-	-	-	-	-	-	-																	
SW2b	18/10/19	-	-	-				-	-																	-
SW2b	28/11/19	< 10.0	3	20				5	< 0.4	< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01	0.04	0.07	0.02	0.03	0.05	0.02	0.04	0.03	< 0.01	0.03	-
SW2b	16/12/19	-	-	-				-	-																	< 0.010
SW2b	27/01/20	<1	3	16				2	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
SW2b	21/02/20	-	-	-				-	-																	-
SW2b	11/03/20	-	-	-				-	-																	-
SW2b	24/04/20	<1	3	14				<2	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.010
SW2b	14/05/20	-	-	-				-	-																	-
SW2b	12/06/20	-	-	-				-	-																	-
SW2b	09/07/20	<10	4	20				12	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04
SW2b	06/08/20	-	-	-					-																	-
SW2b	30/09/20	-	-	-					-																	-
SW2b	15/10/20	<10	4	19				3	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04
SW2b	11/11/20	-	-	-					-																	-
SW2b	08/12/20	-	-	-					-																	-
SW2b	07/01/21	<10	3	15				3	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW2b	18/02/21	-	-	-					-																	-
SW2b	16/03/21	-	-	-					-																	-
SW2b	20/04/21	<10	3	17				3	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW2b	12/05/21	-	-	-					-																	-
SW2b	01/06/21	-	-	-					-																	-
SW2b	09/07/21	<10	2	15				18	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW2b	03/08/21	-	-	-					-																	-
SW2b	10/09/21	-	-	-					-																	-
SW2b	05/10/21	<10	2	10				17	0.16	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW3	10/10/18	<1	2	17	<0.03	0.03	0.03	6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW3	07/11/18	-	-	-	-	-	-	-	-																		

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Location	Date	Methyl tert-Butyl Ether (µg/l)	Potassium (mg/l)	Sodium (mg/l)	TPH (C35-C40) (mg/l)	TPH (C8 - C40) (mg/l)	TPH (C8-C35)(Total) (mg/l)	Zn (Dissolved) (µg/l)	PAH (Total) (µg/l)	Naphthalene (ug/l)	Acenaphthylene (ug/l)	Acenaphthene (ug/l)	Fluorene (ug/l)	Phenanthrene (ug/l)	Anthracene (ug/l)	Fluoranthene (ug/l)	Pyrene (ug/l)	Benzo(a)Anthracene (ug/l)	Chrysene (ug/l)	Benzo(b)fluoranthene (ug/l)	Benzo(k)fluoranthene (ug/l)	Benzo(a)Pyrene (ug/l)	Indeno(123-cd)Pyrene (ug/l)	Dibenzo(ah)Anthracene (ug/l)	Benzo(ghi)Perylene (ug/l)	TPH Band (>C21-C35) mg/l
SW3	07/12/18	-	-	-	-	-	-	-	-																	
SW3	22/01/19	<1	<0.1	38	<0.10	0.5	0.5	3	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.1	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
SW3	08/02/19																									
SW3	08/03/19																									
SW3	04/04/19	<1	4	14	0.04	0.26	0.22	15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW3	03/05/19				0.04	0.21	0.17																			
SW3	30/07/19	<1	2.9	19	<0.01	<0.01	<0.01	2300	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW3	28/08/19																									
SW3	14/09/19																									
SW3	25/09/19	-	-	-	-	-	-	-	-																	
SW3	18/10/19	-	-	-				-	-																	-
SW3	28/11/19	< 10.0	2	13				18	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-
SW3	16/12/19	-	-	-				-	-																	< 0.010
SW3	27/01/20	<1	1	13				<2	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
SW3	21/02/20	-	-	-					-																	-
SW3	11/03/20	-	-	-				-	-																	-
SW3	24/04/20	<1	2	11				<2	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.010
SW3	14/05/20	-	-	-				-	-																	-
SW3	12/06/20	-	-	-				-	-																	-
SW3	09/07/20	<10	3	16				24	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW3	06/08/20	-	-	-					-																	-
SW3	30/09/20	-	-	-					-																	-
SW3	15/10/20	<10	2	12				3	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW3	11/11/20	-	-	-					-																	-
SW3	08/12/20	-	-	-					-																	-
SW3	07/01/21	<10	2	15				8	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW3	18/02/21	-	-	-					-																	-
SW3	31/03/21	-	-	-					-																	-
SW3	20/04/21	<10	1	15				<2	<0.22	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
SW3	12/05/21	-	-	-					-																	-
SW3	01/06/21	-	-	-					-																	-
SW3	09/07/21	<10	2	13				17	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW3	03/08/21	-	-	-					-																	-
SW3	10/09/21	-	-	-					-																	-
SW3	05/10/21	<10	2	12				8	0.16	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW4	22/01/19	<1	<0.1	38	<0.10	<0.10	<0.10	3	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
SW4	08/02/19																									
SW4	08/03/19																									
SW4	04/04/19	<1	2.7	12	0.02	0.16	0.14	9	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW4	03/05/19				<0.02	<0.02	<0.02																			
SW4	30/07/19	<1	4	20	<0.01	0.01	0.01	25	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SW4	28/08/19																									
SW4	14/09/19																									
SW4	25/09/19	-	-	-	-	-	-	-	-																	
SW4	18/10/19	-	-	-				-	-																	-
SW4	28/11/19	< 10.0	2	14				2	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-
SW4	16/12/19	-	-	-				-	-																	< 0.010
SW4	27/01/20	<1	1	13				<2	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
SW4	21/02/20	-	-	-				-	-																	-
SW4	11/03/20	-	-	-				-	-																	-
SW4	24/04/20	<1	2	11				2	< 0.16	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.010
SW4	14/05/20	-	-	-				-	-																	-
SW4	12/06/20	-	-	-				-	-																	-
SW4	09/07/20	<10	2	15				21	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW4	06/08/20	-	-	-					-																	-
SW4	30/09/20	-	-	-					-																	-
SW4	15/10/20	<10	2	12				2	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
SW4	11/11/20	-	-	-					-																	-
SW4	08/12/20	-	-	-					-																	-
SW4	07/01/21	<10	2	15				64	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

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Location	Date	Methyl tert-Butyl Ether (µg/l)	Potassium (mg/l)	Sodium (mg/l)	TPH (C35-C40) (mg/l)	TPH (C8 - C40) (mg/l)	TPH (C8-C35)(Total) (mg/l)	Zn (Dissolved) (µg/l)	PAH (Total) (µg/l)	Naphthalene (ug/l)	Acenaphthylene (ug/l)	Acenaphthene (ug/l)	Fluorene (ug/l)	Phenanthrene (ug/l)	Anthracene (ug/l)	Fluoranthene (ug/l)	Pyrene (ug/l)	Benzo(a) Anthracene (ug/l)	Chrysene (ug/l)	Benzo(b)fluoranthene (ug/l)	Benzo(k)fluoranthene (ug/l)	Benzo(a) Pyrene (ug/l)	Indeno(123-cd)Pyrene (ug/l)	Dibenzo(ah)Anthracene (ug/l)	Benzo(ghi)Perylene (ug/l)	TPH Band (>C21-C35) mg/l
SW4	18/02/21	-	-	-					-																	-
SW4	31/03/21	-	-	-					-																	-
SW4	20/04/21	<10	1	15				<2	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW4	12/05/21	-	-	-					-																	-
SW4	01/06/21	-	-	-					-																	-
SW4	09/07/21	<10	1	13				<2	<0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SW4	03/08/21	-	-	-					-																	-
SW4	10/09/21	-	-	-					-																	-
SW4	05/10/21	<10	2	11				8	0.16	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Location	Date	TPH Band >C10-C12 mg/l	TPH Band >C12-C16 mg/l	TPH Band >C16-C21 mg/l	TPH Band >C8-C10 mg/l	TPH GC mg/l	Benzene ug/l	Ethyl Benzene ug/l	m/p Xylenes ug/l	o Xylene ug/l	Toluene ug/l	Xylenes ug/l
SW1	10/10/18											
SW1	07/11/18											
SW1	07/12/18											
SW1	22/01/19											
SW1	08/02/19											
SW1	08/03/19											
SW1	04/04/19											
SW1	03/05/19											
SW1	30/07/19											
SW1	28/08/19											
SW1	14/09/19											
SW1	25/09/19											
SW1	18/10/19	-	-	-	-	-	< 5.0	< 5.0	< 10.0	< 5.0	< 5.0	<15
SW1	28/11/19	-	-	-	-	-						
SW1	16/12/19	< 0.010	< 0.010	< 0.010	< 0.010	0.011						
SW1	27/01/20	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<1	<1	<1	<1	<1	<2
SW1	21/02/20	-	-	-	-	-						
SW1	11/03/20	-	-	-	-	-						
SW1	24/04/20	< 0.010	< 0.010	< 0.010	< 0.010	0.015	<1	<1	<1	<1	<1	<2
SW1	14/05/20	-	-	-	-	< 0.010						
SW1	12/06/20											
SW1	09/07/20	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-
SW1	06/08/20	-	-	-	-	-						
SW1	30/09/20	-	-	-	-	-						
SW1	15/10/20	<0.01	<0.01	<0.01	<0.01	0.02	<1	<1	<1	<1	<1	
SW1	11/11/20	-	-	-	-	-						
SW1	08/12/20	-	-	-	-	-						
SW1	07/01/21	<0.01	<0.01	<0.01	<0.01	0.01	-	-	-	-	-	-
SW1	18/02/21	-	-	-	-	-						
SW1	16/03/21	-	-	-	-	-						
SW1	20/04/21	<0.01	<0.01	<0.01	<0.01	0.01	-	-	-	-	-	-
SW1	12/05/21	-	-	-	-	-						
SW1	01/06/21	-	-	-	-	-						
SW1	09/07/21	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-
SW1	03/08/21	-	-	-	-	-						
SW1	10/09/21	-	-	-	-	-						
SW1	05/10/21	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<1	<1	
SW2a	10/10/18											
SW2a	07/11/18											
SW2a	07/12/18											
SW2a	22/01/19											
SW2a	08/02/19											
SW2a	08/03/19											
SW2a	04/04/19											
SW2a	03/05/19											
SW2a	30/07/19											

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Location	Date	TPH Band >C10-C12 mg/l	TPH Band >C12-C16 mg/l	TPH Band >C16-C21 mg/l	TPH Band >C8-C10 mg/l	TPH GC mg/l	Benzene ug/l	Ethyl Benzene ug/l	m/p Xylenes ug/l	o Xylene ug/l	Toluene ug/l	Xylenes ug/l
SW2a	28/08/19											
SW2a	14/09/19											
SW2a	25/09/19											
SW2a	18/10/19	-	-	-	-	-	< 5.0	< 5.0	< 10.0	< 5.0	< 5.0	<15
SW2a	28/11/19	-	-	-	-	-						
SW2a	16/12/19	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010						
SW2a	27/01/20	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<1	<1	<1	<1	<1	<2
SW2a	21/02/20	-	-	-	-	-						
SW2a	11/03/20	-	-	-	-	-						
SW2a	24/04/20	< 0.010	< 0.010	< 0.010	< 0.010	0.016	<1	<1	<1	<1	<1	<2
SW2a	14/05/20	-	-	-	-	< 0.010						
SW2a	12/06/20	-	-	-	-	-						
SW2a	09/07/20	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-
SW2a	06/08/20	-	-	-	-	-						
SW2a	30/09/20	-	-	-	-	-						
SW2a	15/10/20	<0.01	<0.01	<0.01	<0.01	0.01	<1	<1	<1	<1	<1	
SW2a	11/11/20	-	-	-	-	-						
SW2a	08/12/20	-	-	-	-	-						
SW2a	07/01/21	<0.01	<0.01	<0.01	<0.01	0.01	-	-	-	-	-	-
SW2a	18/02/21	-	-	-	-	-						
SW2a	16/03/21	-	-	-	-	-						
SW2a	20/04/21	<0.01	<0.01	<0.01	<0.01	0.01	-	-	-	-	-	-
SW2a	12/05/21	-	-	-	-	-						
SW2a	01/06/21	-	-	-	-	-						
SW2a	09/07/21	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-
SW2a	03/08/21	-	-	-	-	-						
SW2a	10/09/21	-	-	-	-	-						
SW2a	05/10/21	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<1	<1	
SW2b	10/10/18											
SW2b	07/11/18											
SW2b	07/12/18											
SW2b	22/01/19											
SW2b	08/02/19											
SW2b	08/03/19											
SW2b	04/04/19											
SW2b	03/05/19											
SW2b	30/07/19											
SW2b	28/08/19											
SW2b	14/09/19											
SW2b	25/09/19											
SW2b	18/10/19	-	-	-	-	-						
SW2b	28/11/19	-	-	-	-	-						
SW2b	16/12/19	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010						
SW2b	27/01/20	< 0.01	< 0.01	< 0.01	< 0.01	0.01	<1	<1	<1	<1	<1	<2
SW2b	21/02/20	-	-	-	-	-						
SW2b	11/03/20	-	-	-	-	-						
SW2b	24/04/20	< 0.010	< 0.010	< 0.010	< 0.010	0.014	<1	<1	<1	<1	<1	<2
SW2b	14/05/20	-	-	-	-	0.024						
SW2b	12/06/20	-	-	-	-	-						
SW2b	09/07/20	<0.01	<0.01	<0.01	<0.01	0.06	-	-	-	-	-	-
SW2b	06/08/20	-	-	-	-	-						
SW2b	30/09/20	-	-	-	-	-						
SW2b	15/10/20	<0.01	<0.01	<0.01	<0.01	0.04	<1	<1	<1	<1	<1	
SW2b	11/11/20	-	-	-	-	-						
SW2b	08/12/20	-	-	-	-	-						
SW2b	07/01/21	<0.01	<0.01	<0.01	<0.01	0.01	-	-	-	-	-	-
SW2b	18/02/21	-	-	-	-	-						
SW2b	16/03/21	-	-	-	-	-						
SW2b	20/04/21	<0.01	<0.01	<0.01	<0.01	0.02	-	-	-	-	-	-
SW2b	12/05/21	-	-	-	-	-						

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Location	Date	TPH Band >C10-C12 mg/l	TPH Band >C12-C16 mg/l	TPH Band >C16-C21 mg/l	TPH Band >C8-C10 mg/l	TPH GC mg/l	Benzene ug/l	Ethyl Benzene ug/l	m/p Xylenes ug/l	o Xylene ug/l	Toluene ug/l	Xylenes ug/l
SW2b	01/06/21	-	-	-	-	-						
SW2b	09/07/21	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-
SW2b	03/08/21	-	-	-	-	-						
SW2b	10/09/21	-	-	-	-	-						
SW2b	05/10/21	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<1	<1	
SW3	10/10/18											
SW3	07/11/18											
SW3	07/12/18											
SW3	22/01/19											
SW3	08/02/19											
SW3	08/03/19											
SW3	04/04/19											
SW3	03/05/19											
SW3	30/07/19											
SW3	28/08/19											
SW3	14/09/19											
SW3	25/09/19											
SW3	18/10/19	-	-	-	-	-						
SW3	28/11/19	-	-	-	-	-						
SW3	16/12/19	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010						
SW3	27/01/20	< 0.01	< 0.01	< 0.01	< 0.01	0.012	<1	<1	<1	<1	<1	<2
SW3	21/02/20	-	-	-	-	-						
SW3	11/03/20	-	-	-	-	-						
SW3	24/04/20	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	<1	<1	<1	<1	<1	<2
SW3	14/05/20	-	-	-	-	< 0.010						
SW3	12/06/20	-	-	-	-	-						
SW3	09/07/20	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-
SW3	06/08/20	-	-	-	-	-						
SW3	30/09/20	-	-	-	-	-						
SW3	15/10/20	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<1	<1	
SW3	11/11/20	-	-	-	-	-						
SW3	08/12/20	-	-	-	-	-						
SW3	07/01/21	<0.01	<0.01	<0.01	<0.01	0.01	-	-	-	-	-	-
SW3	18/02/21	-	-	-	-	-						
SW3	31/03/21	-	-	-	-	-						
SW3	20/04/21	<0.01	<0.01	<0.01	<0.01	0.02	-	-	-	-	-	-
SW3	12/05/21	-	-	-	-	-						
SW3	01/06/21	-	-	-	-	-						
SW3	09/07/21	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-
SW3	03/08/21	-	-	-	-	-						
SW3	10/09/21	-	-	-	-	-						
SW3	05/10/21	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<1	<1	
SW4	22/01/19											
SW4	08/02/19											
SW4	08/03/19											
SW4	04/04/19											
SW4	03/05/19											
SW4	30/07/19											
SW4	28/08/19											
SW4	14/09/19											
SW4	25/09/19											
SW4	18/10/19	-	-	-	-	-						
SW4	28/11/19	-	-	-	-	-						
SW4	16/12/19	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010						
SW4	27/01/20	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<1	<1	<1	<1	<1	<2
SW4	21/02/20	-	-	-	-	-						
SW4	11/03/20	-	-	-	-	-						
SW4	24/04/20	< 0.010	< 0.010	< 0.010	< 0.010	0.011	<1	<1	<1	<1	<1	<2
SW4	14/05/20	-	-	-	-	< 0.010						
SW4	12/06/20	-	-	-	-	-						

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Location	Date	TPH Band >C10-C12 mg/l	TPH Band >C12-C16 mg/l	TPH Band >C16-C21 mg/l	TPH Band >C8-C10 mg/l	TPH GC mg/l	Benzene ug/l	Ethyl Benzene ug/l	m/p Xylenes ug/l	o Xylene ug/l	Toluene ug/l	Xylenes ug/l
SW4	09/07/20	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-
SW4	06/08/20	-	-	-	-	-						
SW4	30/09/20	-	-	-	-	-						
SW4	15/10/20	<0.01	<0.01	<0.01	<0.01	**0.02**	<1	<1	<1	<1	<1	
SW4	11/11/20	-	-	-	-	-						
SW4	08/12/20	-	-	-	-	-						
SW4	07/01/21	<0.01	<0.01	<0.01	<0.01	0.01	-	-	-	-	-	-
SW4	18/02/21	-	-	-	-	-						
SW4	31/03/21	-	-	-	-	-						
SW4	20/04/21	<0.01	<0.01	<0.01	<0.01	0.01	-	-	-	-	-	-
SW4	12/05/21	-	-	-	-	-						
SW4	01/06/21	-	-	-	-	-						
SW4	09/07/21	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-
SW4	03/08/21	-	-	-	-	-						
SW4	10/09/21	-	-	-	-	-						
SW4	05/10/21	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<1	<1	

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Location	SW1	SW2a	SW2b	SW3	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4
Date	10/10/18	10/10/18	10/10/18	10/10/18	18/10/19	18/10/19	28/11/19	28/11/19	28/11/19	15/10/20	15/10/20	15/10/20	15/10/20	15/10/20	05/10/21	05/10/21	05/10/21	05/10/21	05/10/21
Hexachlorocyclohexane (sum of alpha, beta and gamma) ug/l	<0.01	<0.01	<0.01	<0.01															
Hexachlorobenzene ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aldrin ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor epoxide ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlordane ug/l	<0.01	<0.01	<0.01	<0.01															
Endosulphan ug/l	<0.01	<0.01	<0.01	<0.01															
DDE ug/l	<0.01	<0.01	<0.01	<0.01															
Dieldrin ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
DDD ug/l	<0.01	<0.01	<0.01	<0.01															
DDT ug/l	<0.01	<0.01	<0.01	<0.01															
Dichlorvos ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mevinphos ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dimethoate ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Diazinon ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pirimiphos methyl ug/l	<0.01	<0.01	<0.01	<0.01															
Malathion ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fenitrothion ug/l	<0.01	<0.01	<0.01	<0.01	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Parathion ug/l	<0.01	<0.01	<0.01	<0.01						<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos methyl ug/l	<0.01	<0.01	<0.01	<0.01															
Tributyl tin ug/l	<0.01	<0.01	<0.01	<0.01															
Triphenyl Tin ug/l	<0.01	<0.01	<0.01	<0.01															
PCB BZ#28 ug/l	<0.005	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#52 ug/l	0.019	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#101 ug/l	0.046	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#118 ug/l	0.043	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#153 ug/l	0.044	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#138 ug/l	0.057	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB BZ#180 ug/l	0.039	<0.005	<0.005	<0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol ug/l	<10	<10	<10	<10															
Bis (2-chloroethyl) ether ug/l	<10	<10	<10	<10															
2-Chlorophenol ug/l	<10	<10	<10	<10															
1,3-Dichlorobenzene ug/l	<10	<10	<10	<10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
1,4-Dichlorobenzene ug/l	<10	<10	<10	<10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
1,2-Dichlorobenzene ug/l	<10	<10	<10	<10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0										
Bis (2-chloroisopropyl) ether ug/l	<10	<10	<10	<10															
2-methyl phenol ug/l	<10	<10	<10	<10															
3/4-Methylphenol ug/l	<10	<10	<10	<10															
Hexachloroethane ug/l	<10	<10	<10	<10															
Nitrobenzene ug/l	<10	<10	<10	<10															
Isophorone ug/l	<10	<10	<10	<10															
2-Nitrophenol ug/l	<10	<10	<10	<10															
2,4-Dimethylphenol ug/l	<10	<10	<10	<10															
Bis (2-chloroethoxy) methane ug/l	<10	<10	<10	<10															
2,4-Dichlorophenol ug/l	<10	<10	<10	<10															
1,2,4-Trichlorobenzene ug/l	<10	<10	<10	<10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Chloroaniline ug/l	<10	<10	<10	<10															
Hexachlorobutadiene ug/l	<10	<10	<10	<10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Chloro-3-methylphenol ug/l	<10	<10	<10	<10															
2-Methylnaphthalene ug/l	<10	<10	<10	<10															

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Location	SW1	SW2a	SW2b	SW3	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4
Date	10/10/18	10/10/18	10/10/18	10/10/18	18/10/19	18/10/19	28/11/19	28/11/19	28/11/19	15/10/20	15/10/20	15/10/20	15/10/20	15/10/20	05/10/21	05/10/21	05/10/21	05/10/21	05/10/21
2,4,6-Trichlorophenol ug/l	<10	<10	<10	<10															
2,4,5-Trichlorophenol ug/l	<10	<10	<10	<10															
2-Chloronaphthalene ug/l	<10	<10	<10	<10															
2-Nitroaniline ug/l	<10	<10	<10	<10															
Dimethyl phthalate ug/l	<10	<10	<10	<10															
2,6-Dinitrotoluene ug/l	<10	<10	<10	<10															
3-Nitroaniline ug/l	<10	<10	<10	<10															
Dibenzofuran ug/l	<10	<10	<10	<10															
2,4-Dinitrotoluene ug/l	<10	<10	<10	<10															
Diethyl phthalate ug/l	<10	<10	<10	<10															
4-Chlorophenyl phenylether ug/l	<10	<10	<10	<10															
4-Nitroaniline ug/l	<10	<10	<10	<10															
Azobenzene ug/l	<10	<10	<10	<10															
4-Bromophenyl phenylether ug/l	<10	<10	<10	<10															
Hexachlorobenzene ug/l	<10	<10	<10	<10															
Carbazole ug/l	<10	<10	<10	<10															
Di-n-butylphthalate ug/l	<10	<10	<10	<10															
Butyl benzylphthalate ug/l	<10	<10	<10	<10															
Bis (2-ethylhexyl)phthalate ug/l	<10	<10	<10	<10															
Di-n-octylphthalate ug/l	<10	<10	<10	<10															
2,4-Dinitrophenol ug/l	<10	<10	<10	<10			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorocyclopentadiene ug/l	<10	<10	<10	<10															
Pentachlorophenol ug/l	<10	<10	<10	<10	< 0.02	< 0.02	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
TPH Filtered mg/l					<0.3	<0.3	<0.3	<0.6	<0.3										
2,3,6-TBA ug/l					< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
2,4,5-T ug/l					< 0.02	< 0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
2,4-D ug/l					< 0.02	< 0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
2,4-DB ug/l					< 0.02	< 0.02	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Benazolin ug/l					< 0.02	< 0.02	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Bentazon ug/l					< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromoxynil ug/l					< 0.02	< 0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Clopyralid ug/l					< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba ug/l					< 0.02	< 0.02	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Dichloroprop ug/l					< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluroxypyr ug/l					< 0.02	< 0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Ioxynil ug/l					< 0.02	< 0.02	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
MCPA ug/l					< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
MCPB ug/l					< 0.02	< 0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop ug/l					0.02	< 0.02	0.02	<0.02	<0.02	<0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Picloram ug/l					< 0.02	< 0.02													
Silvex ug/l					< 0.02	< 0.02													
Triclopyr ug/l					< 0.02	< 0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
TPH FTIRPER. O mg/l					<0.3	<0.3				<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
1,2,3,4-Tetrachlorobenzene ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,2,3-Trichlorobenzene ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,3,5-Trichlorobenzene ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
2,6-Dichlorobenzonitrile ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorthalonil ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cis-Chlordane ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cis-Permethrin ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Delta-HCH ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan I ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

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Location	SW1	SW2a	SW2b	SW3	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4
Date	10/10/18	10/10/18	10/10/18	10/10/18	18/10/19	18/10/19	28/11/19	28/11/19	28/11/19	15/10/20	15/10/20	15/10/20	15/10/20	15/10/20	05/10/21	05/10/21	05/10/21	05/10/21	05/10/21
Endosulfan II ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan Sulfate ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Isodrin ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Methoxychlor ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
O,P'-DDD ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
o,p-DDE ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
O,P'-DDT ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
P,P'-DDD ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
P,P'-DDE ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
P,P'-DDT ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pendimethalin ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pentachlorobenzene ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Propyzamide ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tecnazene ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trans-Chlordane ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trans-Permethrin ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Triadimefon ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Triallate ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trifluralin ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibutyl Tin as Sn ug/l					<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Tributyl Tin as Sn ug/l					<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Triphenyl Tin as Sn ug/l					<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos-Ethyl ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos-Methyl ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Carbofenthion ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyriphos-Methyl ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin Ketone ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
HCH-alpha ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
HCH-beta ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
HCH-gamma ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ethion ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Etrimphos ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fenthion ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Methacrifos ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Parathion ethyl ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02										
Parathion-methyl ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phosalone ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phosphamidon ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pirimiphos-Ethyl ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pirimiphos-Methyl ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Propetamphos ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Triazophos ug/l					< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cyanide (Total) as CN					<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,1,1,2-Tetrachloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene ug/l					< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

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Location	SW1	SW2a	SW2b	SW3	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4
Date	10/10/18	10/10/18	10/10/18	10/10/18	18/10/19	18/10/19	28/11/19	28/11/19	28/11/19	15/10/20	15/10/20	15/10/20	15/10/20	15/10/20	05/10/21	05/10/21	05/10/21	05/10/21	05/10/21
1,2,3-Trichlorobenzene ug/l					< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane ug/l					< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2- Chlorotoluene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Chlorotoluene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
Bromobenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Tetrachloride ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloromethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis 1,3-Dichloropropene ug/l					< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene ug/l					< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane ug/l					< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	6	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
Isopropylbenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m and p-Xylene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
Naphthalene ug/l					< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
n-Butylbenzene ug/l					< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
p-Isopropyltoluene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Propylbenzene ug/l					< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
sec-Butylbenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Toluene ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0										
Trans 1,2 Dichloroethene ug/l					< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans 1,3-Dichloropropene ug/l					< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene ug/l					< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichlorofluoromethane ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride ug/l	<1	<1	<1	<1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SVOC_TICS_01 mg/l					[Pentane, 2,3,3 trimethyl= 0.037]	[Butane, 2,2,3,3 tetramethyl =0.171]	[Cyclohexane, 1 methoxy =0.018]	[Benzene, 1 fluoro 2 methoxy =0.180]	[Hexane, 2,4 dimethyl =0.512]										

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Location	SW1	SW2a	SW2b	SW3	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4
Date	10/10/18	10/10/18	10/10/18	10/10/18	18/10/19	18/10/19	28/11/19	28/11/19	28/11/19	15/10/20	15/10/20	15/10/20	15/10/20	15/10/20	05/10/21	05/10/21	05/10/21	05/10/21	05/10/21
SVOC_TICS_02 mg/l					[Octane=0.038]	[Pentane, 2,3,3 trimethyl =0.040]	[Octanoic acid, methyl ester=0.015]	[Hexanoic acid, methyl ester=0.225]	[3 Ethyl 2 methyl 1 heptene=0.240]										
SVOC_TICS_03 mg/l					[Ethene, tetrachloro =0.013]	[Octane=0.039]													
SVOC_TICS_04 mg/l					[2 Hexene, 2,5,5 trimethyl= 0.016]	[Ethene, tetrachloro =0.013]													
SVOC_TICS_05 mg/l					[Phenol, 2,3,5 tribromo =0.020]	[2 Hexene, 2,5,5 trimethyl =0.018]													
SVOC_TICS_06 mg/l					[Benzene, 1 fluoro 2 methoxy $$ Anisole, o fluoro=0.032]	[Benzene, 1,3,5 tribromo 2 methoxy =0.019]													
SVOC_TICS_07 mg/l					[Benzene, 1,3,5 tribromo 2 methoxy=0.023]	[Hexadecanoic acid, methyl ester=0.012]													
SVOC_TICS_08 mg/l					[Hexadecanoic acid, methyl ester=0.020]	[OCTADECANOIC ACID, METHYL ESTER=0.016]													
SVOC_TICS_09					[Octadecanoic acid, methyl ester=0.026]														
SVOC_TICS_10 mg/l																			
SVOC_TICS_11 mg/l																			
SVOC_TICS_12 mg/l																			
SVOC_TICS_13 mg/l																			
DNOC ug/							<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Fenoprop ug/l							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
SVOC screen (extra peaks) ug/l	<10	<10	<10	<10															
1,1-Dichloroethylene ug/l	<1	<1	<1	<1															
Dichloromethane ug/l	<50	<50	<50	<50															
Trans-1,2-Dichloroethene ug/l	<1	<1	<1	<1															
Cis-1,2-Dichloroethylene ug/l	<1	<1	<1	<1															
1,1,2-Trichloroethylene ug/l	<1	<1	<1	<1															
Cis-1,3-Dichloropropene ug/l	<1	<1	<1	<1															
Trans-1,3-Dichloropropene ug/l	<1	<1	<1	<1															
Chlorodibromomethane ug/l	<1	<1	<1	<1															
n-Propylbenzene ug/l	<1	<1	<1	<1															

Location	SW1	SW2a	SW2b	SW3	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4	SW1	SW2a	SW2b	SW3	SW4
Date	10/10/18	10/10/18	10/10/18	10/10/18	18/10/19	18/10/19	28/11/19	28/11/19	28/11/19	15/10/20	15/10/20	15/10/20	15/10/20	15/10/20	05/10/21	05/10/21	05/10/21	05/10/21	05/10/21
1,3-Dichlorobenzene ug/l	<1	<1	<1	<1						<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene ug/l	<1	<1	<1	<1						<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene ug/l	<1	<1	<1	<1						<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
VOC Screen (Extra Peaks) ug/l	<10	<10	<10	<10															
MTBE ug/l										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

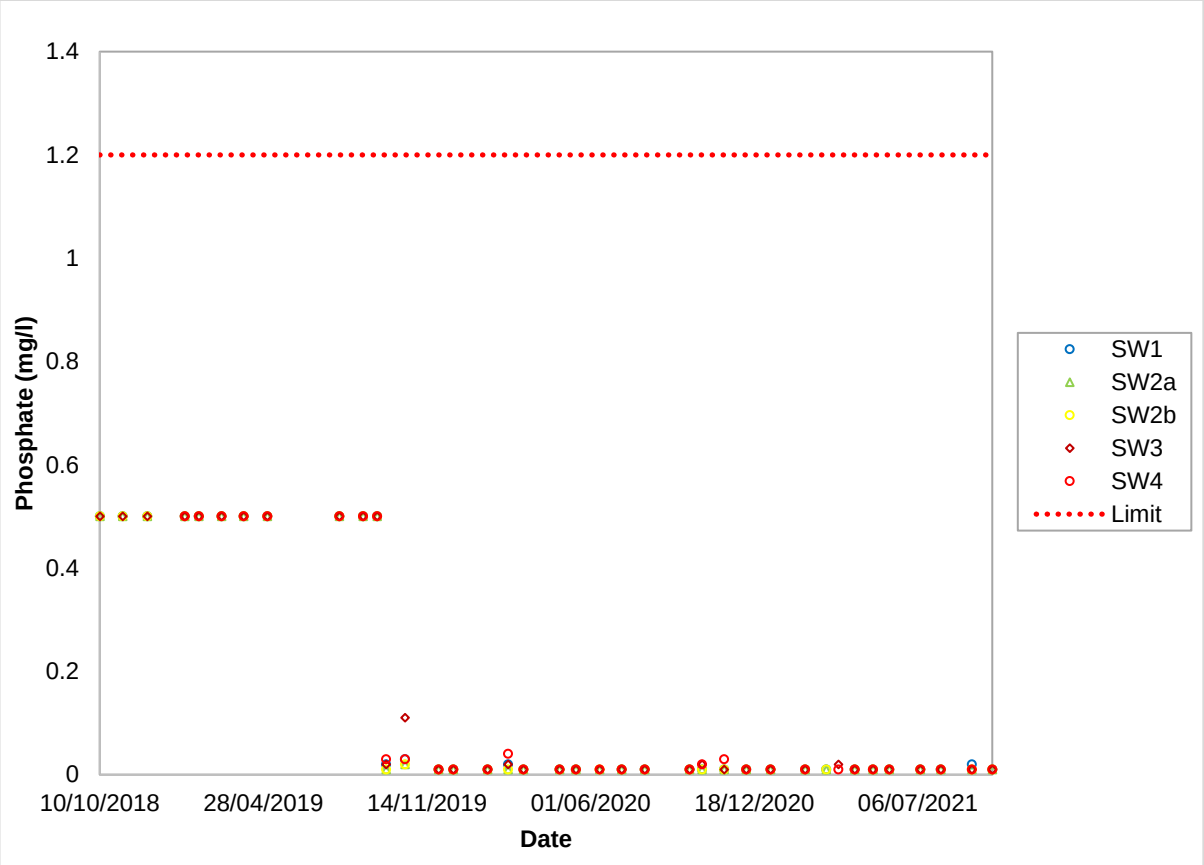

Figure E.1 Phosphate concentrations in surface water

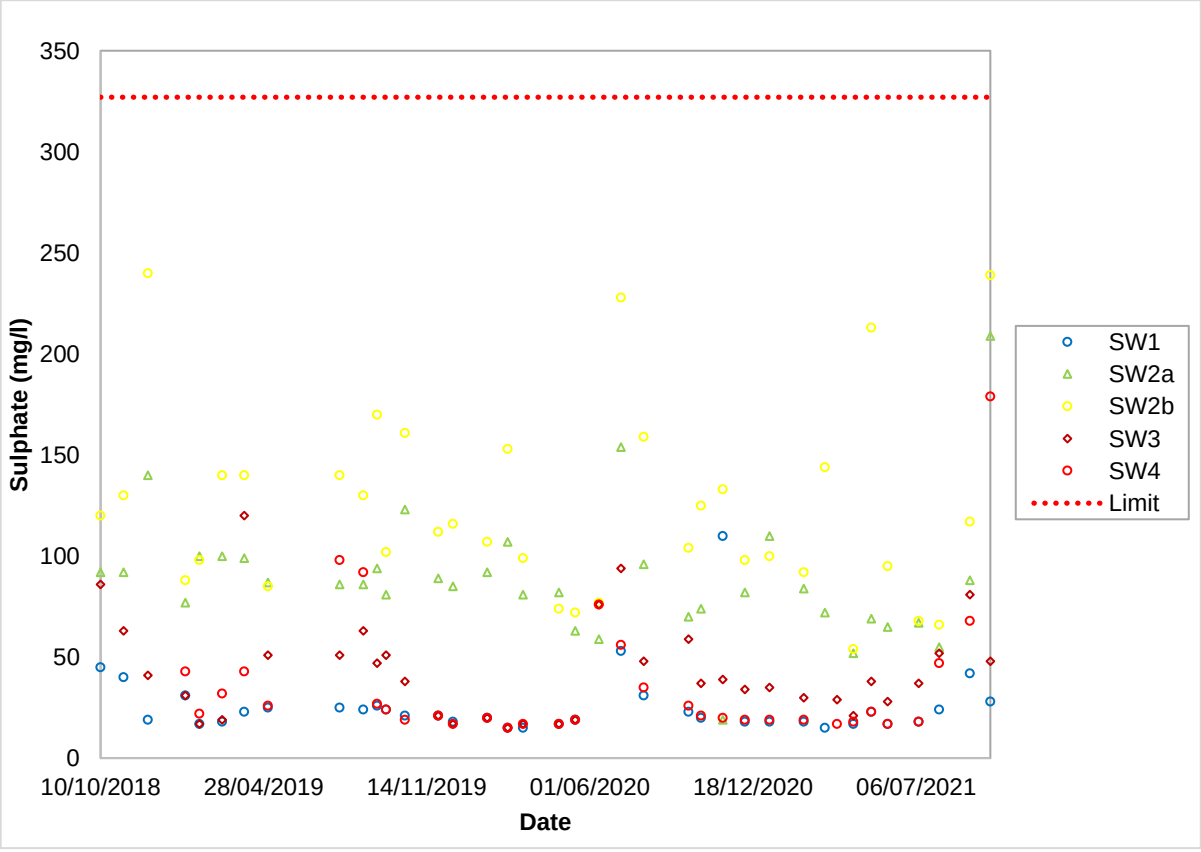

Figure E.2 Sulphate concentrations in surface water

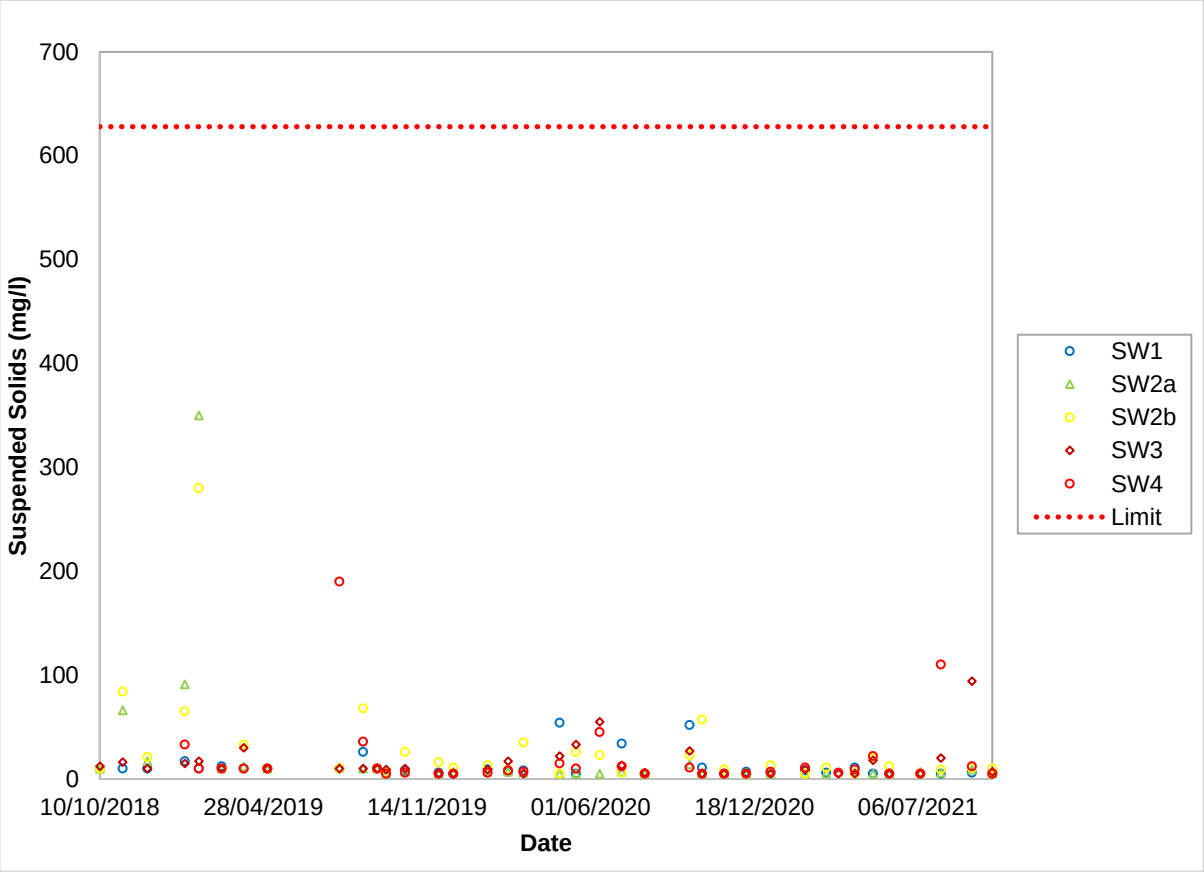

Figure E.3 Suspended solids concentrations in surface water

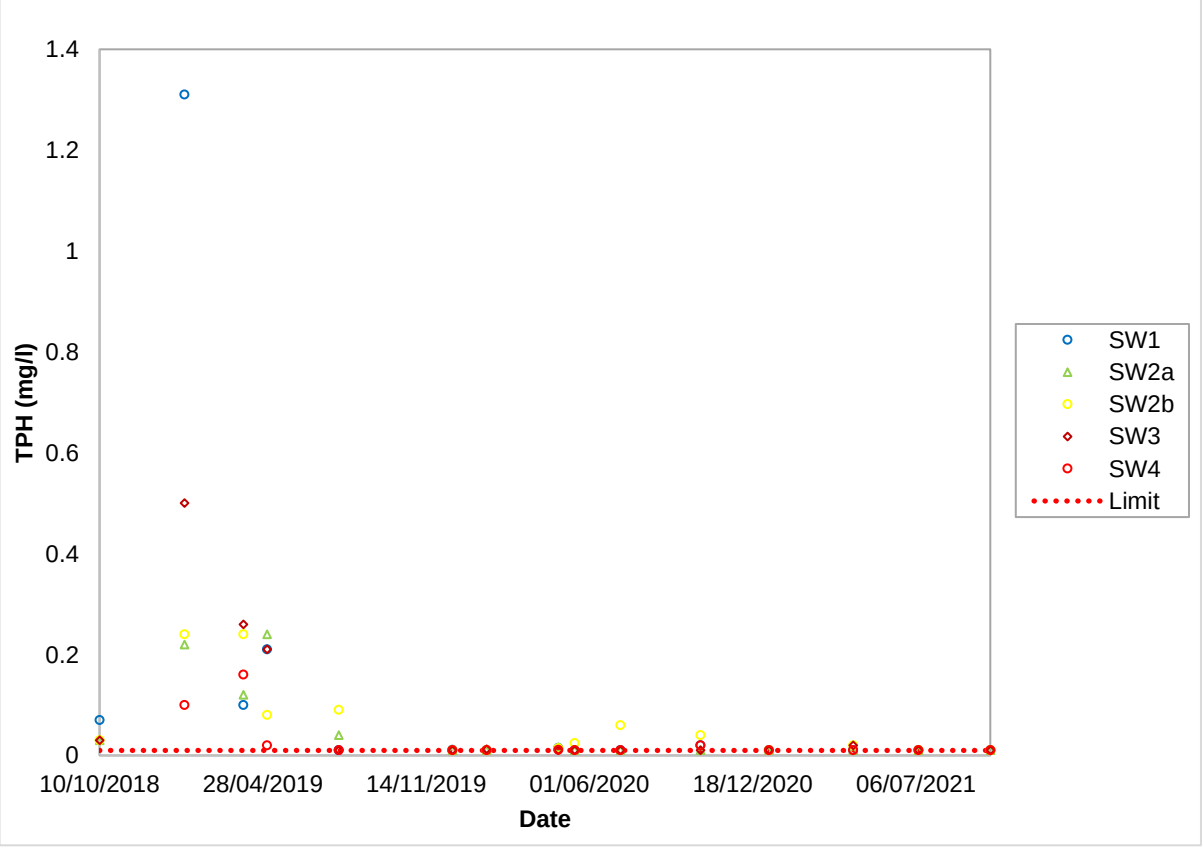

Figure E.4 TPH concentrations in surface water

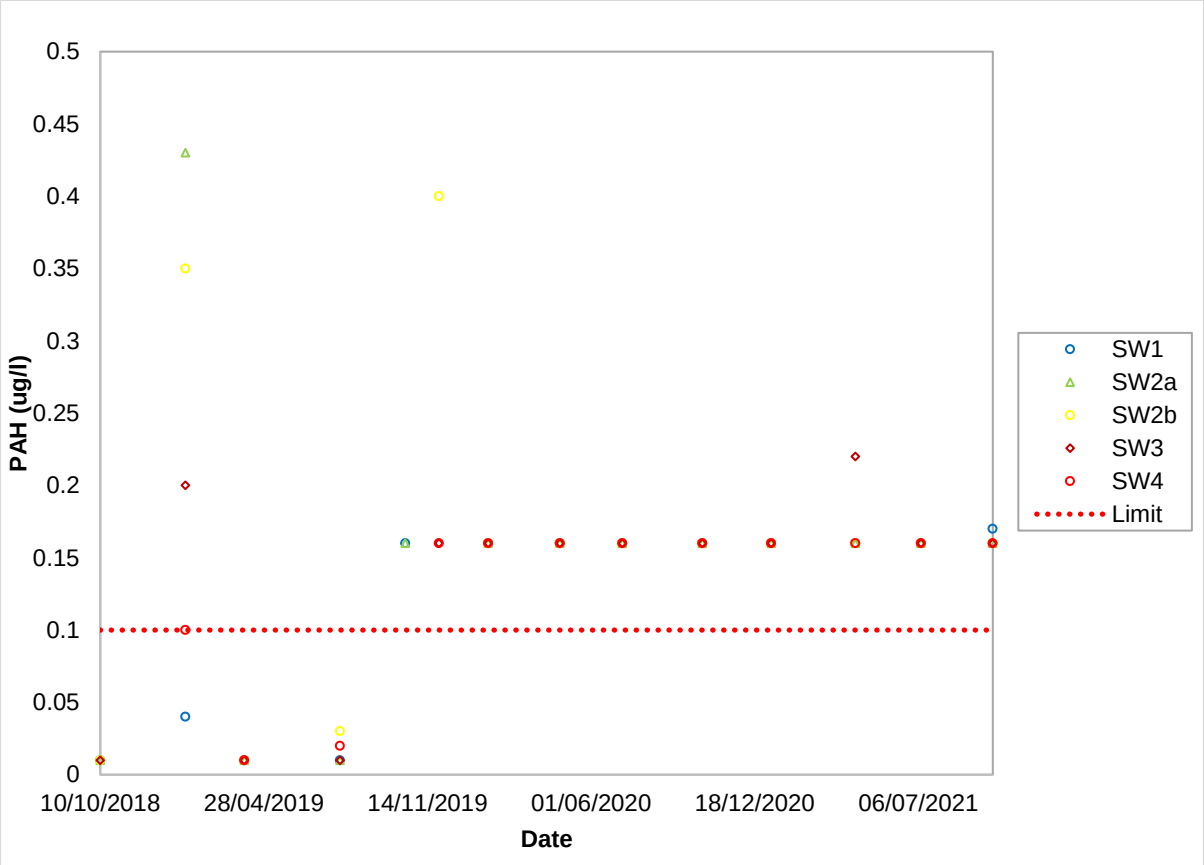

Figure E.5 PAH concentrations in surface water

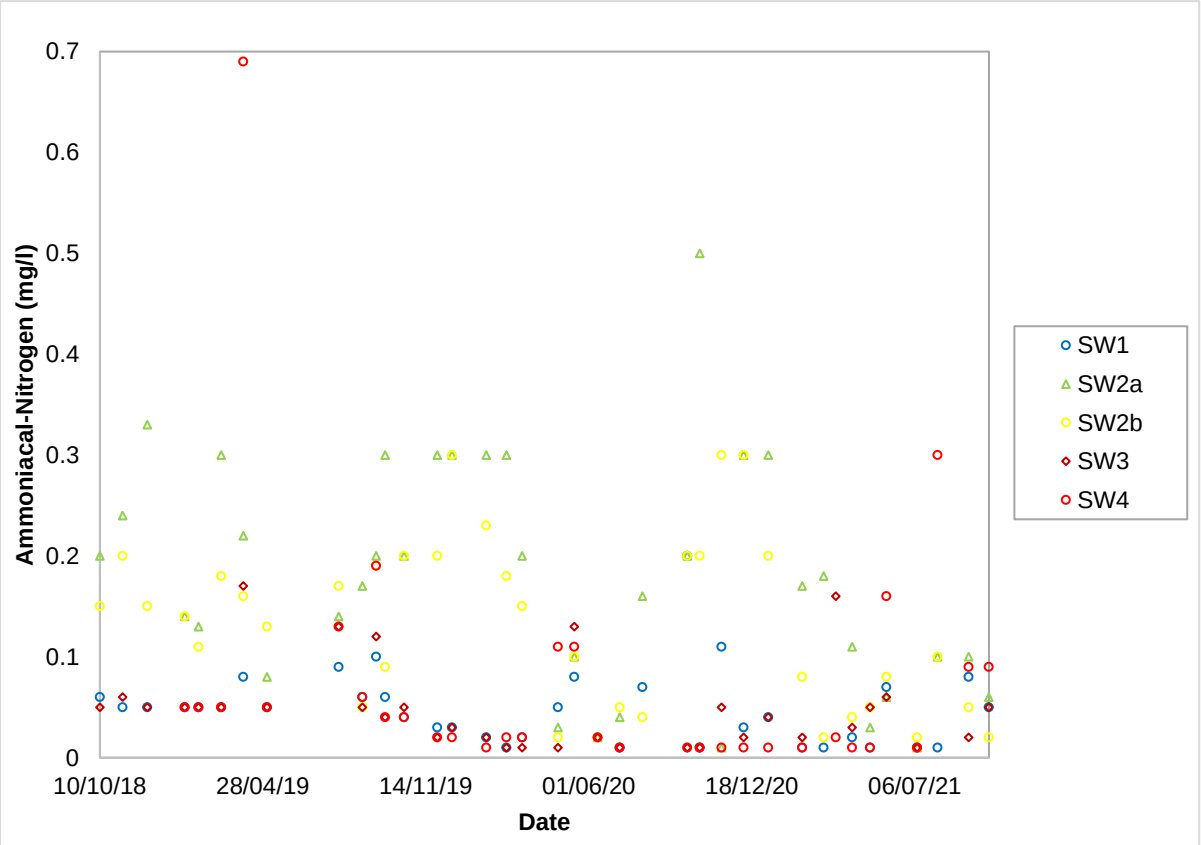

Figure E.6 Ammoniacal-nitrogen concentrations in surface water

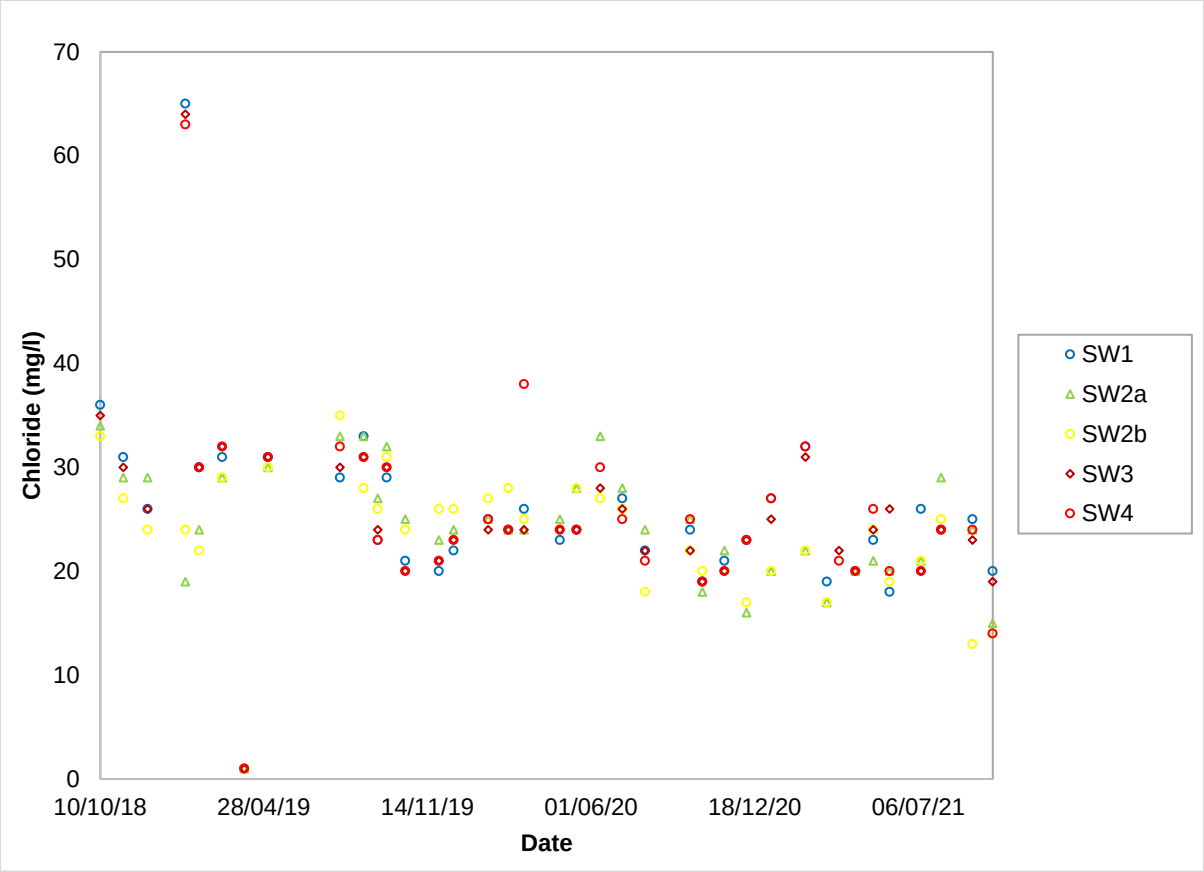

Figure E.7 Chloride concentrations in surface water

Appendix F – Surface Water Hazardous Screen

	Count	25th Percentile	Median	85th Percentile	95th Percentile	Max
BTEX and Substituted PAH						
PAH (Total) (µg/l)	15	0.025	0.16	0.197	0.374	0.43
Naphthalene (ug/l)	7	0.01	0.01	0.041	0.167	0.23
Acenaphthene (ug/l)	1	0.01	0.01	0.01	0.01	0.01
Phenanthrene (ug/l)	4	0.02	0.025	0.03	0.03	0.03
Anthracene (ug/l)	1	0.01	0.01	0.01	0.01	0.01
Fluoranthene (ug/l)	6	0.04	0.045	0.0625	0.0875	0.1
Pyrene (ug/l)	9	0.01	0.02	0.066	0.088	0.1
Benzo(a)Anthracene (ug/l)	9	0.01	0.01	0.028	0.036	0.04
Chrysene (ug/l)	6	0.015	0.03	0.04	0.04	0.04
Benzo(b)fluoranthene (ug/l)	4	0.025	0.035	0.0455	0.0485	0.05
Benzo(k)fluoranthene (ug/l)	3	0.015	0.02	0.027	0.029	0.03
Benzo(a)Pyrene (ug/l)	3	0.02	0.03	0.037	0.039	0.04
Indeno(123-cd)Pyrene (ug/l)	4	0.01	0.02	0.03	0.03	0.03
Benzo(ghi)Perylene (ug/l)	4	0.025	0.03	0.0355	0.0385	0.04
Herbicides and Pesticides						
Mevinphos ug/l	1	0.01	0.01	0.01	0.01	0.01
Mecoprop ug/l	4	0.02	0.03	0.04	0.04	0.04
Halogenated						
Dibromomethane ug/l	1	6	6	6	6	6
Other						
Pb (Dissolved) (µg/l)	1	7.5	7.5	7.5	7.5	7.5
PCB BZ#52 ug/l	1	0.019	0.019	0.019	0.019	0.019
PCB BZ#101 ug/l	1	0.046	0.046	0.046	0.046	0.046
PCB BZ#118 ug/l	1	0.043	0.043	0.043	0.043	0.043
PCB BZ#153 ug/l	1	0.044	0.044	0.044	0.044	0.044
PCB BZ#138 ug/l	1	0.057	0.057	0.057	0.057	0.057
PCB BZ#180 ug/l	1	0.039	0.039	0.039	0.039	0.039

>10 counts
10 - 50 ug/l
50 - 250 ug/l
>250ug/l

Table F.1 Hazardous substance screen (µg/l)

	Count	25th Percentile	Median	85th Percentile	95th Percentile	Max
Other						
TPH (C35-C40) (mg/l)	6	0.0325	0.04	0.0575	0.0925	0.11
TPH (C8 - C40) (mg/l)	18	0.0825	0.185	0.249	0.6215	1.31
TPH (C8-C35)(Total) (mg/l)	18	0.0825	0.155	0.24	0.605	1.2
TPH Band (>C21-C35) mg/l	9	0.01	0.01	0.036	0.04	0.04
TPH GC mg/l	23	0.01	0.011	0.02	0.0384	0.06
Cyanide (Total) as CN	1	0.02	0.02	0.02	0.02	0.02

>10 counts
0.01 - 0.05 mg/l
0.05 - 0.25 mg/l
>0.25 mg/l

Table F.2 Hazardous substance screen (mg/l)

Appendix G - Landfill Gas Data

Location	Date	Monitored by	Atmospheric Pressure (mbar)	Atmospheric Pressure Comment	Relative Pressure (mb)	Flow (l/h)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	CO (ppm)	H2S (ppm)
BH1S	10/10/18	SC	1000	Steady	0.01	0.1	0.1	1.7	18.6	1	1
BH1S	07/11/18	SC	976	Rising	0.01	0.1	0.1	0.7	19.6	1	1
BH1S	07/12/18	SC / SW	987	Rising	0.01	0.1	0.1	0.7	18.8	1	1
BH1S	22/01/19	SC	991	Steady	0.01	0.1	0.1	0.9	18.8	1	1
BH1S	08/02/19	SC	975	Falling	0.08	1.0	0.1	0.7	19.0	1	1
BH1S	08/03/19	SC	998	Falling	-0.04	-0.6	0.1	0.8	18.4	1	1
BH1S	05/04/19	SC	981	Steady	0.02	0.3	0.1	0.9	17.7	1	1
BH1S	03/05/19	SC/JM	1010	Falling	0.01	-0.1	0.1	0.9	18.5	1	1
BH1S	14/06/19	SC	994	Falling	0.01	0.1	0.1	1.6	18.7	1	1
BH1S	30/07/19	SC	993	Steady	0.01	0.1	0.1	0.8	20.1	1	1
BH1S	28/08/19	SC	1001	Steady	0.01	0.1	0.1	1.4	19.2	1	1
BH1S	25/09/19	SC	987	Steady	0.01	0.1	0.1	2.4	18.3	1	1
BH1S	18/10/19	SC	983	Falling	0.01	0.1	0.1	2.0	18.9	1	1
BH1S	28/11/19	JM	985	Steady	0.01	0.1	0.1	1.9	18.9	1	1
BH1S	16/12/19	JM	990	Steady	0.01	0.1	0.1	0.8	18.2	1	1
BH1S	27/01/20	JM	986	Steady	0.01	0.1	0.1	0.7	18.4	1	1
BH1S	21/02/20	JM	1003	Steady	0.01	0.1	0.1	1.2	19.8	1	1
BH1S	11/03/20	MD	979	Steady	0.13	0.7	0.1	1.7	18.8	1	1
BH1S	24/04/20	AC	1002	Rising	0.01	0.1	0.1	0.4	20.7	1	1
BH1S	14/05/20	AC	989	Rising	0.01	0.1	0.1	0.3	20.4	1	1
BH1S	12/06/20	SC	999	Falling	0.01	0.1	0.1	1.1	20.1	1	1
BH1S	09/07/20	SC	998	Rising	0.01	0.1	0.1	1.4	19.4	1	1
BH1S	06/08/20	SC	1002	Steady	0.01	0.1	0.1	1.8	17.3	1	1
BH1S	30/09/20	SC	989	Steady	0.01	0.1	0.1	0.9	18.8	1	1
BH1S	15/10/20	SC	1020	Rising	0.01	0.1	0.1	2.0	17.9	1	1
BH1S	11/11/20	SC	1001	Steady	-0.03	-0.4	0.1	1.2	16.3	1	1
BH1S	08/12/20	SC	989	Steady	0.01	0.1	0.1	1.9	17.1	1	1
BH1S	07/01/21	SC	1007	Falling	0.01	0.1	0.1	0.6	18.8	1	1
BH1S	18/02/21	SC	982	Steady	0.01	0.1	0.1	0.2	20.2	1	1
BH1S	16/03/21	SC	1018	Steady	0.01	0.1	0.1	1.3	19.4	1	1

Location	Date	Monitored by	Atmospheric Pressure (mbar)	Atmospheric Pressure Comment	Relative Pressure (mb)	Flow (l/h)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	CO (ppm)	H2S (ppm)
BH1S	20/04/21	SC	1017	Steady	0.01	0.1	0.1	0.9	20.1	1	1
BH1S	12/05/21	SC	996	Steady	0.01	0.1	0.1	1.2	19.1	1	1
BH1S	01/06/21	SC	1003	Falling	0.01	0.1	0.1	0.9	18.6	1	1
BH1S	09/07/21	AC/GS	1009	Steady	0.01	0.1	0.1	3.2	17.9	1	1
BH1S	03/08/21	GS	1003	Falling	0.01	0.1	0.1	2.4	19.0	1	1
BH1S	10/09/21	GS	996	Falling	0.01	0.1	0.1	2.6	19.1	1	1
BH1S	05/10/21	GS	1012	Steady	0.01	0.1	0.1	2.2	18.7	1	1
BH2D	10/10/18	SC									
BH2D	07/11/18	SC									
BH2D	07/12/18	SC / SW									
BH2D	22/01/19	SC									
BH2D	08/02/19	SC									
BH2D	08/03/19	SC									
BH2D	05/04/19	SC									
BH2D	03/05/19	SC/JM									
BH2D	14/06/19	SC									
BH2D	30/07/19	SC									
BH2D	28/08/19	SC									
BH2D	25/09/19	SC									
BH2D	18/10/19	SC									
BH2D	28/11/19	JM									
BH2D	16/12/19	JM									
BH2D	27/01/20	JM									
BH2D	21/02/20	JM									
BH2D	11/03/20	MD									
BH2D	24/04/20	AC									
BH2D	14/05/20	AC									
BH2D	12/06/20	SC									
BH2D	09/07/20	SC									
BH2D	06/08/20	SC									

Groundwater monitoring point only

Location	Date	Monitored by	Atmospheric Pressure (mbar)	Atmospheric Pressure Comment	Relative Pressure (mb)	Flow (l/h)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	CO (ppm)	H2S (ppm)
BH2D	30/09/20	SC									
BH2D	15/10/20	SC									
BH2D	11/11/20	SC									
BH2D	08/12/20	SC									
BH2D	07/01/21	SC									
BH2D	18/02/21	SC									
BH2D	16/03/21	SC									
BH2D	20/04/21	SC									
BH2D	12/05/21	SC									
BH2D	01/06/21	SC									
BH2D	09/07/21	AC/GS									
BH2D	03/08/21	GS									
BH2D	10/09/21	GS									
BH2D	05/10/21	GS									
BH2S	10/10/18	SC	1000	Steady	0.01	0.1	0.1	0.8	19.7	1	1
BH2S	07/11/18	SC	976	Rising	0.1	1.6	0.1	0.5	18.8	1	1
BH2S	07/12/18	SC / SW	987	Rising	0.02	0.3	0.1	0.7	18.4	1	1
BH2S	22/01/19	SC	992	Steady	0.04	0.6	0.1	0.6	18.9	1	1
BH2S	08/02/19	SC	974	Falling	0.49	7.6	0.1	0.5	19.0	1	1
BH2S	08/03/19	SC	998	Falling	0.18	3.0	0.1	0.6	17.9	1	1
BH2S	05/04/19	SC	981	Steady	0.17	2.8	0.1	0.7	17.4	1	1
BH2S	03/05/19	SC/JM	1011	Falling	0.01	0.1	0.1	0.4	19.5	1	1
BH2S	14/06/19	SC	994	Falling	0.06	0.7	0.1	0.6	20.0	1	1
BH2S	30/07/19	SC	993	Steady	0.01	0.1	0.1	0.6	20.5	1	1
BH2S	28/08/19	SC	1001	Steady	0.01	0.1	0.1	0.5	20.1	1	1
BH2S	25/09/19	SC	987	Steady	0.01	0.1	0.1	0.5	20.7	1	1
BH2S	18/10/19	SC	983	Falling	0.09	1.2	0.1	0.7	20.3	1	1
BH2S	28/11/19	JM	985	Steady	0.01	0.1	0.1	0.5	20.1	1	1
BH2S	16/12/19	JM	990	Steady	0.01	0.1	0.1	0.3	20.0	1	1
BH2S	27/01/20	JM	986	Steady	0.01	0.1	0.1	0.4	19.2	1	1

Location	Date	Monitored by	Atmospheric Pressure (mbar)	Atmospheric Pressure Comment	Relative Pressure (mb)	Flow (l/h)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	CO (ppm)	H2S (ppm)
BH2S	21/02/20	JM	1003	Steady	0.01	0.1	0.1	0.7	19.2	1	1
BH2S	11/03/20	MD	978	Steady	-1.04	-7.6	0.1	0.7	18.5	1	1
BH2S	24/04/20	AC	1002	Rising	0.01	0.1	0.1	0.3	20.5	1	1
BH2S	14/05/20	AC	989	Rising	0.01	0.1	0.1	0.4	20.2	1	1
BH2S	12/06/20	SC	998	Falling	0.01	0.1	0.1	0.6	20.4	1	1
BH2S	09/07/20	SC	998	Rising	0.02	0.4	0.1	0.4	20.0	1	1
BH2S	06/08/20	SC	1001	Steady	0.01	0.1	0.1	0.5	19.5	1	1
BH2S	30/09/20	SC	989	Steady	0.06	1.3	0.1	0.5	19.0	1	1
BH2S	15/10/20	SC	1019	Rising	0.01	0.1	0.1	0.8	18.0	1	1
BH2S	11/11/20	SC	1000	Steady	0.01	0.1	0.1	0.7	16.9	1	1
BH2S	08/12/20	SC	989	Steady	0.01	0.1	0.1	1.0	18.6	1	1
BH2S	07/01/21	SC	1007	Falling	0.01	0.1	0.1	0.7	19.0	1	1
BH2S	18/02/21	SC	981	Steady	0.01	0.1	0.1	0.3	20.2	1	1
BH2S	16/03/21	SC	1018	Steady	0.01	0.1	0.1	0.6	19.6	1	1
BH2S	20/04/21	SC	1017	Steady	0.01	0.1	0.1	0.6	20.2	1	1
BH2S	12/05/21	SC	996	Steady	0.01	0.1	0.1	0.4	19.9	1	1
BH2S	01/06/21	SC	1003	Falling	0.01	0.1	0.1	0.6	19.3	1	1
BH2S	09/07/21	AC/GS	1008	Steady	0.01	0.1	0.1	0.7	19.6	1	1
BH2S	03/08/21	GS	1003	Falling	0.01	0.1	0.1	0.9	19.2	1	1
BH2S	10/09/21	GS	996	Falling	0.01	0.1	0.1	1.6	18.9	1	1
BH2S	05/10/21	GS	1012	Falling	0.01	0.1	0.1	0.8	19.6	1	1
BH3DA	10/10/18	SC	1000	Steady	0.01	0.1	0.5	0.7	17.8	1	1
BH3DA	07/11/18	SC	978	Rising	-1.82	-21.4	0.1	0.4	19	1	1
BH3DA	07/12/18	SC / SW	989	Rising	-10	-88.4	0.1	1.6	17.5	1	1
BH3DA	22/01/19	SC	992	Steady	-0.25	-2.7	0.1	0.1	18.4	1	1
BH3DA	08/02/19	SC	978	Falling	0.32	5.6	0.1	1.6	17.6	1	1
BH3DA	08/03/19	SC	1002	Falling	0.55	8.4	0.1	1.8	17.3	1	1
BH3DA	05/04/19	SC	983	Steady	0.01	0.1	0.1	0.8	18.1	1	1
BH3DA	03/05/19	SC/JM	1013	Falling	0.01	0.1	0.1	1.1	18.6	1	1
BH3DA	14/06/19	SC	996	Falling	0.08	1.2	0.1	0.8	19.7	1	1

Location	Date	Monitored by	Atmospheric Pressure (mbar)	Atmospheric Pressure Comment	Relative Pressure (mb)	Flow (l/h)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	CO (ppm)	H2S (ppm)
BH3DA	30/07/19	SC	995	Steady	0.01	0.1	0.1	0.7	19.9	1	1
BH3DA	28/08/19	SC	1004	Steady	0.73	9.6	0.1	0.7	19.6	1	1
BH3DA	25/09/19	SC	990	Steady	-0.08	-1.1	0.1	0.7	19.9	1	1
BH3DA	18/10/19	SC	985	Falling	0.01	0.1	0.1	0.8	20.3	1	1
BH3DA	28/11/19	JM	986	Steady	0.01	0.1	0.1	0.7	20	1	1
BH3DA	16/12/19	JM	990	Steady	0.01	0.1	0.1	0.4	18.4	1	1
BH3DA	27/01/20	JM	986	Steady	0.01	0.1	0.1	0.8	17.9	1	1
BH3DA	21/02/20	JM	1006	Steady	-0.70	-0.9	0.1	1.5	19.2	1	1
BH3DA	11/03/20	MD	981	Steady	-2.81	-17.5	0.1	1.0	19.4	1	1
BH3DA	24/04/20	AC	1001	Rising	0.01	0.1	0.1	1.4	18.2	1	1
BH3DA	14/05/20	AC	989	Rising	0.01	0.1	0.1	0.8	19.7	1	1
BH3DA	12/06/20	SC	1001	Falling	0.05	0.7	0.2	0.7	19.8	1	1
BH3DA	09/07/20	SC	1001	Rising	0.36	4.6	0.1	0.5	19.9	1	1
BH3DA	06/08/20	SC	1003	Steady	0.39	4.9	1.0	0.6	20.2	1	1
BH3DA	30/09/20	SC	990	Steady	0.12	2.3	0.1	0.6	17.6	1	1
BH3DA	15/10/20	SC	1021	Rising	0.32	4.4	0.1	1.1	16.6	1	1
BH3DA	11/11/20	SC	1002	Steady	-0.07	-0.9	0.1	1.5	16.0	1	1
BH3DA	08/12/20	SC	992	Steady	0.08	1.6	0.1	1.8	18.0	1	1
BH3DA	07/01/21	SC	1011	Falling	-0.23	-3.3	0.1	1.0	18.2	1	1
BH3DA	18/02/21	SC	984	Steady	0.01	0.1	0.1	0.7	19.2	1	1
BH3DA	16/03/21	SC	1020	Steady	0.01	0.1	0.1	1.5	18.8	1	1
BH3DA	20/04/21	SC	1019	Steady	0.01	0.1	0.1	1.2	18.9	1	1
BH3DA	12/05/21	SC	996	Steady	0.01	0.1	0.1	1.3	19.1	1	1
BH3DA	01/06/21	SC	1007	Falling	0.01	0.1	0.1	0.1	20.7	1	1
BH3DA	09/07/21	AC/GS	1010	Steady	0.01	0.1	0.1	0.7	20.0	1	1
BH3DA	03/08/21	GS	1005	Falling	0.21	3.5	0.1	0.7	19.6	1	1
BH3DA	10/09/21	GS	996	Falling	0.28	2.8	0.1	0.7	19.6	1	1
BH3DA	05/10/21	GS	1012	Falling	0.01	0.1	0.1	0.8	19.6	1	1
BH4D	10/10/18	SC	1000	Steady	0.01	0.1	15.5	11.9	0.1	1	1
BH4D	07/11/18	SC	978	Rising	-4.36	-45.1	4.7	5.1	6.9	1	1

Location	Date	Monitored by	Atmospheric Pressure (mbar)	Atmospheric Pressure Comment	Relative Pressure (mb)	Flow (l/h)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	CO (ppm)	H2S (ppm)
BH4D	07/12/18	SC / SW	988	Rising	-8.83	-75.9	0.7	7	5.5	1	1
BH4D	22/01/19	SC	991	Steady	0.05	0.7	0.1	7.0	12.5	1	1
BH4D	08/02/19	SC	976	Falling	0.02	0.3	0.2	6.5	13.9	1	1
BH4D	08/03/19	SC	999	Falling	0.03	0.6	0.5	5.8	13.9	1	1
BH4D	05/04/19	SC	983	Steady	0.01	0.1	0.1	6.5	12.2	1	1
BH4D	03/05/19	SC/JM	1014	Falling	-0.02	-0.4	1.6	11.8	2.1	1	1
BH4D	14/06/19	SC	997	Falling	-0.02	-0.3	3.8	10.9	1.7	1	1
BH4D	30/07/19	SC	995	Steady	0.01	0.1	8.9	7.7	11.7	1	1
BH4D	28/08/19	SC	1004	Steady	0.01	0.1	3.3	10.5	6.4	1	1
BH4D	25/09/19	SC	989	Steady	-0.02	-0.2	20.9	11.3	20.2	1	1
BH4D	18/10/19	SC	998	Falling	0.01	0.1	0.1	0.9	19.2	1	1
BH4D	28/11/19	JM	986	steady	0.01	0.1	2.1	6.2	16.9	1	1
BH4D	16/12/19	JM	990	Steady	0.01	0.1	0.1	4.2	17.9	1	1
BH4D	27/01/20	JM	986	Steady	0.01	0.1	0.1	4.1	18.2	1	1
BH4D	21/02/20	JM	1006	Steady	-1.80	-2.5	2.1	4.1	13.7	1	1
BH4D	11/03/20	MD	979	Steady	-0.20	-1.1	0.9	2.1	12.9	1	1
BH4D	24/04/20	AC	999	Rising	0.01	0.1	0.1	10.3	5.7	1	1
BH4D	14/05/20	AC	989	Rising	0.01	0.1	0.1	7.8	7.8	1	1
BH4D	12/06/20	SC	1001	Falling	0.01	0.1	8	13.3	2.3	1	1
BH4D	09/07/20	SC	1000	Rising	0.05	1.0	15.2	10.4	0.1	1	1
BH4D	06/08/20	SC	1002	Steady	0.01	0.1	4.4	8.4	1.2	1	1
BH4D	30/09/20	SC	991	Steady	0.04	0.8	2.4	9.0	2.4	1	1
BH4D	15/10/20	SC	1021	Rising	0.01	0.1	0.1	4.5	13.5	1	1
BH4D	11/11/20	SC	1002	Steady	-0.11	-1.6	0.1	2.4	16.2	1	1
BH4D	08/12/20	SC	992	Steady	0.01	0.1	0.1	3.1	10.2	1	1
BH4D	07/01/21	SC	1012	Falling	0.07	1.5	0.1	2.2	10.3	1	1
BH4D	18/02/21	SC	984	Steady	0.01	0.1	0.1	2.5	9.5	1	1
BH4D	16/03/21	SC	1021	Steady	0.01	0.1	0.9	1.9	11.5	1	1
BH4D	20/04/21	SC	1019	Steady	0.01	0.1	0.8	2.1	12.6	1	1
BH4D	12/05/21	SC	996	Steady	0.01	0.1	1.9	3.5	5.4	1	1

Location	Date	Monitored by	Atmospheric Pressure (mbar)	Atmospheric Pressure Comment	Relative Pressure (mb)	Flow (l/h)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	CO (ppm)	H2S (ppm)
BH4D	01/06/21	SC	1005	Falling	0.01	0.1	3.3	4.0	7.9	1	1
BH4D	09/07/21	AC/GS	1010	Steady	0.01	0.1	8.3	9.2	0.5	1	1
BH4D	03/08/21	GS	1005	Falling	0.01	0.1	13.4	12.7	0.6	1	1
BH4D	10/09/21	GS	998	Falling	0.01	0.1	17.0	9.9	0.2	1	1
BH4D	05/10/21	GS	1012	Falling	0.01	0.1	12.3	11.8	0.8	1	1
BH5D	10/10/18	SC	1000	Steady	0.01	0.1	0.1	6	5.9	1	1
BH5D	07/11/18	SC	976	Rising	0.01	0.1	0.1	0.7	17.2	1	1
BH5D	07/12/18	SC / SW	987	Rising	-0.07	-1	0.1	3.3	10.5	1	1
BH5D	22/01/19	SC	991	Steady	0.01	0.1	0.1	4.2	7.8	1	1
BH5D	08/02/19	SC	976	Falling	0.11	1.9	0.1	2.2	11.7	1	1
BH5D	08/03/19	SC	1000	Falling	0.01	0.1	0.1	0.9	15.9	1	1
BH5D	05/04/19	SC	981	Steady	0.12	1.9	0.1	0.6	17.4	1	1
BH5D	03/05/19	SC/JM	1012	Falling	0.01	0.1	0.1	0.4	19.6	1	1
BH5D	14/06/19	SC	995	Falling	0.01	0.1	0.1	0.8	19.6	1	1
BH5D	30/07/19	SC	993	Steady	0.01	0.1	0.1	0.2	20.9	1	1
BH5D	28/08/19	SC	1002	Steady	0.01	0.1	0.1	1.5	18.1	1	1
BH5D	25/09/19	SC	989	Steady	-0.02	-0.2	0.1	1.8	17.5	1	1
BH5D	18/10/19	SC	984	Falling	0.01	0.1	0.1	1.6	17.8	1	1
BH5D	28/11/19	JM	986	Steady	0.01	0.1	0.1	1.5	18.3	1	1
BH5D	16/12/19	JM	990	Steady	0.01	0.1	0.1	1.8	18.9	1	1
BH5D	27/01/20	JM	986	Steady	0.01	0.1	0.1	1.4	18.8	1	1
BH5D	21/02/20	JM	1004	Steady	-1.90	-2.4	0.1	1.4	18.8	1	1
BH5D	11/03/20	MD	979	Steady	0.15	0.8	0.1	2.0	18.1	1	1
BH5D	24/04/20	AC	1002	Rising	0.01	0.1	0.1	0.2	20.6	1	1
BH5D	14/05/20	AC	991	Rising	0.01	0.1	0.1	0.1	20.3	1	1
BH5D	12/06/20	SC	998	Falling	0.01	0.1	0.2	0.5	20.6	1	1
BH5D	09/07/20	SC	999	Rising	0.01	0.1	0.1	0.8	19.2	1	1
BH5D	06/08/20	SC	1002	Steady	0.01	0.1	0.1	0.8	19.1	1	1
BH5D	30/09/20	SC	989	Steady	0.01	0.1	0.1	3.3	16.3	1	1
BH5D	15/10/20	SC	1020	Rising	0.01	0.1	0.1	1.9	16.8	1	1

Location	Date	Monitored by	Atmospheric Pressure (mbar)	Atmospheric Pressure Comment	Relative Pressure (mb)	Flow (l/h)	CH_4 (% v/v)	CO_2 (% v/v)	O_2 (% v/v)	CO (ppm)	H2S (ppm)
BH5D	11/11/20	SC	1000	Steady	0.01	0.1	0.1	1.5	16.8	1	1
BH5D	08/12/20	SC	990	Steady	0.01	0.1	0.1	2.4	16.4	1	1
BH5D	07/01/21	SC	1008	Falling	-0.04	-0.5	0.1	1.8	17.0	1	1
BH5D	18/02/21	SC	983	Steady	0.01	0.1	0.1	2.8	16.8	1	1
BH5D	16/03/21	SC	1019	Steady	0.01	0.1	0.1	1.6	18.6	1	1
BH5D	20/04/21	SC	1018	Steady	0.01	0.1	0.1	1.8	19.0	1	1
BH5D	12/05/21	SC	996	Steady	0.01	0.1	0.1	1.5	18.3	1	1
BH5D	01/06/21	SC	1003	Falling	0.01	0.1	0.1	0.8	19.5	1	1
BH5D	09/07/21	AC/GS	1009	Steady	0.01	0.1	0.1	2.4	15.6	1	1
BH5D	03/08/21	GS	1003	Falling	0.01	0.1	0.1	2.3	16.1	1	1
BH5D	10/09/21	GS	998	Falling	0.01	0.1	0.1	2.6	15.6	1	50
BH5D	05/10/21	GS	1012	Falling	0.01	0.1	0.1	2.1	18.9	1	1

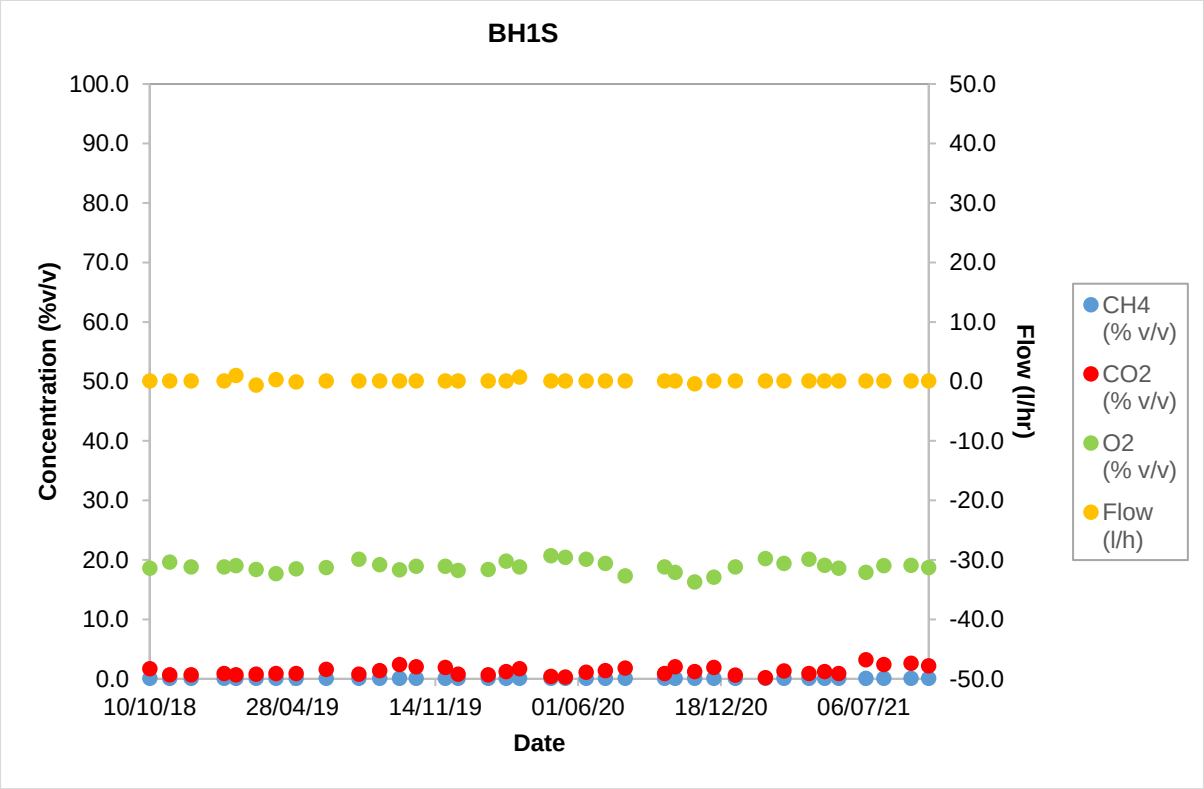

Figure G.1. BH1S Gas data

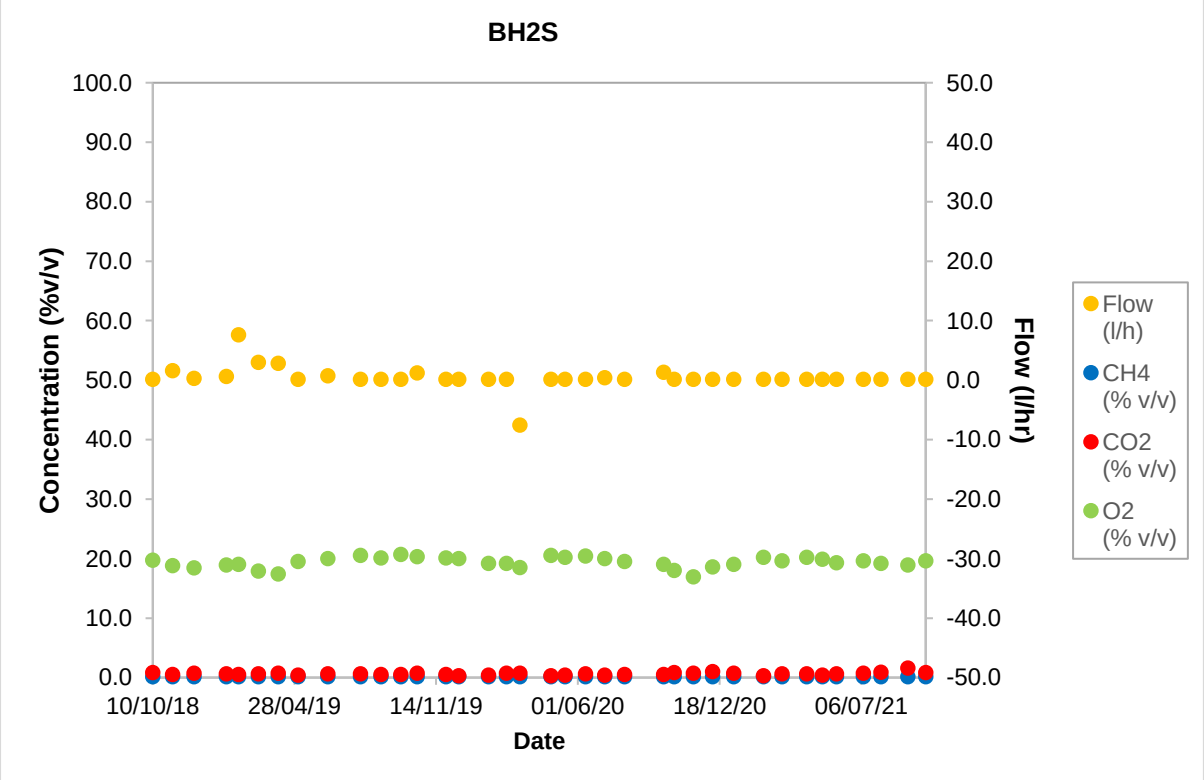

Figure G.2. BH2S Gas data

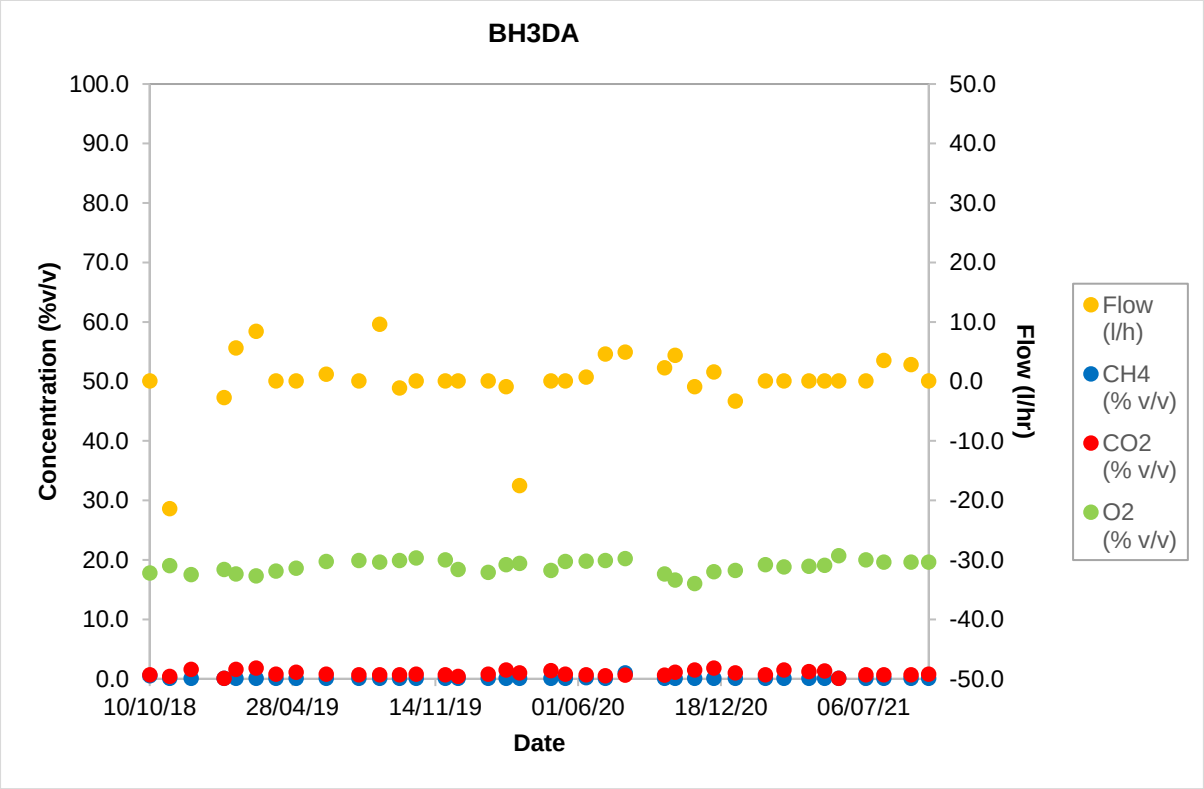

Figure G.3. BH3DA Gas data

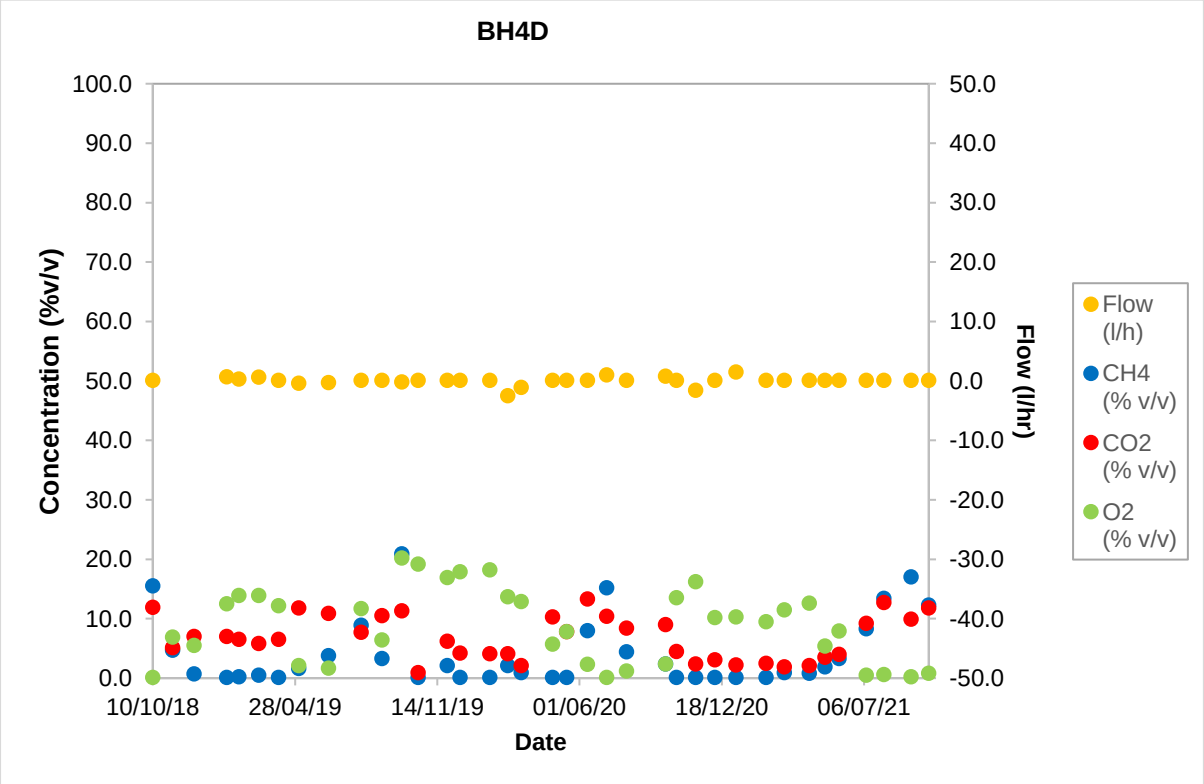

Figure G.4. BH4D Gas data

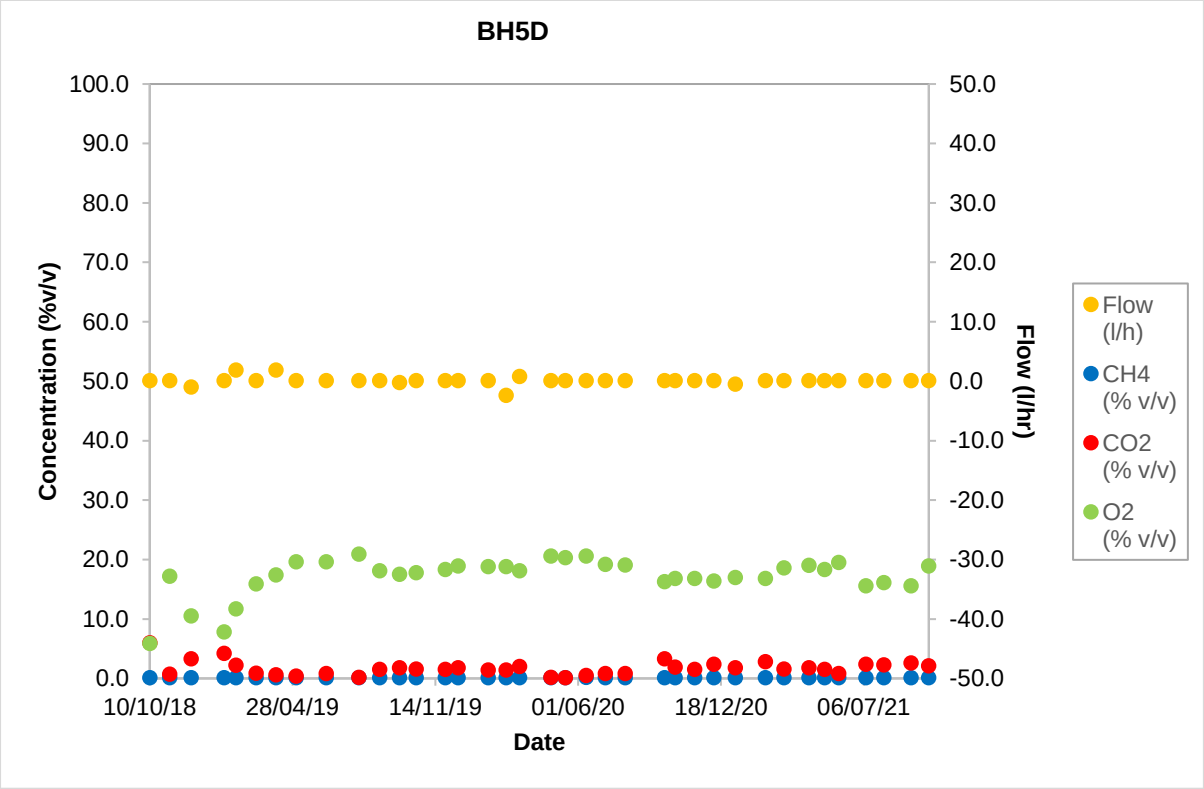

Figure G.5. BH5D Gas data

Appendix H – ICOP

Industry Code of Practice (ICOP) Review of Methane and Carbon Dioxide in external monitoring boreholes at Nant Newydd Quarry

BH1S

Date		%	Z values
10/10/18	CH4	0.1	-1.0
07/11/18	CH4	0.1	-1.0
07/12/18	CH4	0.1	-1.0
22/01/19	CH4	0.1	-1.0
08/02/19	CH4	0.1	-1.0
08/03/19	CH4	0.1	-1.0
05/04/19	CH4	0.1	-1.0
03/05/19	CH4	0.1	-1.0
14/06/19	CH4	0.1	-1.0
30/07/19	CH4	0.10	-1.0
28/08/19	CH4	0.1	-1.0
25/09/19	CH4	0.1	-1.0
18/10/19	CH4	0.1	-1.0
28/11/19	CH4	0.1	-1.0
16/12/19	CH4	0.1	-1.0
27/01/20	CH4	0.1	-1.0
21/02/20	CH4	0.1	-1.0
11/03/20	CH4	0.1	-1.0
24/04/20	CH4	0.1	-1.0
14/05/20	CH4	0.1	-1.0
12/06/20	CH4	0.1	-1.0
09/07/20	CH4	0.1	-1.0
06/08/20	CH4	0.1	-1.0
30/09/20	CH4	0.1	-1.0
15/10/20	CH4	0.1	-1.0
11/11/20	CH4	0.1	-1.0
08/12/20	CH4	0.1	-1.0
07/01/21	CH4	0.1	-1.0
18/02/21	CH4	0.1	-1.0
16/03/21	CH4	0.1	-1.0
20/04/21	CH4	0.1	-1.0
12/05/21	CH4	0.1	-1.0
01/06/21	CH4	0.1	-1.0
09/07/21	CH4	0.1	-1.0
03/08/21	CH4	0.1	-1.0
10/09/21	CH4	0.1	-1.0
05/10/21	CH4	0.1	-1.0
Mean			**0.1**
Standard Deviation			**4.22076E-17**
No of Samples			**37**
T max			**0.1**
Action Level (Tmax+0.5%)			**0.6**
Compliance Limit (T max + 1%)			**1.1**

BH2S

Date		%	Z values
10/10/18	CH4	0.1	-1.0
07/11/18	CH4	0.1	-1.0
07/12/18	CH4	0.1	-1.0
22/01/19	CH4	0.1	-1.0
08/02/19	CH4	0.1	-1.0
08/03/19	CH4	0.1	-1.0
05/04/19	CH4	0.1	-1.0
03/05/19	CH4	0.1	-1.0
14/06/19	CH4	0.1	-1.0
30/07/19	CH4	0.10	-1.0
28/08/19	CH4	0.1	-1.0
25/09/19	CH4	0.1	-1.0
18/10/19	CH4	0.1	-1.0
28/11/19	CH4	0.1	-1.0
16/12/19	CH4	0.1	-1.0
27/01/20	CH4	0.1	-1.0
21/02/20	CH4	0.1	-1.0
11/03/20	CH4	0.1	-1.0
24/04/20	CH4	0.1	-1.0
14/05/20	CH4	0.1	-1.0
12/06/20	CH4	0.1	-1.0
09/07/20	CH4	0.1	-1.0
06/08/20	CH4	0.1	-1.0
30/09/20	CH4	0.1	-1.0
15/10/20	CH4	0.1	-1.0
11/11/20	CH4	0.1	-1.0
08/12/20	CH4	0.1	-1.0
07/01/21	CH4	0.1	-1.0
18/02/21	CH4	0.1	-1.0
16/03/21	CH4	0.1	-1.0
20/04/21	CH4	0.1	-1.0
12/05/21	CH4	0.1	-1.0
01/06/21	CH4	0.1	-1.0
09/07/21	CH4	0.1	-1.0
03/08/21	CH4	0.1	-1.0
10/09/21	CH4	0.1	-1.0
05/10/21	CH4	0.1	-1.0
Mean			**0.1**
Standard Deviation			**4.22076E-17**
No of Samples			**37**
T max			**0.1**
Action Level (Tmax+0.5%)			**0.6**
Compliance Limit (T max + 1%)			**1.1**

BH4D

Date		%	Z values	Outliers
15/10/20	CH4	0.1	-0.7055334	
07/01/21	CH4	0.1	-0.7055334	
18/02/21	CH4	0.1	-0.7055334	
22/01/19	CH4	0.1	-0.7055334	
05/04/19	CH4	0.1	-0.7055334	
18/10/19	CH4	0.1	-0.7055334	
16/12/19	CH4	0.1	-0.7055334	
27/01/20	CH4	0.1	-0.7055334	
24/04/20	CH4	0.1	-0.7055334	
14/05/20	CH4	0.1	-0.7055334	
11/11/20	CH4	0.1	-0.7055334	
08/12/20	CH4	0.1	-0.7055334	
08/02/19	CH4	0.2	-0.6881996	
08/03/19	CH4	0.5	-0.6361981	
07/12/18	CH4	0.7	-0.6015305	
20/04/21	CH4	0.8	-0.5841966	
11/03/20	CH4	0.9	-0.5668628	
16/03/21	CH4	0.9	-0.5668628	
03/05/19	CH4	1.6	-0.4455261	
12/05/21	CH4	1.9	-0.3935246	
28/11/19	CH4	2.1	-0.358857	
21/02/20	CH4	2.1	-0.358857	
30/09/20	CH4	2.4	-0.3068555	
01/06/21	CH4	3.3	-0.1508511	
28/08/19	CH4	3.3	-0.1508511	
14/06/19	CH4	3.8	-0.064182	
06/08/20	CH4	4.4	0.0398209	
07/11/18	CH4	4.7	0.0918224	
12/06/20	CH4	8.0	0.6638385	
09/07/21	CH4	8.3	0.71584	
30/07/19	CH4	8.90	0.8198429	
05/10/21	CH4	12.3	1.4091929	
03/08/21	CH4	13.4	1.5998649	
09/07/20	CH4	15.2	1.9118737	
10/10/18	CH4	15.5	1.9638752	
10/09/21	CH4	17	2.2238825	
25/09/19	CH4	20.9	2.8999016	
Mean			4.1702703	
Standard Deviation			5.7690681	
No of Samples			37	
T max			20.9	
Action Level (Tmax+0.5%)			21.4	
Compliance Limit (T max + 1%)			N/A	

BH1S

Date		%	Z values
18/02/21	CO2	0.2	-1.6
14/05/20	CO2	0.3	-1.4
24/04/20	CO2	0.4	-1.3
07/01/21	CO2	0.6	-1.0
07/11/18	CO2	0.7	-0.9
07/12/18	CO2	0.7	-0.9
08/02/19	CO2	0.7	-0.9
27/01/20	CO2	0.7	-0.9
08/03/19	CO2	0.8	-0.7
30/07/19	CO2	0.8	-0.7
16/12/19	CO2	0.8	-0.7
22/01/19	CO2	0.9	-0.6
05/04/19	CO2	0.9	-0.6
03/05/19	CO2	0.9	-0.6
30/09/20	CO2	0.9	-0.6
20/04/21	CO2	0.9	-0.6
01/06/21	CO2	0.9	-0.6
12/06/20	CO2	1.1	-0.3
21/02/20	CO2	1.2	-0.2
11/11/20	CO2	1.2	-0.2
12/05/21	CO2	1.2	-0.2
16/03/21	CO2	1.3	0.0
28/08/19	CO2	1.4	0.1
09/07/20	CO2	1.4	0.1
14/06/19	CO2	1.6	0.4
10/10/18	CO2	1.7	0.6
11/03/20	CO2	1.7	0.6
06/08/20	CO2	1.8	0.7
28/11/19	CO2	1.9	0.8
08/12/20	CO2	1.9	0.8
18/10/19	CO2	2.00	1.0
15/10/20	CO2	2	1.0
05/10/21	CO2	2.2	1.3
25/09/19	CO2	2.4	1.6
03/08/21	CO2	2.4	1.6
10/09/21	CO2	2.6	1.8
09/07/21	CO2	3.2	2.7
Mean			1.3
Standard Deviation			0.6999785
No of Samples			37
T max			3.2
Action Level (Tmax +1%)			4.2

Industry Code of Practice (ICOP) Review of Methane and Carbon Dioxide in external monitoring boreholes at Nant Newydd Quarry

BH2S

Date		%	Z values	Outlier
16/12/19	CO2	0.3	-1.7	
24/04/20	CO2	0.3	-1.7	
18/02/21	CO2	0.3	-1.7	
03/05/19	CO2	0.4	-1.1	
27/01/20	CO2	0.40	-1.1	
14/05/20	CO2	0.4	-1.1	
09/07/20	CO2	0.4	-1.1	
12/05/21	CO2	0.4	-1.1	
07/11/18	CO2	0.5	-0.5	
08/02/19	CO2	0.5	-0.5	
28/08/19	CO2	0.5	-0.5	
25/09/19	CO2	0.5	-0.5	
28/11/19	CO2	0.5	-0.5	
06/08/20	CO2	0.5	-0.5	
30/09/20	CO2	0.5	-0.5	
22/01/19	CO2	0.6	0.1	
08/03/19	CO2	0.6	0.1	
14/06/19	CO2	0.6	0.1	
30/07/19	CO2	0.6	0.1	
12/06/20	CO2	0.6	0.1	
16/03/21	CO2	0.6	0.1	
20/04/21	CO2	0.6	0.1	
01/06/21	CO2	0.6	0.1	
07/12/18	CO2	0.7	0.7	
05/04/19	CO2	0.7	0.7	
18/10/19	CO2	0.7	0.7	
21/02/20	CO2	0.7	0.7	
11/03/20	CO2	0.7	0.7	
11/11/20	CO2	0.7	0.7	
07/01/21	CO2	0.7	0.7	
09/07/21	CO2	0.7	0.7	
10/10/18	CO2	0.8	1.3	
15/10/20	CO2	0.8	1.3	
05/10/21	CO2	0.8	1.3	
03/08/21	CO2	0.9	1.9	
08/12/20	CO2	1	2.5	
10/09/21	CO2		6.0	1.6
Mean			0.6	
Standard Deviation			0.1675927	
No of Samples			36	
T max			1.0	
Action Level (Tmax +1%)			2.0	

BH4D

Date		%	Z values
18/10/19	CO2	0.9	-1.6246173
16/03/21	CO2	1.9	-1.350514
11/03/20	CO2	2.1	-1.2956934
20/04/21	CO2	2.1	-1.2956934
07/01/21	CO2	2.2	-1.2682831
11/11/20	CO2	2.4	-1.2134624
18/02/21	CO2	2.5	-1.1860521
08/12/20	CO2	3.1	-1.0215902
12/05/21	CO2	3.5	-0.9119489
01/06/21	CO2	4	-0.7748972
27/01/20	CO2	4.1	-0.7474869
21/02/20	CO2	4.1	-0.7474869
16/12/19	CO2	4.2	-0.7200766
15/10/20	CO2	4.5	-0.6378456
07/11/18	CO2	5.1	-0.4733837
08/03/19	CO2	5.8	-0.2815114
28/11/19	CO2	6.2	-0.1718701
08/02/19	CO2	6.5	-0.0896392
05/04/19	CO2	6.5	-0.0896392
07/12/18	CO2	7	0.0474125
22/01/19	CO2	7.0	0.0474125
30/07/19	CO2	7.7	0.2392847
14/05/20	CO2	7.8	0.266695
06/08/20	CO2	8.4	0.431157
30/09/20	CO2	9	0.5956189
09/07/21	CO2	9.2	0.6504396
10/09/21	CO2	9.9	0.8423118
24/04/20	CO2	10.3	0.9519531
09/07/20	CO2	10.4	0.9793634
28/08/19	CO2	10.5	1.0067738
14/06/19	CO2	10.9	1.1164151
25/09/19	CO2	11.3	1.2260563
03/05/19	CO2	11.8	1.363108
05/10/21	CO2	11.8	1.363108
10/10/18	CO2	11.9	1.3905183
03/08/21	CO2	12.7	1.6098009
12/06/20	CO2	13.3	1.7742628
Mean			6.8
Standard Deviation			3.6482605
No of Samples			37
T max			13.3
Action Level (Tmax +3%)			16.3

Appendix I -Correspondence with NRW

Jackie Ferguson

From: Harper, Philip <philip.harper@cyfoethnaturiolcymru.gov.uk>
Sent: 08 November 2021 16:12
To: Jackie Ferguson
Cc: John Baxter
Subject: RE: Nant Newydd

Follow Up Flag: Follow up
Flag Status: Completed

Hi Jackie

As head start, please see comments below from the geosciences team. Please could you also send me a copy of document TerraConsult 3276/R/012.

Information reviewed:

- Nant Newydd Landfill Site – Environmental Monitoring Review. TerraConsult Limited, Report Number 3276/R/015/01, November 2020.

The Geoscience Team have reviewed the report referenced above as if a Hydrogeological Risk Assessment with a proposal to (re)define control levels and compliance limits. From the cover letter submitted with the report suggest the report has been written to fulfil improvement conditions 1.3.2 (groundwater monitoring and updating site conceptual model), 1.3.6 (gas monitoring) and 1.3.9 (surface water monitoring).

The comments below relate to improvement condition 1.32 and 1.3.6. At present we are unable to recommend discharge of these improvement conditions as more information and analysis is required.

General comments

a. Present water quality data as time series in a graph for ease of review and analysis, i.e. trend analysis.
b. Site specific cross section using the data from the site along with depth of the quarry and landfill infrastructure, groundwater levels and elevation of spring line and Cors Erddreiniog – this is not exhaustive and any geological or hydrogeological information should be included.
c. Confirm if private water supplies (section 2.8.10) are used as potable water supplies – this may require door knocking survey, but note during the current COVID-19 restriction this may not be possible at present.
d. More detailed analysis of the groundwater flow regime at the site – why and when it happens and what effect this has on groundwater quality across the site.
e. TPH concentrations vary seasonally as the groundwater flow direction changes – when TPH concentrations are high which direction is the groundwater flow from and what activities are upgradient either presently or historically that may be the sources of this contamination?
f. If removing TPH (mineral oil) from the list of compliance substances, it should continue to be monitoring and any upwards trends observed should initial assessment and reinstating TPH as a compliance substance.
g. Sulphate has been discounted as a compliance substance due to elevated concentration which has been assumed to be background concentrations – this may be the case for BH5D, but the other boreholes have much lower concentrations – this need further analysis of trends before sulphate can be removed as a compliance substance.
h. Table 10 is missing arsenic and PAH in the quarterly monitoring parameters – as these are to be compliance substances they should be monitored on a regular basis.

Thanks

Phil

Phil Harper
Swyddog Rheoleiddio Gwastraff a Diwydiant /Industry & Waste Regulation Officer
Gogledd Orllewin / North West
Cyfoeth Naturiol Cymru / Natural Resources Wales
0300 065 3717/ 07890025506
Maes y Ffynnon, Penrhosgarnedd, Bangor, LL57 2DW
Siaradwr Cymraeg / Dysgwr Cymraeg

www.cyfoethnaturiol.cymru / www.naturalresources.wales

Yn falch o arwain y ffordd at ddyfodol gwell i Gymru trwy reoli'r amgylchedd ac adnoddau naturiol yn gynaliadwy.

Proud to be leading the way to a better future for Wales by managing the environment and natural resources sustainably.

Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi

Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay

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From: Jackie Ferguson <JackieFerguson@ByrneLooby.com>
Sent: 08 November 2021 16:07
To: Harper, Philip <philip.harper@cyfoethnaturiolcymru.gov.uk>
Cc: John Baxter <JohnBaxter@ByrneLooby.com>
Subject: RE: Nant Newydd

Hi Phil,

Hope you are well.

Thanks for the update.

Both myself and my colleague John will meet you and Richard Hurt at Nant Newydd on Wednesday the 10th of November at 11am.

Kind regards,

Jackie Ferguson
Consultant

BYRNELOOBY

Email: JackieFerguson@ByrneLooby.com
Tel: +44 (0)1925 291 111
Mobile: +44 (0)7593 526 915
Office: Suite 104, Mere Grange Business Park
St Helens, WA9 5GG, United Kingdom

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From: Harper, Philip <philip.harper@cyfoethnaturiolcymru.gov.uk>
Sent: 08 November 2021 16:01
To: Jackie Ferguson <JackieFerguson@ByrneLooby.com>
Subject: RE: Nant Newydd

Hi Jackie

I have further comments on the environmental monitoring review from the Geosciences team which will be of use to you.
I will provide official comment in a CAR form following the site visit. Please wait for this before progressing.

Kind Regards

Phil

Phil Harper
Swyddog Rheoleiddio Gwastraff a Diwydiant /Industry & Waste Regulation Officer
Gogledd Orllewin / North West
Cyfoeth Naturiol Cymru / Natural Resources Wales
0300 065 3717/ 07890025506
Maes y Ffynnon, Penrhosgarnedd, Bangor, LL57 2DW
Siaradwr Cymraeg / Dysgwr Cymraeg

www.cyfoethnaturiol.cymru / www.naturalresources.wales

Yn falch o arwain y ffordd at ddyfodol gwell i Gymru trwy reoli'r amgylchedd ac adnoddau naturiol yn gynaliadwy.

Proud to be leading the way to a better future for Wales by managing the environment and natural resources sustainably.

Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi

Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay

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From: Jackie Ferguson <JackieFerguson@ByrneLooby.com>
Sent: 03 November 2021 13:22
To: Harper, Philip <philip.harper@cyfoethnaturiolcymru.gov.uk>
Cc: John Baxter <JohnBaxter@ByrneLooby.com>
Subject: RE: Nant Newydd

Hi Phil,

Hope you are well.

Thanks for forwarding the OPRA spreadsheet.

Yes – both myself and John Baxter will attend the site visit on the 10th of November at 11am (rescheduled from the 11th).

Kind regards,

Jackie Ferguson
Consultant
BYRNELOOBY
Email: JackieFerguson@ByrneLooby.com
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Mobile: +44 (0)7593 526 915
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From: Harper, Philip <philip.harper@cyfoethnaturiolcymru.gov.uk>
Sent: 02 November 2021 14:36
To: Jackie Ferguson <JackieFerguson@ByrneLooby.com>
Subject: RE: Nant Newydd

Good Afternoon Jackie

I have attached a copy of the OPRA spreadsheet. As far as I am aware it is down to the operator or consultant to complete it.
I have sent a query to the permitting service for further guidance.
Will you be attending the site visit on the 11th?

Thanks

Phil

Phil Harper
Swyddog Rheoleiddio Gwastraff a Diwydiant /Industry & Waste Regulation Officer
Gogledd Orllewin / North West
Cyfoeth Naturiol Cymru / Natural Resources Wales
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Siaradwr Cymraeg / Dysgwr Cymraeg

From: Jackie Ferguson <JackieFerguson@ByrneLooby.com>
Sent: 01 November 2021 14:53
To: Harper, Philip <philip.harper@cyfoethnaturiolcymru.gov.uk>
Subject: Nant Newydd

Hi Philip,

Hope you are well.

We are in the process of drafting permit transfer applications for the permits at the below site as follows:

Nant Newydd Inert Landfill Permit ref: RP3337SE

Nant Newydd Bespoke Tier 2 Transfer Station ref: EPR/AB3095CJ

The permits are to be transferred from Clive Hurt (Plant Hire) Limited to Clive Hurt Anglesey Limited.

I have sent an email to the generic enquiries at NRW requesting the most up to date OPRA spreadsheet for Nant Newydd Landfill site on 06/10/2021 but have not heard back.

Please would you be able to forward a copy of the OPRA spreadsheet?

Kind regards,

Jackie Ferguson

Consultant

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Email: JackieFerguson@ByrneLooby.com

Tel: +44 (0)1925 291 111

Mobile: +44 (0)7593 526 915

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