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QUERCIA LIMITED

CLAYTON HALL LANDFILL

HYDROGEOLOGICAL RISK ASSESSMENT REVIEW

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DECEMBER 2024

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ST18115-502	Monitoring and Extraction Point Plan
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1 INTRODUCTION

1.1 Background

1.1.1 Wardell Armstrong have been commissioned by Quercia Limited (the Client) to prepare a Hydrogeological Risk Assessment Review (HRAR) for Clayton Hall Landfill (the Site). The Site is located at Clayton Hall Landfill, Dawson Land, Whittle-le-woods, Chorley, Lancashire, PR6 7DT. The extant Environmental Permit for the Site is for the landfilling of non-hazardous waste (reference EPR/BV1364ID).

1.1.2 The HRAR (referred to as the 2024 HRAR) has been prepared to support an application to vary the Environmental Permit. The variation relates to an extension to the landfill (Cell 4B Phase 4). A separate permit variation application will be submitted at a later date to update the restoration plan in the Environmental Permit so that it aligns with the restoration plan approved under the planning permissions.

1.2 Basis of Report

- 1.2.1 This report is based on the following reports, document and data relating to the Site:
- Clayton Hall Landfill Hydrogeological Risk Assessment Report by EDGE Consultants UK Ltd dated June 2003 prepared to support the PPC permit application. Referred to below as the 2003 HRA;¹
 - Clayton Hall Landfill Hydrogeological Risk Assessment Update Report by Coffey Geotechnics Limited dated July 2008. Referred to below as the 2008 HRAR;
 - Clayton Hall Landfill Hydrogeological Risk Assessment Update by Ramboll dated September 2019. Referred to below as the 2019 HRAR;²
 - On-site monitoring data provided by the Client;
 - Annual monitoring reports;
 - Annual Environmental Monitoring & Performance Review (2019) by The Arley Consulting Company Limited dated February 2020;
 - Annual Environmental Monitoring & Performance Review (2020) by The Arley Consulting Company Limited dated January 2021;
 - Annual Environmental Monitoring & Performance Review (2021) by The Arley Consulting Company Limited dated January 2022;

¹ The 2003 HRA appendices and drawings, and the Environmental Setting and Installation Design (ESID) which is cross referenced in the 2003 HRA, were not available at the time of preparation of this report.

² The 2019 HRAR refers to an update to the HRA in 2010. The 2010 HRAR was not available at the time of preparation of this report.

- Annual Environmental Monitoring & Performance Review (2022) by The Arley Consulting Company Limited dated January 2023;
- Annual Environmental Monitoring & Performance Review (2023) by The Arley Consulting Company Limited dated February 2024;
- Groundwater elevation data (2019 to July 2024);
- Groundwater quality data (2019 to July 2024);
- Leachate quality data (2019 to June 2024);
- Surface water and discharge water quality data (2019 to July 2024);
- Surface Water Management Technical Note by Wardell Armstrong dated February 2024 (reference ST18115/0012).

1.3 Structure of the Report

- 1.3.1 Section 2 of this report provides a description of the Site and an overview of the Site setting. The monitoring network is reviewed in Section 3 together with long-term groundwater and leachate elevation data, and groundwater, leachate, surface water and discharge water quality data. An updated hydrogeological conceptual site model (HCSM) is provided in Section 4. The hydrogeological risk assessment including updated numerical modelling is described in Section 5. Section 6 reviews the requisite surveillance. Conclusions are presented in Section 7.

2 SITE DESCRIPTION AND OVERVIEW OF SITE SETTING

2.1 Site Description and Site History

Overview

- 2.1.1 The Site is located at Dawson Lane, Whittle-le-Woods, Chorley, Lancashire, PR6 7DT. The Site layout is shown on Drawing ST18115-502.
- 2.1.2 The landfill occupies a former sand quarry. The majority of the Site is surrounded by lower lying agricultural land, however there is a large housing estate to the northwest of the Site. The River Lostock is located adjacent to the southern boundary of the Site and Bryning Brook is located to the east of the Site.

Site History

- 2.1.3 The operated as a sand quarry from the 1940's and was subsequently developed as a landfill. The first Waste Management License (WML; No. 74) was granted in December 1977. The current Environmental Permit (EPR/BV1364) was granted in April 2004 and has subsequently been varied, with the last variation granted in November 2019 (EPR/BV1364/V007). The currently permitted Site includes Cells 3A, 3B, 3C, 4A and 4B. The permit variation application seeks to extend the area of Cell 4B.
- 2.1.4 There are two closed cells (Cell 1 and 2) which do not form part of the extant Environmental Permit. Cell 1 was lined with a 1m thick clay liner (with permeability less than $1 \times 10^{-9} \text{m/s}$). Filling of Cell 1 commenced in 1991, although subsequently wastes were removed from Cell 1 and deposited into Cell 3 allowing construction of Cell 4. Cell 1 is now incorporated into Cell 4. Cell 2 is an unlined cell which accepted inert quarry waste (silts and silty sands) between around 1993 and 2003.

Site Design and Construction

- 2.1.5 A summary of the landfill engineering for Cells 3A, 3B, 3C, 4A and 4B is provided in Table 2-1 and summarised below. The proposed extension to Cell 4B (Cell 4B Phase 4) is located to the southwest of Cell 4B Phase 1-3. The current existing temporary bund shall be removed from Cell 4B and the Engineered Clay Liner (ECL) and High Density Poly Ethylene (HDPE) liners tied in with the existing Cell 4B basal containment.

Table 2-1: Summary of Landfill Engineering

Cell	Date Constructed	Formation Level	Basal Liner	Side Wall Liner	Capping	Waste Type
3A	1994	42mAOD	2m thick clay basal layer comprising locally won recompacted clay with permeability less than 1×10^{-9} m/s.	Geomembrane liner (High Density Poly Ethylene; HDPE) and geosynthetic clay liner (GCL).	Northern extent: permanently capped. Southern extent: proposed. 300mm regulating layer, 1mm geomembrane, protection geotextile, 1000mm restoration soils. On side slopes drainage geocomposite under restoration soils.	Non-hazardous
3B	1995	42mAOD	2mm thick HDPE geomembrane primary liner, over a 0.3m bentonite enriched soil (BES) secondary liner with permeability less than 1×10^{-10} m/s. Liner extends upslope to 47mAOD.	2mm thick HDPE geomembrane primary liner, over a GCL secondary liner.	Proposed: 300mm regulating layer, 1mm geomembrane, protection geotextile, 1000mm restoration soils. On side slopes drainage geocomposite under restoration soils.	Non-hazardous
3C	1996	42mAOD	2mm thick HDPE geomembrane liner, over a 0.3m bentonite enriched soil (BES) secondary liner with permeability less than 1×10^{-10} m/s. Liner extends upslope to 47mAOD.	2mm thick HDPE geomembrane primary liner, over a GCL secondary liner.	Permanently capped: 300mm regulating layer, 1mm geomembrane, protection geotextile, 1000mm restoration soils. On side slopes drainage geocomposite under restoration soils.	Non-hazardous
4A	2002	54mAOD	2mm thick HDPE primary liner, over a 0.3m thick BES secondary liner.	HDPE and GCL	Proposed: 300mm regulating layer, 1mm geomembrane, protection geotextile, 1000mm restoration soils. On side slopes drainage geocomposite under restoration soils.	Non-hazardous

Table 2-1: Summary of Landfill Engineering						
Cell	Date Constructed	Formation Level	Basal Liner	Side Wall Liner	Capping	Waste Type
4B (Phases 1-3)	2019-2022	54mAOD	Proposed: 2mm thick HDPE Flexible Membrane Liner (FML), over a 0.5m thick Engineered Clay Liner (ECL) with permeability less than $5 \times 10^{-10} \text{m/s}$		Proposed: 300mm regulating layer, 1mm geomembrane, protection geotextile, 1000mm restoration soils. On side slopes drainage geocomposite under restoration soils.	Non-hazardous
4B (Phase 4)	Proposed	52mAOD				

- 2.1.6 Cell 3A was constructed with a basal clay liner, whilst Cells 3B, 3C, 4A and 4B incorporate composite basal liners (HDPE and Bentonite Enriched Soil (BES) / Engineered Clay Liner (ECL)).
- 2.1.7 Leachate management systems are installed in all cells and leachate management is described in Section 3.3. The extension to Cell 4B will incorporate an underdrainage system to manage shallow groundwater in the Glaciofluvial Deposits. The underdrainage system will comprise a herringbone system of under cell drainage and a proposed underdrainage blanked which will direct water to a toe drain (Drawing ST18115-504).
- 2.1.8 The northern extent of Cell 3A and Cell 3C are permanently capped. The capping system for these cells, and proposed for the remaining cells, comprises a 300mm regulating layer, 1mm geomembrane, protection geotextile, 1000mm restoration soils. On side slopes drainage geocomposite is placed under the restoration soils. Surface water management during the progressive capping works is summarised in Section 2.5.

Waste Stream

- 2.1.9 The landfill is permitted to accept a range of non-hazardous waste and waste for restoration. Annual waste input limits, specified in Table S1.2 of the Environmental Permit, are 149,000 tonnes per year of non-hazardous waste and 149,000 tonnes per year of waste for and restoration. There are no proposed changes to the non-hazardous waste or waste for restoration already permitted.

2.2 Site Investigations

- 2.2.1 A number of phases of site investigation have been undertaken at the Site to install groundwater monitoring infrastructure. The locations of the current groundwater monitoring boreholes are shown on Drawing ST18115-502. Available borehole records and a summary of the groundwater monitoring boreholes are included in Appendix 2. An overview of the current groundwater monitoring network is provided in Section 3.1.

2.3 Topography

- 2.3.1 The Site is at an approximate ground elevation of 60-87mAOD. The highest elevation is recorded in the centre of the Site. In the east the Site slopes steeply downhill towards the River Lostock which is at an elevation of approximately 55-65mAOD. To the northwest of the Site the ground gently slopes towards the housing estate which

is at an elevation of approximately 70mAOD. The agricultural land to the south of the Site is at around 60-65mAOD.

2.4 Geology

2.4.1 The Made Ground, superficial deposits and bedrock geology at the Site are summarised in Table 2-2 and discussed below. The schematic hydrogeology cross section (Figure A3.1 in Appendix 3) illustrates the landfill waste, superficial deposits and bedrock geology at the Site.

Table 2-2: Summary of Geology					
	Unit	Previous Names	General Description ¹	Thickness ^{1,2}	Presence On-Site
Artificial Ground	Infilled Ground / Made Ground	-	Made Ground	0.75-19.00m	Within the previously worked quarry void
Superficial Deposits	Glaciofluvial Deposits	Glaciofluvial Deposits ⁴	Sand and gravel	20.10-41.00m	Present across whole Site
	Till		Diamicton		
Bedrock Geology	Sherwood Sandstone Group	Sherwood Sandstone	Sandstone part pebbly; conglomeratic in lower part	Variable, maximum >1,500m	Present across whole Site
Notes: 1. Based on British Geological Survey (BGS) lexicon. ^{3,4,5} 2. Based on borehole logs (Appendix 2).					

Made Ground

2.4.2 Made Ground is present on-site within the previously worked quarry void. The Made Ground includes materials deposited under the extant Environmental Permit and historic landfill and inert quarry waste (Section 2.1). Borehole logs (Appendix 2) indicate the material is generally clay with fragments of brick, concrete, timber and plastic.

³ British Geological Survey (2024) Glaciofluvial Deposits [online]. Accessed December 2024. Available at: <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=GFDUD>

⁴ British Geological Survey (2024) Till [online]. Accessed December 2024. Available at: <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=TILLD>

⁵ British Geological Survey (2024) Sherwood Sandstone Group [online]. Accessed December 2024. Available at: <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=SSG>

Superficial Deposits

- 2.4.3 British Geological Survey (BGS) 1:50,000 scale mapping⁶ records the Site to be underlain by Glaciofluvial Deposits (sand and gravel). Underlying the Glaciofluvial Deposits is Devensian Till (Diamicton). In the west and south the Site is directly underlain by Devensian Till (Diamicton).
- 2.4.4 Borehole logs (Appendix 2) indicate that the superficial deposits at the Site comprise horizons of permeable sands and/or gravels which are interbedded with clays. The superficial deposits are referred to as “Glaciofluvial Deposits” in the 2019 HRAR and the terminology has been used in this report.
- 2.4.5 As described in the 2019 HRAR, there does not appear to be a site-wide lateral correlation between the layers or lenses of sands, gravels, silts and clays.

Bedrock Geology

- 2.4.6 BGS) 1:50,000 scale mapping⁶ records the underlying bedrock geology to consists of the Sherwood Sandstone Group (referred to below as the Sherwood Sandstone). The Sherwood Sandstone is described as sandstone at times part pebbly and conglomeratic in the lower part, with subordinate mudstone and siltstone layers.⁵ The Sherwood Sandstone was deposited during the Triassic Period and has since been subject to faulting with mapped faults⁶ approximately 400m to the east and 420m to the west of the Site.

2.5 Hydrology

- 2.5.1 The River Lostock is located 25m east of the Site at its closest point, flowing from south to north with an elevation of approximately 65mAOD to 55mAOD near the Site. The River Lostock flows into the River Yarrow, a major tributary of the River Douglas, a river that feeds the River Ribble.
- 2.5.2 The Bryning Brook runs adjacent to the southern boundary of the Site and flows east of the Site access road at about 70mAOD, in a westwards direction past the site, falling to below 50mAOD at the A49 Preston Road. The Bryning Brook converges with the Bannister Brook, Bow Brook and Mill Brook before joining the River Lostock approximately 5.5km downstream from the Site.

⁶ British Geological Survey (2024) GeoIndex [online]. Accessed December 2024. Available at: <https://mapapps2.bgs.ac.uk/geoindex/home.html>

- 2.5.3 Field drains are present within the agricultural land to the east of the Site. The field drains merge to form a tributary that feeds into the River Lostock.
- 2.5.4 Site drainage is discharged into a drainage ditch which flows into Bryning Brook. Surface water and emission point monitoring at the Site are described in Section 3. An indicative Surface Water Management Plan for progressive capping works is described in the Surface Water Management Technical Note by Wardell Armstrong dated February 2024 (reference ST18115/0012).

2.6 Hydrogeology

- 2.6.1 The Glaciofluvial Deposits are classified by the EA as a Secondary A Aquifer. A Secondary A Aquifer is defined as comprising permeable layers that can support local water supplies, and may form an important source of base flow to rivers.⁷
- 2.6.2 The underlying Sherwood Sandstone is classified by the EA as a Principal Aquifer. Principal Aquifer are defined as layers of rock that have a high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage, and may support water supply and/or river baseflow on a strategic scale.⁷
- 2.6.3 Groundwater monitoring at the Site is described in Section 3 and summarised below in the context of regional groundwater elevations and flows.

Glaciofluvial Deposits

- 2.6.4 Shallow groundwater has been recorded within the Glaciofluvial Deposits. Groundwater elevations are typically between approximately 55mAOD (BH3 and BH02S in the north east of the Site) and approximately 65mAOD (BH103A in the north of the Site). Groundwater elevations in the Glaciofluvial Deposits are likely to be influenced by local variations in the hydrogeological characteristics of the superficial deposits, such as low permeability clay horizons. There is no consistent water table within the superficial deposits.

Sherwood Sandstone

- 2.6.5 Groundwater in the Sherwood Sandstone is typically recorded at between 38mAOD and 41mAOD at the Site, approximately 1m to 4m below the engineered landfill base. The 2019 HRAR described regional groundwater flow as being towards the north.

⁷ Environment Agency (2024) Protect groundwater and prevent groundwater pollution [online]. Accessed December 2024. Available at: <https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution>

Monitoring data from the Hydrology Data Explorer for 2019 to 2024 is consistent with a northerly flow direction. Groundwater elevations at BAE Systems⁸ (1.1km south of the Site) are approximately 40-45mAOD and at Lutra House⁹ (2.6km north of the Site, located within a different fault block) around 25mAOD.

2.7 Abstractions

2.7.1 Information on groundwater and surface water abstraction licences was provided by the Environment Agency in September 2024. There are two groundwater abstraction licences within 3.0km of the Site (Table 2-3) and one surface water abstraction licence within 3.0km of the Site (Table 2-4).

Table 2-3: Licensed Groundwater Abstractions within 3.0km of the Site				
Licence Number	Site Name	Abstraction Use	NGR	Distance and Direction from Site
2670212020	Borehole At Whittle-Le-Woods	Spray Irrigation	SD57682093	1.3km southeast of the Site
2670212021/R01	Borehole At Bamber Bridge, Preston	Process Water	SD5700924577	2.4km north of the Site
Notes: NGR = National Grid Reference				

Table 2-4: Licensed Surface Water Abstractions within 3.0km of the Site				
Licence Number	Site Name	Abstraction Use	NGR	Distance and Direction from Site
2670212017	High Ash Reservoir At Leyland	General Cooling	SD543235	2.8km northwest of the Site
Notes: NGR = National Grid Reference				

⁸ Department for Environment Food & Rural Affairs (2024) Hydrology Data Explorer – BAE Systems [online]. Accessed December 2024. Available at: <https://environment.data.gov.uk/hydrology/station/4583f0db-6b9a-4927-9b75-86d53cdbf876>

⁹ Department for Environment Food & Rural Affairs (2024) Hydrology Data Explorer – Lutra House [online]. Accessed December 2024. Available at: <https://environment.data.gov.uk/hydrology/station/6ff5c31c-b3c5-401a-bf1a-b01b88ae2a8f>

2.7.2 Information on private water supplies was requested from Chorley Council in August 2024, however Chorley Council have not provided details of the locations of private water supplies.

2.7.3 The Site is not located within a Source Protection Zone (SPZ).

2.8 Hydro-ecology

2.8.1 According to the MAGIC website, there are no statutory designated sites (Sites of Scientific Interest (SSSI), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, National Nature Reserves or Local Nature Reserves) present within 2.0km of the Site.

3 MONITORING

3.1 Overview of Monitoring Network

Groundwater

- 3.1.1 The groundwater monitoring boreholes at the Site are summarised in Table A2.1 in Appendix 2 and the locations of the groundwater monitoring boreholes are shown on Drawing ST18115-502.
- 3.1.2 The groundwater monitoring boreholes are installed in the Glaciofluvial Deposits and Sherwood Sandstone. Table A2.1 in Appendix 2 summarises the installation details for each borehole, records boreholes which have dual piezometer installations and identifies which strata the boreholes are installed in. Table A2.1 in Appendix 2 also summarises which boreholes have groundwater elevation and quality monitoring data available.
- 3.1.3 Dip to base data is not available for the groundwater monitoring boreholes for the 2019 to June 2024 monitoring and it is recommended that this is routinely collected during each monitoring round to confirm that the correct borehole/piezometer is sampled and to inform an assessment of any changes in the condition of the monitoring point (e.g. blockages or silting up of the borehole). There was a change in monitoring personnel in November 2024 and collection of dip to base data will commence.
- 3.1.4 Borehole BH102 has a dual piezometer installation with a shallow piezometer (BH102S) installed in the Glaciofluvial Deposits and a deep piezometer (BH102D) installed in the Sherwood Sandstone. Borehole BH106 was also installed as a dual piezometer installation with a shallow piezometer (BH106S) and a deep piezometer (BH106D). No borehole log is available for BH106, although it is understood that the shallow piezometer was installed in the Glaciofluvial Deposits and the deep piezometer was installed in the Sherwood Sandstone. The deep piezometer (BH106D) is no longer included in the monitoring schedule and has been replaced by a new borehole installed in the Sherwood Sandstone (BH106A).
- 3.1.5 There is uncertainty regarding the groundwater monitoring data for borehole BH106S. Groundwater level monitoring data is available for BH106S between April 2019 and June 2020. The 2019 data (57.39mAOD to 58.20mAOD) is consistent with previous data for the Glaciofluvial Deposits but the June 2020 data (41.16mAOD) is consistent with groundwater elevations in the Sherwood Sandstone (including recent monitoring

data for borehole BH106A and historic data for BH106D included in the 2019 HRAR). No groundwater level data is available for borehole BH106S after June 2020, the borehole is reported to be “dry”, although the groundwater quality data is available. As there is no groundwater level or depth to based data there is uncertainty as to whether the groundwater quality data collected since 2020 represents the Glaciofluvial Deposits or the Sherwood Sandstone. Wardell Armstrong took a depth to base measurement in November 2024 (51.41mbgl, 10.59mAOD) which suggests that BH106D is being monitored, the shallow piezometer (BH106S) was not accessible. A replacement borehole installed in the Glaciofluvial Deposits is recommended enable monitoring of the Glaciofluvial Deposits for both groundwater levels and quality (Section 6). In the interim depth to base measurements should be undertaken during each monitoring round to determine whether the shallow (Glaciofluvial Deposits) or deep (Sherwood Sandstone) piezometer is being monitored.

Leachate

- 3.1.6 Leachate elevations and quality are monitored at leachate monitoring points L3A, L3B, L3C, L4A and L4B. Leachate monitoring point L4A was previously referred to as L4. Table A2.2 in Appendix 2 summarises the leachate monitoring points installed at the Site. The locations of the leachate monitoring points are shown on Drawing ST18115-502. No leachate monitoring data are available for L4B because of access restrictions due to health and safety concerns.

Surface Water

- 3.1.7 Surface water quality is monitored at surface water monitoring points S1, S2, S3 and S4. The surface water emission point is SD1 which discharges site into a drainage ditch which flows into Bryning Brook. The locations of the surface water monitoring points and the emission point are shown on Drawing ST18115-502.
- 3.1.8 Proposed changes to the monitoring network and monitoring schedule are described in Section 6.
- 3.2 Groundwater and Leachate Elevation Monitoring Data and Groundwater Flow Directions.
- 3.2.1 Groundwater and leachate elevation data has been collated and the data are summarised in Table A4.1 in Appendix 4 and have been presented graphically (in Figure A4.1 and Figure A4.2 in Appendix 4). The scale on the y-axis is the same for

groundwater monitoring boreholes installed in the Glaciofluvial Deposits and Sherwood Sandstone to allow comparison.

Groundwater Elevations and Flow Directions

- 3.2.2 Groundwater elevations are shown in Figure A4.1 in Appendix 4. Groundwater elevations in the Glaciofluvial Deposits and the Sherwood Sandstone are generally stable between 2019 and July 2024. Groundwater elevations in the Sherwood Sandstone are consistent with the northerly flow direction recorded in the 2019 HRAR (Section 2.6). Table A2.1 in Appendix 2 summarises which boreholes installed in the Sherwood Sandstone are up-gradient and down-gradient of the Site. Paired boreholes installed in the Glaciofluvial Deposits and Sherwood Sandstone indicate that groundwater elevations in the Glaciofluvial Deposits are around 15m higher than in the Sherwood Sandstone. Average groundwater elevations in BH102S (Glaciofluvial Deposits) are 54.11mAOD compared to 38.66mAOD in BH102D (Sherwood Sandstone), and 57.75mAOD in BH106S (Glaciofluvial Deposits) compared to 40.46mAOD in BH106D (Sherwood Sandstone).
- 3.2.3 A slippage and water ingress has been recorded on Site on the southern face of the excavation in the vicinity of the proposed extension to Cell 4B. The water level in the Bryning Brook is approximate 61mAOD and water ingress was recorded at approximately 57.0-58.6mAOD (Drawing ST18115-504). The proposed base of Cell 4B is at 52mAOD so the extension will be below groundwater elevations in the Glaciofluvial Deposits. This corresponds to groundwater elevations recorded in borehole BH106S which is installed in the Glaciofluvial Deposits in the south of the Site are between 57.39mAOD and 58.20mAOD). As described in Section 2.1 an underdrainage system will be installed beneath the extension to Cell 4B.
- 3.2.4 Average groundwater elevations for boreholes in the Sherwood Sandstone are between 38.66mAOD in BH102D and 40.94mAOD in BH111A. This is approximately 1-13m below the base of the landfill (42-52mAOD). In the vicinity of the extension to Cell 4B groundwater elevations in the Sherwood Sandstone are 40.19-40.65mAOD (borehole BH106A) which is 11.35-11.81m below the base on Cell 4B.

Leachate Elevations

- 3.2.5 Leachate elevations are shown in Figure A4.1 in Appendix 4. Leachate elevation data is not available for Cell 4B, however leachate elevations in Cell 4A are between 40.36mAOD and 46.52mAOD, which is below the groundwater elevation in the Glaciofluvial Deposits (57.39-58.20mAOD in BH106S) in the vicinity of the extension

to Cell 4B i.e. there will be hydraulic containment with respect to the Glaciofluvial Deposits in this part of the Site.

- 3.2.6 Leachate level (head) limits are specified in Table S3.1 of the Environmental Permit. Leachate compliance points are L3A, L3B, L3C, L4A (also referred to as L4) and L4B, and the leachate head limit is 3m above the base of the cell. The leachate heads reported in the annual monitoring reports for 2019 to 2023 are summarised in Table 3.1 and shown graphically in Figure A4.2 in Appendix 4. Leachate heads reported in the annual monitoring reports are generally below the leachate head limit (3m above the base) with the exception of L3A in April 2019 (4.70m), L3B on seven occasions between January 2019 and May 2021 (up to 6.90m), L3C on 13 occasions between January 2019 and March 2020 (up to 8.30m) and L4A in March 2019, October 2019 and October 2023 (6.26m).

Table 3-1: Leachate Head						
Cell	Leachate Head Limit (m)	Leachate Monitoring Point	Leachate Head (m) (2019 to 2023)			
			Count	Minimum	Average	Maximum
Cell 3A	3.0	L3A	55	1.24	1.93	4.70
Cell 3B	3.0	L3B	60	0.58	2.28	6.90
Cell 3C	3.0	L3C	59	1.49	2.96	8.30
Cell 4A	3.0	L4A	60	0.10	2.23	6.26
Cell 4B	3.0	L4B	No data available			
Notes:						
Leachate head in m above the base of the cell from annual monitoring reports listed in Section 1.2.						
Leachate monitoring point L4A is also referred to as L4.						
Bold indicates exceedance of leachate head limit.						

Volume of Leachate Disposal

- 3.2.7 Leachate management at the Site is described in the Leachate Management Plan (document reference EW1033c). Leachate is extracted from extractions points within the cells (L3A, L3B, L3C, L4A and L4B) and pumped to the on-site effluent treatment plant. There were challenges regarding leachate management at the Site due to health and safety and access concerns and associated with a fire at the Site in July 2022.
- 3.2.8 Table 3-2 summarises the volume of leachate disposed of to the on-site effluent treatment plant and the volume disposed of off-site (tankered off-site). The volumes

include some contaminated surface water run-off and also fire water following the fire at the Site in July 2022.

Table 3-2: Volume of Leachate Disposal						
	Volume of Leachate Disposed of via Effluent Treatment Plant and Tankered Off-Site (m³/year)					
	2019	2020	2021	2022	2023	2024
Effluent Treatment Plant*	12,500**	29,478	27,813	22,897	20,595	Data not available
Tankered Off-Site	12,744	3,591	2,745	7,047	20,541	
Recirculated	0	0	0	0	0	
Notes: Volume of leachate from annual monitoring reports. Volumes include some surface water run-off and also fire water. * Combined volume of some contaminated surface water run-off and treated leachate discharged off-site to sewer under consent from United Utilities. ** Quercia estimate.						

3.3 Groundwater, Leachate and Surface Water Quality Monitoring Data

3.3.1 Groundwater and leachate quality monitoring data collected since the 2019 HRAR (2019 to July 2024) have been collated and reviewed to identify determinands which were detected above the laboratory method limit of detection (LOD) (Table A5.1 in Appendix 5). Where a determinand was detected in groundwater and also in leachate, graphs were produced to show trends in groundwater concentrations if there were more than 10 groundwater samples analysed and there is greater than 10% detection (i.e. greater than 10% of samples were above the LOD limit of detection).

3.3.2 Groundwater compliance limits are specified in Table S3.4 of the Environmental Permit for compliance boreholes BH3, BH111, BH113, BH118A and BH124. Borehole BH111 is no longer included in the monitoring schedule, therefore BH111A which is installed within the Sherwood Sandstone in a similar location has been considered in the annual monitoring reports. The compliance limits are specified for ammoniacal nitrogen, chloride, mercury, total phenol and Total Petroleum Hydrocarbons (TPH). Graphs were also produced for these parameters.

3.3.3 Surface water emissions limits are specified in Table S3.3 (emission limits) of the Environmental Permit for suspended solids. Graphs were also produced for suspended solids.

3.3.4 Groundwater, leachate and surface water quality graphs are included as Figure A5.1 to Figure A5.37 in Appendix 5. In general, the scale on the y-axis is the same for groundwater and leachate to allow comparison. Concentrations below the laboratory method limit of detection have been plotted as the laboratory method limit of detection. There has been variation in the laboratory method limit of detection for some determinands between monitoring rounds.

Groundwater Quality

3.3.5 Groundwater monitoring requirements are specified in Table S3.4 (compliance limits) and Table S3.7 (other monitoring) of the Environmental Permit. Data collected since the 2019 HRAR are summarised in Table A5.1 in Appendix 5 and shown graphically in Figure A5.1 to Figure A5.37 in Appendix 5.

Ammoniacal Nitrogen

3.3.6 Recent groundwater quality monitoring data for ammoniacal nitrogen in compliance boreholes BH3, BH113, BH118A and BH124 and borehole BH111A collected since the 2019 HRAR (2019 to July 2024) are shown graphically in Figure A5.1 and Figure A5.2 in Appendix 5 and summarised in Table 3-3.

3.3.7 Ammoniacal nitrogen concentrations in compliance borehole BH3 have generally been recorded above the compliance limit (9mg/l) since January 2019. Concentrations of ammoniacal nitrogen were below the compliance limit in compliance boreholes BH113, BH118A and BH124. Concentrations in compliance borehole BH113 showed a slight between 2023 and July 2024, whilst concentrations in compliance boreholes BH118A and BH124 were generally stable.

Table 3-3: Summary of Groundwater Quality Data Collected Since 2019 HRAR – Ammoniacal Nitrogen (mg/l)				
Borehole	Compliance Limit	Groundwater Quality Monitoring Data (2019 to July 2024)		
		Minimum	Average	Maximum
BH3	9	<0.2	18.2	159
BH111	9	-	-	-
BH111A	-	<0.2	0.3	2.4
BH113	9	<0.2	1.3	2.9
BH118A	9	<0.2	0.5	1.8
BH124	9	<0.2	0.2	0.6
Notes:				
Borehole BH111 is no longer included in monitoring schedule.				
Bold indicates exceedance of compliance limit.				

Chloride

3.3.8 Recent groundwater quality monitoring data for chloride in compliance boreholes BH3, BH113, BH118A and BH124 and borehole BH111A collected since the 2019 HRAR (2019 to July 2024) are shown graphically in Figure A5.3 and Figure A5.4 in Appendix 5 and summarised in Table 3-4.

3.3.9 In compliance boreholes BH3, BH113, BH118A and BH124 concentrations were below the compliance limit. Concentrations in boreholes BH118A and BH124 remained stable between January 2019 and July 2024 with occasional peaks seen, whilst an increasing trend was observed in borehole BH113 since February 2023. Chloride concentrations in compliance borehole BH3 have generally decreased since January 2019.

Table 3-4: Summary of Groundwater Quality Data Collected Since 2019 HRAR – Chloride (mg/l)				
Borehole	Compliance Limit	Groundwater Quality Monitoring Data (2019 to July 2024)		
		Minimum	Average	Maximum
BH3	250	34.9	65.6	95.2
BH111	250	-	-	-
BH111A	-	18.6	24.5	48.2
BH113	250	21.6	26.7	37.3
BH118A	250	13.0	20.5	33.9
BH124	250	21.5	23.5	28.9
Notes:				
Borehole BH111 no longer included in monitoring schedule.				

Mercury

3.3.10 Recent groundwater quality monitoring data for mercury in compliance boreholes BH3, BH111A, BH113, BH118A and BH124 collected since the 2019 HRAR (2019 to June 2024) are shown graphically in Figure A5.5 and Figure A5.6 in Appendix 5 and summarised in Table 3-5.

3.3.11 Concentrations of mercury were above the compliance limit (0.01µg/l) in borehole BH3 on one occasion (0.0163µg/l in June 2024). For all other monitoring rounds and at other compliance boreholes concentrations were below the LOD (which was generally 0.01µg/l but occasionally 0.1µg/l).

Table 3-5: Summary of Groundwater Quality Data Collected Since 2019 HRAR – Mercury (µg/l)				
Borehole	Compliance Limit	Groundwater Quality Monitoring Data (2019 to June 2024)		
		Minimum	Average	Maximum
BH3	0.01	0.01	0.0103	0.0163
BH111	0.01	-	-	-
BH111A	-	<0.01	-	<0.01
BH113	0.01	<0.01	-	<0.01
BH118A	0.01	<0.01	-	<0.1
BH124	0.01	<0.01	-	<0.1
Notes: Borehole BH111 no longer included in monitoring schedule. Bold indicates exceedance of compliance limit.				

Total Phenols

- 3.3.12 There has been inconsistency in the phenol suites that has been analysed between monitoring rounds. Laboratory analysis has included phenol, speciated phenols, total monohydric phenols, total 5-speciated phenols and total 8-speciated phenols; where possible there should be consistency in the phenol suite analysed.
- 3.3.13 All total phenol suites (total monohydric phenols, total 5-speciated phenols and total 8-speciated phenols; referred to below as “total phenols”) have been screened against the total phenols compliance limit of 0.1mg/l. Recent groundwater quality monitoring data for total phenols in compliance boreholes BH3, BH113, BH118A and BH124 and borehole BH111A collected since the 2019 HRAR (2019 to June 2024) are shown graphically in Figure A5.7 and Figure A5.8 in Appendix 5 and summarised in Table 3-6.
- 3.3.14 Total phenols concentrations in compliance borehole BH3 ranged from <0.002mg/l to 0.4mg/l between January 2019 and June 2024 with peaks in concentrations exceeding the compliance limit. Concentrations of total phenols were below the compliance limit (0.1mg/l) in compliance boreholes BH113, BH118A and BH124. Total phenols concentrations remained stable in compliance boreholes BH113, BH118A and BH124.

Table 3-6: Summary of Groundwater Quality Data Collected Since 2019 HRAR – Total Phenols (mg/l)				
Borehole	Compliance Limit	Groundwater Quality Monitoring Data (2019 to June 2024)		
		Minimum	Average	Maximum
BH3	0.1	<0.002	0.11	0.4
BH111	0.1	-	-	-
BH111A	-	<0.002	-	<0.045
BH113	0.1	<0.002	-	<0.045

Table 3-6: Summary of Groundwater Quality Data Collected Since 2019 HRAR – Total Phenols (mg/l)				
Borehole	Compliance Limit	Groundwater Quality Monitoring Data (2019 to June 2024)		
		Minimum	Average	Maximum
BH118A	0.1	<0.002	0.03	0.09
BH124	0.1	<0.002	-	<0.045
Notes: Borehole BH111 no longer included in monitoring schedule. “Total phenols” includes total monohydric phenols, total 5-speciated phenols and total 8-speciated phenols				

Total Petroleum Hydrocarbons

- 3.3.15 Recent groundwater quality monitoring data for TPH in compliance boreholes BH3, BH111A, BH113, BH118A and BH124 collected since the 2019 HRAR (2019 to June 2024) are shown graphically in Figure A5.9 and Figure A5.10 in Appendix 5 and summarised in Table 3-7. The LOD for some monitoring rounds exceeds the compliance limit; where possible the analytical method should have a LOD of less than 1mg/l.
- 3.3.16 TPH concentrations in compliance borehole BH3 have generally followed an unsteady trend since January 2019 and have ranged from <1mg/l to 18.7mg/l. TPH concentrations in compliance borehole BH113 were below the LOD (which varied between monitoring rounds, 1mg/l, 5mg/l, 10mg/l and 20mg/l). TPH concentrations in compliance borehole BH118A have generally remained stable at around <1mg/l, with four recordings above the analytical limit of detection ranging from 1.02mg/l and 1.29mg/l.

Table 3-7: Summary of Groundwater Quality Data Collected Since 2019 HRAR – Total Petroleum Hydrocarbons (mg/l)				
Borehole	Compliance Limit	Groundwater Quality Monitoring Data (2019 to June 2024)		
		Minimum	Average	Maximum
BH3	1	<1	3.8	18.7
BH111	1	-	-	-
BH111A	-	<1	-	<5
BH113	1	<1	-	<20
BH118A	1	<1	1.02	1.29
BH124	1	<1	-	<2
Notes: Borehole BH111 no longer included in monitoring schedule.				

Table 3-7: Summary of Groundwater Quality Data Collected Since 2019 HRAR – Total Petroleum Hydrocarbons (mg/l)				
Borehole	Compliance Limit	Groundwater Quality Monitoring Data (2019 to June 2024)		
		Minimum	Average	Maximum
The laboratory method limit of detection varied between monitoring rounds (1mg/l, 2mg/l, 5mg/l, 10mg/l and 20mg/l).				

Leachate Quality

- 3.3.17 A summary of the waste accepted at the Site is provided in Appendix 7. Priority contaminants identified as part of the 2019 HRAR comprised ammoniacal nitrogen, chloride, mercury, speciated phenols and speciated TPH. Recent leachate quality data for priority contaminants collected since the 2019 HRAR (2019 to June 2024) is summarised in Appendix 7 and compared to the modelled leachate source term used in the 2019 HRAR model (see Section 5). Ammoniacal nitrogen, speciated phenols and speciated TPH were modelled by cell in the 2019 HRAR, source term concentrations for chloride and mercury were the same for all cells.
- 3.3.18 Ammoniacal nitrogen concentrations recorded in the leachate monitoring wells between 2019 and June 2024 ranged between 43.2mg/l and 4,840mg/l with an average of 968mg/l (Cell 4B) to 2,371mg/l (Cell 3B). This is similar to those used in the 2019 HRAR which ranged between 1,600mg/l and 3,810mg/l with a likely scenario ranging from 1645mg/l (Cell 3B) to 2565mg/l (Cell 3A) for the individual cells.
- 3.3.19 Chloride concentrations recorded in the leachate monitoring wells between 2019 and June 2024 ranged between 133mg/l and 4,670mg/l with an average of 2,058mg/l, which are higher than the input parameters used in the 2019 HRAR which ranged between 2mg/l and 3410mg/l with a likely scenario of 1,228mg/l.
- 3.3.20 Mercury concentrations recorded in the leachate monitoring wells between 2019 and June 2024 ranged between 0.005µg/l and 1.75µg/l with an average of 0.29µg/l. The average is more than an order of magnitude higher than the input parameters used in the 2019 HRAR which ranged between 0.01µg/l and 0.1µg/l and a likely scenario of 0.01µg/l.
- 3.3.21 Phenols group 1 - phenol concentrations recorded in the leachate monitoring wells between 2019 and June 2024 ranged between 0.01mg/l and 20.1mg/l which is similar to the input parameters used in the 2019 HRAR which ranged from 0.001mg/l to 5.35mg/l. Phenols group 2 – cresols concentrations recorded in the leachate monitoring wells between 2019 and June 2024 ranged between 0.006mg/l and

12.8mg/l which is similar to the input parameters used in the 2019 HRAR which ranged from 0.001mg/l to 16.8mg/l. Phenols group 3 - xlenols concentrations recorded in the leachate monitoring wells between 2019 and June 2024 ranged between 0.003mg/l and 1.05mg/l which is similar to the input parameters used in the 2019 HRAR which ranged from 0.001mg/l to 1.17mg/l. Phenols group 4 - chlorophenols concentrations recorded in the leachate monitoring wells between 2019 and June 2024 ranged between 0.01mg/l and 0.1mg/l which is similar to the input parameters used in the 2019 HRAR which ranged from 0.001mg/l to 0.5mg/l. Phenols group 5 - nitrophenols concentrations recorded in the leachate monitoring wells between 2019 and June 2024 ranged between 0.01mg/l and 0.1mg/l which is similar to the input parameters used in the 2019 HRAR which ranged from 0.001mg/l to 0.06mg/l.

3.3.22 TPH Aliphatic C5-35 concentrations recorded in the leachate monitoring wells between 2019 and June 2024 ranged between 5µg/l and 308µg/l which is somewhat lower than the input parameters used in the 2019 HRAR which ranged from 10µg/l to 685µg/l. TPH Aromatic C5-35 concentrations recorded in the leachate monitoring wells between 2019 and June 2024 ranged between 5µg/l and 212µg/l which is similar to the input parameters used in the 2019 HRAR which ranged from 4µg/l to 235µg/l.

3.3.23 The model source term concentrations for the 2024 HRAR modelling are summarised in Appendix 7.

Surface Water Quality

3.3.24 Surface water monitoring requirements are specified in Table S3.3 (emission limits) and Table S3.10 (other monitoring requirements) of the Environmental Permit. Data collected since the 2019 HRAR (2019 to July 2024) are summarised in Table A5.1 in Appendix 5).

3.3.25 Recent surface water quality monitoring data for suspended solids at the emission point SD1 collected since the 2019 HRAR (2019 to July 2024) are shown graphically in Figure A5.11 in Appendix 5 and summarised in Table 3-5. Suspended solids exceeded the emission limit (50mg/l) on six occasions between January 2019 and July 2024, although no increasing trend is apparent.

Table 3-8: Summary of Surface Water Quality Data for SD1 Collected Since 2019 HRAR				
Parameter	Emission Limit	Surface Water Quality Monitoring Data (2019 to July 2024)		
		Minimum	Average	Maximum
Suspended solids (mg/l)	50	2	18	154

4 REVIEW OF HYDROGEOLOGICAL CONCEPTUAL SITE MODEL

4.1 Introduction

4.1.1 Changes to the landfill design to incorporate the extension to Cell 4B and recent monitoring data collected since the 2019 HRAR have been used to review the HCSM for the Site, which is discussed below in the form of “sources, pathways and receptors”. The HCSM is illustrated in Figure A3.1 in Appendix 3.

4.2 Sources

4.2.1 On-site sources include the PPC landfill (Cells 3A, 3B, 3C, 4A and 4B), the proposed extension to Cell 4B, and also Made Ground and previous waste disposal (under the previous WML). The proposed extension (Cell 4B Phase 4) will accept the same non-hazardous waste stream as the current Cell 4B Phases 1-3.

4.2.2 Leachate management systems are installed in all cells to manage leachate heads. It is proposed that the extension (Cell 4B Phase 4) would be constructed to the same standards as Cell 4B Phase 1-3 and that leachate would also be extracted and pumped to the on-site effluent treatment plant or disposed of off-site.

4.3 Pathways

4.3.1 Pathways for potential pollutants include any route from the PPC landfill (the source) to the receptors.

4.3.2 The main pathway from the landfill to groundwater in the Sherwood Sandstone is through infiltration of rainwater through the landfill cap (once the final engineered cap is installed) and the waste mass. Leachate generated in the waste mass will migrate through the engineered lining system and will be transported through the underlying Glaciofluvial Deposits to the Sherwood Sandstone. Regional groundwater flow in the Sherwood Sandstone is to the north.

4.3.3 Cell 3A, Cell 3B, Cell 3C, Cell 4A and Cell 4B (Phases 1 to 3) were constructed under the current Environmental Permit. Cell 3A was constructed with a basal clay liner, whilst Cells 3B, 3C, 4A and 4B incorporate composite basal liners (HDPE and BES / ECL).

4.3.4 The extension to Cell 4B will incorporate an underdrainage system to manage shallow groundwater in the Glaciofluvial Deposits. The underdrainage system will comprise a herringbone system of undercell drainage and a proposed underdrainage blanked which will direct water to a toe drain.

4.4 Receptors

- 4.4.1 Groundwater receptors are the Glaciofluvial Deposits (superficial Secondary A aquifer), and the Sherwood Sandstone (bedrock Principal aquifer).

5 HYDROGEOLOGICAL RISK ASSESSMENT

5.1 Background

- 5.1.1 A LandSim model was developed for the Site to support the PPC permit application and is described in the 2003 HRA. The modelling was updated in the 2008 HRAR, 2010 HRAR and 2019 HRAR. The source-pathway-receptor linkage modelled using the previous LandSim models was the migration of leachate generated in the landfill, through the landfill liner and unsaturated zone to groundwater within the Sherwood Sandstone.
- 5.1.2 The previous HRA/HRAR reports did not consider the Glaciofluvial Deposits as a receptor and numerical modelling was not undertaken for the migration of leachate to groundwater in the Glaciofluvial Deposits.
- 5.1.3 Based on recent monitoring data collected since the 2019 HRAR and the updated HCSM (Section 4), the 2024 HRAR will consider both the Sherwood Sandstone and the Glaciofluvial Deposits in the vicinity of the proposed extension.

5.2 Approaches to Modelling

- 5.2.1 The 2024 HRAR considers both the Sherwood Sandstone and the Glaciofluvial Deposits. The modelling approaches for the Sherwood Sandstone (LandSim) and the Glaciofluvial Deposits (Hydraulic Containment Model) are described below.

Sherwood Sandstone (LandSim)

- 5.2.2 Previous modelling undertaken as part of the 2003 HRA, 2008 HRAR, 2010 HRAR and 2019 HRAR considered groundwater in the Sherwood Sandstone and was carried out in LandSim. The modelling considered the pathway between the landfill and groundwater within the Sherwood Sandstone. The landfill is above the groundwater elevation in the Sherwood Sandstone and therefore LandSim is an appropriate tool for modelling the Sherwood Sandstone.
- 5.2.3 The 2024 HRAR LandSim model has been produced in LandSim version 2.5. LandSim also allows the modelling of multiple phases with different source terms and different engineering which is applicable to the Site.

Glaciofluvial Deposits (Hydraulic Containment Model)

- 5.2.4 Available groundwater elevation data for the superficial deposits in the vicinity of the extension to Cell 4B and leachate elevation data for Cell 4A (no data available for Cell 4B) suggest that leachate levels are below the groundwater elevation in the

Glaciofluvial Deposits. Hydraulic containment modelling is therefore an appropriate tool for modelling the Glaciofluvial Deposits in this part of the Site.

5.3 Model Parameterisation, Model Inputs and Model Results

Sherwood Sandstone (LandSim)

5.3.1 The 2019 HRAR LandSim model included four phases; Cells 3A, Cell 3B, Cell 3C and “Cell 4”. Cell 4 incorporated Cell 4A and Cell 4B Phases 1-3. Five phases are modelled in the HRAR model; Cell 3A, Cell 3B, Cell 3C, Cell4A and Cell 4B.

5.3.2 Parameterisation for the model and the associated justifications are presented in Appendix 7. A number of input parameters for the model are based on previous LandSim modelling (2019 HRAR), however, where relevant, input parameters have been reviewed and updated based on the revised HCSM. The parameterisation of the leachate source term concentrations has been informed by the source term assessment (Appendix 7).

5.3.3 The LandSim model inputs are included as Appendix 8 and electronic model files are included in Appendix 9. The LandSim model outputs (included as Appendix 10) and the Hydraulic Containment Model outputs are described below.

Glaciofluvial Deposits (Hydraulic Containment Model)

5.3.4 Parameterisation for the hydraulic containment model and the associated justifications Table A7.4 in Appendix 7. The hydraulic containment model inputs and outputs are included in Appendix 11 and electronic model files are included in Appendix 12. The Hydraulic Containment Model outputs are described below.

5.4 Model Results

Environmental Assessment Limits

5.4.1 The modelled concentrations are assessed against Environmental Assessment Limits (EALs). EALs used in the 2019 HRAR have been reviewed and updated, details are included in Appendix 6. For hazardous substances, the EALs are based on the Minimum Reporting Values (MRV) and for non-hazardous pollutants the EALs are based on UK Drinking Water Standards (UKDWS), Environmental Quality Standards (EQS) and background groundwater quality. The EALs for the 2024 HRAR are summarised in Table 5-1.

Table 5-1: Environmental Assessment Limits			
Parameter	2019 HRAR EAL (mg/l)	2024 HRAR EAL – Sherwood Sandstone (mg/l)	2024 HRAR EAL – Glaciofluvial Deposits (mg/l)
Hazardous Substances			
Mercury	0.00001	0.00001	0.00001
Phenols Total	0.1	0.1	0.1
Sum of TPH Fractions (‘Total’ TPH C5-53)	1	1	0.01
Non-Hazardous Pollutants			
Ammoniacal Nitrogen	9	9	0.39
Chloride	250	250	250
Notes: EAL = Environmental Assessment Limit MRV = Minimum Reporting Values UKDWS = UK Drinking Water Standards EQS = Environmental Quality Standards Derivation of 2024 HRAR EALs detailed in Appendix 6.			

Sherwood Sandstone (LandSim) Modelled Concentrations

- 5.4.2 Modelling results for hazardous substances and non-hazardous pollutants are summarised in Table A10.1 in Appendix 10. Modelling results have been assessed against the 2024 HRAR EALs. For hazardous substances the compliance point is groundwater in the Sherwood Sandstone beneath the Site. For non-hazardous pollutants the compliance point is groundwater in the Sherwood Sandstone down-gradient of the Site.
- 5.4.3 Modelling results for hazardous substances show maximum modelled 95th percentile concentrations are higher than the EAL for mercury (all cells) and total phenols (Cell 3A, Cell 3B, and Cell 4B). The first exceedance of the EAL for mercury is at 1,523 years (in Cell 3A) with the maximum concentration at 4,527 years. At the 50th percentile mercury and total phenol concentrations remain below the EAL for all cells except Cell 3A (first exceedance 13,458 years for mercury).
- 5.4.4 Modelling results for non-hazardous pollutants show maximum modelled 95th percentile concentrations are higher than the EAL for ammoniacal nitrogen and chloride. The first exceedance of the EAL for ammoniacal nitrogen is at 86 years (95th percentile concentrations) with the maximum concentration at 761 years. At the 50th

percentile ammoniacal nitrogen concentrations exceed the EAL (first exceedance 210 years) but chloride concentrations are below the EAL.

Glaciofluvial Deposits (Hydraulic Containment Model) Modelled Concentrations

- 5.4.5 Modelling results for non-hazardous pollutants and hazardous substances are summarised in Table A11.2 in Appendix 11. Modelling results have been assessed against the 2024 HRAR EALs and all hazardous substances and non-hazardous pollutants are below the 2024 HRAR EALs.

LandSim Water Balance

- 5.4.6 The leachate head will depend on the inflows, outflows and changes in storage. Inflows comprise infiltration into the landfill. Outflows comprise leakage through the engineered barrier system and off-site disposal of leachate. Off-site disposal of leachate occurs only during the operational phase when management controls are in place. In specified head mode the excess leachate is removed to the leachate treatment plant to maintain the specified head. Leachate leakage will depend on the leachate head, the properties of the liner system and the properties of the underlying unsaturated zone.
- 5.4.7 After management control ends (post closure) the leachate head will depend on infiltration and leakage, there is no extraction of leachate and no outflow to the leachate treatment plant. The head at which leachate breakout will occur is the
- 5.4.8 Figure A10.1 in Appendix 10 illustrates the leachate head, leakage from the engineered barrier system, flow to the leachate treatment plant and surface breakout for Cell 4B. During the operational phase of Cell 4B leachate heads will be managed by extraction and off-site disposal of leachate. At the end of the operational phase there is a rise in leachate heads (as infiltration exceeds leakage from the engineered barrier system) until a 11m head is reached. The head of leachate at which surface breakout occurs is modelled as 11m (based on the cell design). Surface breakout occurs at 30 years, when management control ceases, and increases between 250 years and 1000 years as the cap degrades.
- 5.4.9 There will be a requirement for a passive solution to prevent surface breakout when management control ceases. The detailed design will consider engineering solutions to minimise infiltration and the topography of the cap will be designed to promote surface water runoff and reduce infiltration.

5.5 Emissions to Groundwater

5.5.1 Groundwater compliance limits are specified in Table S3.4 of the Environmental Permit for ammoniacal nitrogen, chloride, mercury, total phenol and TPH in boreholes BH3, BH111, BH113, BH118A and BH124. Groundwater quality data collected since the 2019 HRAR is described in Section 3.3.

5.6 Emissions to Surface Water

5.6.1 Surface water emissions limits are specified in Table S3.3 of the Environmental Permit for suspended solids at SD1. Surface water quality data collected since the 2019 HRAR is described in Section 3.3.

5.7 Review of Technical Precautions

5.7.1 Leachate level (head) limits are specified in Table S3.1 of the Environmental Permit. Leachate compliance points are L3A, L3B, L3C, L4A (also referred to as L4) and L4B, and the leachate head limit is 3m above the base of the cell. The leachate heads recorded in the annual monitoring reports for 2019 to 2023 are summarised in Table 3.1 and show graphically in Figure A4.2 in Appendix 4. Leachate heads reported in the annual monitoring reports are generally below the leachate head limit (3m above the base) with the exception of L3A in April 2019 (4.70m), L3B on seven occasions between January 2019 and May 2021 (up to 6.90m), L3C on 13 occasions between January 2019 and March 2020 (up to 8.30m) and L4A in March 2019, October 2019 and October 2023 (6.26m).

5.7.2 The northern extent of Cell 3A and Cell 3C are permanently capped. The capping system for these cells, and proposed for the remaining cells, comprises a 300mm regulating layer, 1mm geomembrane, protection geotextile, 1000mm restoration soils. On side slopes drainage geocomposite is placed under the restoration soils.

5.7.3 The LandSim water balance indicates that surface breakout occurs at 30 years, when management control ceases. There will be a requirement for a passive solution to prevent surface breakout when management control ceases. Detailed design will need to consider engineering solutions to minimise infiltration and the topography of the cap will need to be designed to promote surface water runoff and reduce infiltration. Once the final engineered cap is installed the cap will reduce infiltration to the waste mass.

5.7.4 Leachate level (head) monitoring data included in the annual reports indicates that leachate heads are generally maintained within the permit limits (Section 3.2).

Ongoing monitoring of leachate levels will be required to assess the effectiveness of the leachate management system.

- 5.7.5 The design of the extension to Cell 4B incorporates an underdrainage system which will direct water to a toe drain.

6 REQUISTITE SURVEILLANCE

6.1 Groundwater Monitoring

6.1.1 Groundwater monitoring requirements are specified in Table S3.4 (compliance limits) and Table S3.7 (other monitoring) of the Environmental Permit. Borehole BH111 is no longer included in the monitoring scheme for the Site and therefore it is proposed to remove this borehole from the monitoring requirements. Groundwater elevation monitoring indicates that BH111A is up-gradient and therefore compliance limits are not proposed for BH111A. There was a change in monitoring personnel in November 2024 and collection of dip to base data at all monitoring points will commence. The proposed monitoring requirements are summarised in Table 6-1 and Table 6-2.

Table 6-1: Proposed Groundwater Compliance Limits			
Monitoring Point	Parameter	Limit	Monitoring Frequency
BH3, BH111 , BH113, BH118A and BH124	Ammoniacal Nitrogen	9mg/l	Monthly
	Chloride	250mg/l	
	Mercury	0.01µg/l	Quarterly
	Total Phenol	0.1mg/l	
	Total Petroleum Hydrocarbons	1mg/l	
Notes: Adapted from Table S3.4 of the Environmental Permit. Proposed changes in bold.			

Table 6-2: Proposed Other Groundwater Monitoring Requirements		
Monitoring Point	Parameter	Monitoring Frequency
Up-gradient MEPP	Water level, electrical conductivity, chloride, ammoniacal nitrogen, pH	Quarterly
	Total alkalinity, magnesium, potassium, total sulphates, calcium, sodium, chromium, copper, iron, lead, nickel, zinc, manganese	Annually
	Hazardous substances	Annually for first six years of operation
Down-gradient or cross-gradient MEPP	Water level, electrical conductivity, chloride, ammoniacal nitrogen, pH	Quarterly
	Total alkalinity, magnesium, potassium, total sulphates, calcium, sodium, chromium, copper, iron, lead, nickel, zinc, manganese	Annually
	Hazardous substances detected in leachate	Annually for first six years of operation

Table 6-2: Proposed Other Groundwater Monitoring Requirements		
Monitoring Point	Parameter	Monitoring Frequency
MEPP	Base of monitoring point (mAOD)	Annually
<p>Notes:</p> <p>Adapted from Table S3.7 of the Environmental Permit. Proposed changes in bold.</p> <p>MEPP = Monitoring and Extraction Point Plan. Updated MEPP in Drawing ST18115-502.</p> <p>Up-gradient Sherwood Sandstone MEPP points are BH106A and BH111A.</p> <p>Down-gradient or cross-gradient Sherwood Sandstone MEPP point are BH102D, BH113D, BH118A and BH124.</p> <p>Other MEPP points are BH3, BH102S and BH106S* (Glaciofluvial Deposit) and BH103A (Made Ground). Following construction of Cell 4B Phase 4, samples from the Cell 4B Phase 4 toe drain should be added to the monitoring schedule.</p> <p>* A replacement borehole installed in the Glaciofluvial Deposits is required to enable monitoring of both groundwater levels and quality.</p>		

6.2 Leachate Monitoring

6.2.1 Leachate monitoring requirements are specified in Table S3.1 (leachate level limits) and Table S3.9 (other monitoring requirements) of the Environmental Permit. The new leachate monitoring point L4B has been added to the monitoring scheme for the Site. The proposed updated monitoring requirements are summarised in Table 6-3 and Table 6-4.

Table 6-3: Proposed Leachate Level Limits and Monitoring Requirements			
Monitoring Point		Limit	Monitoring Frequency
Operational Cells or Phases	L3B, L3C, L4A, L4B	3m above cell base	Monthly
Non Operational Cells or Phases	L3A	3m above cell base	Quarterly
<p>Notes:</p> <p>Adapted from Table S3.1 of the Environmental Permit. Proposed changes in bold.</p> <p>Leachate monitoring point L4A was previously referred to as L4 in the Environmental Permit.</p>			

Table 6-4: Proposed Other Leachate Monitoring Requirements			
Monitoring Point		Parameter	Monitoring Frequency
Operational Cells or Phases	MEPP	pH, EC, total alkalinity, ammoniacal nitrogen, chloride, COD, BOD, cadmium, chromium, copper, lead, nickel, iron, arsenic, magnesium, potassium, total sulphates, calcium, sodium, zinc, manganese	Quarterly
		Hazardous substances	Annually
		Depth to base (mAOD)	Annually
Non Operational Cells or Phases	MEPP	pH, EC, total alkalinity, ammoniacal nitrogen, chloride, COD, BOD, cadmium, chromium, copper, lead, nickel, iron, arsenic, magnesium, potassium, total sulphates, calcium, sodium, zinc, manganese,	Annually
		Hazardous substances	Once every four years
		Depth to base (mAOD)	Annually
Notes:			
Adapted from Table S3.9 of the Environmental Permit. Proposed changes in bold.			
MEPP = Monitoring and Extraction Point Plan. Updated MEPP in Drawing ST18115-502.			
Operational Cells or Phases MEPP leachate monitoring points comprise L3B, L3C, L4A, L4B			
Non Operational Cells or Phases MEPP leachate monitoring points comprise L3A			

6.3 Surface Water Monitoring

6.3.1 Surface water monitoring requirements are specified in Table S3.3 (emission limits) and Table S3.10 (other monitoring requirements) of the Environmental Permit. No changes to the monitoring points, emissions limits, parameters, monitoring frequencies are proposed. The monitoring requirements are summarised in Table 6-5 and Table 6-6.

Table 6-5: Proposed Surface Water Emission Limits and Monitoring Requirements			
Monitoring Point	Parameter	Limit	Monitoring Frequency
SD1	Suspended solids	50mg/l	Monthly
Notes: From Table S3.3 of the Environmental Permit.			

Table 6-6: Proposed Other Surface Water Monitoring Requirements		
Monitoring Point	Parameter	Monitoring Frequency
MEPP	Ammoniacal nitrogen, chloride, suspended solids, visual oil and grease, pH, electrical conductivity	Monthly
Notes: From Table S3.10 of the Environmental Permit. MEPP = Monitoring and Extraction Point Plan. Updated MEPP in Drawing ST18115-502.		

7 CONCLUSIONS

7.1 Review of Hydrogeological Conceptual Site Model

- 7.1.1 An extension to the Site is proposed (Cell 4B Phase 4). The cell will be constructed to the same standard and accept the same waste stream as the existing Cell 4B Phases 1-3.
- 7.1.2 The main pathways from the PPC landfill (source) to groundwater, is through infiltration of rainwater through the landfill cap (once the final engineered cap is installed) and the waste mass. Leachate generated in the waste mass will migrate through the base of the engineered lining system and migrate through the Glaciofluvial Deposits (Secondary A aquifer) into the Sherwood Sandstone (Principal aquifer).
- 7.1.3 Attenuation of contaminants will be through sorption and chemical reactions in the Glaciofluvial Deposits and Sherwood Sandstone. Additional fate and transport processes like advection, dilution and dispersion within the Glaciofluvial Deposits and the underlying Sherwood Sandstone will reduce contaminant concentrations further along the flow path.

7.2 Hydrogeological Risk Assessment Modelling

- 7.2.1 The LandSim water balance for the extension indicates that when management control ceases infiltration would exceed leakage from the engineered barrier system. There will therefore be a requirement for a passive solution to prevent surface breakout when management control ceases. The detailed design will consider engineering solutions to minimise infiltration and the topography of the cap will be designed to promote surface water runoff and reduce infiltration.
- 7.2.2 The LandSim results for hazardous substances indicate that maximum modelled 95th percentile concentrations are higher than the EAL for mercury (all cells) and total phenols (Cell 3A, Cell 3B, and Cell 4B). At the 50th percentile mercury and total phenol concentrations remain below the EAL for all cells except Cell 3A. Results for non-hazardous pollutants show maximum modelled 95th percentile concentrations are higher than the EAL for ammoniacal nitrogen and chloride. At the 50th percentile ammoniacal nitrogen concentrations exceed the EAL but chloride concentrations are below the EAL.
- 7.2.3 The Glaciofluvial Deposits hydraulic containment modelling indicates that non-hazardous pollutants and hazardous substances are below the EALs.

7.3 Recommendations

The following improvements to leachate management and the monitoring network are recommended:

- a review of leachate management at the Site should be undertaken at the Site to ensure leachate level (head) compliance across all cells;
- permanent capping of the cells should be completed as soon as practical to reduce infiltration;
- a detailed borehole condition survey, including depth to base measurement, at all groundwater monitoring borehole locations. The installation of a replacement for borehole BH106S installed in the Glaciofluvial Deposits is likely to be required to allow monitoring of both groundwater levels and quality in Glaciofluvial Deposits in the vicinity of the Cell 4B extension. Replacement groundwater monitoring boreholes should be installed under full CQA supervision with an Environment Agency approved CQA Plan and a validation report should be prepared following installation of the boreholes. Following the installation of the replacement borehole and collection of a minimum of three moths of groundwater elevation and quality data the hydrogeological conceptual site model and hydrogeological risk assessment should be reviewed;
- measurement of depth to base at groundwater monitoring boreholes during each monitoring visit to confirm that the correct borehole/piezometer is sampled and to inform an assessment of any changes in the condition of the monitoring point (e.g. blockages or silting up of the borehole). Should problems be identified remedial works should be undertaken or replacement boreholes installed;
- the Cell 4B Phase 4 toe drain should be included in the monitoring schedule following the construction of the extension to Cell 4B; and
- a review of access restrictions and health and safety concerns associated with the leachate monitoring point L4B should be undertaken to enable the monitoring point to be included in the monitoring scheme.

APPENDICES

APPENDIX 1

2019 HRAR

Intended for
Quercia Limited

Date
September 2019


Project Number
1700003260

CLAYTON HALL LANDFILL HYDROGEOLOGICAL RISK ASSESSMENT UPDATE


CLAYTON HALL LANDFILL HYDROGEOLOGICAL RISK ASSESSMENT UPDATE

Project No. **1700003260**
Issue No. **4**
Date **26th September 2019**
Made by **Hazel Comyn**
Checked by **Jo Cook**
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Made by:



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EXECUTIVE SUMMARY

Ramboll UK Limited (Ramboll) was commissioned by Quercia Ltd., which is owned by Neales Waste Management, a subsidiary of Aalborg Portland ('the Client'), to update the existing Hydrogeological Risk Assessment (HRA) for the Clayton Hall Landfill Site, Chorley, Lancashire.

The first HRA for the site was undertaken by others in 2003 for the hazardous substances phenols, 'fuel oils' (hydrocarbons), mercury, total pesticides and the non-hazardous substances chloride and ammoniacal nitrogen. The HRA was subsequently updated (by others) between 2008 and 2010, when amendments to a number of parameters were agreed with the Environment Agency (EA), and then by Ramboll in 2016.

The overall objective of Ramboll's work detailed herein was to update the 2016 HRA for the site using the Landsim 2.5 software, based on the results of laboratory analysis of leachate which was sampled and submitted for analysis by Quercia between May 2017 and September 2018. The leachate analysis included the following hazardous substances: mercury; a suite of speciated phenols; a suite of speciated total petroleum hydrocarbons (TPH-CWG) indicative of 'fuel oils'; and a suite of speciated pesticides, and the non-hazardous substances ammoniacal nitrogen and chloride.

The 2019 model predicts that over time:

- Some phenol compounds are predicated to reach the compliance point (groundwater in the Sherwood Sandstone underlying the landfill) at concentrations in excess of the Environmentally Acceptable Limits (EAL) based on the 95th percentile predictions. This is principally associated with mobile phenol compounds which have been detected in leachate in cells 3A and 3B, with peak concentrations predicted to be reached in the region of 100 years. For all cells the 50th percentile predictions for phenol compounds are below the EAL.
- Mercury is predicted to reach groundwater underlying the landfill in excess of the EAL based on the 95th percentile predictions. The concentrations of mercury detected in the leachate to date are typically below laboratory method detection limits, although historically the detection limits exceeded the EAL in some monitoring rounds. The model predictions are considered to reflect the range of detection limits used historically and are inherently conservative;
- Chloride and ammoniacal nitrogen are predicted to reach the compliance point at the Town Brow at concentrations in excess of the EAL, with peak concentrations reached in the region of 200 to 600 years.

Groundwater sampling from deep monitoring wells targeting the Sherwood Sandstone aquifer is undertaken by Quercia. The available analytical results indicate that concentrations of the hazardous substances (mercury, phenol compounds, TPH) in groundwater in the Sherwood Sandstone are below relevant EAL (often below the laboratory method detection limit), and that non-hazardous substances (chloride and ammoniacal nitrogen) are typically an order of magnitude below relevant EALs.

Cell 3A is capped and cells 3C and 3B are currently being partially capped. A gas management plan has also been implemented. Concentrations of phenols in the leachate in cells 3a and 3B may reduce over time due to the ongoing gas extraction system increasing volatilisation and degradation of the more mobile phenols.

Based on the results of this HRA, recommendations have been made for Quercia to enhance the existing leachate and surface water monitoring procedures over the next 12 months, to continue to develop a robust dataset for use in future HRA updates.

1. INTRODUCTION

1.1 Brief

Ramboll UK Limited (Ramboll) was commissioned by Quercia Ltd., which is owned by Neales Waste Management, a subsidiary of Aalborg Portland ('the Client'), to update the existing Hydrogeological Risk Assessment (HRA) for the Clayton Hall Landfill Site, Chorley, Lancashire. The assessment was undertaken in general accordance with our proposal ref. LQ1700001316_2, dated 22nd February 2018.

1.2 Project Background

The Clayton Hall Landfill is located on Dawson Lane, Whittle-le-Woods, Chorley, Lancashire, PR6 7DT. The site is owned and operated by Quercia Ltd and holds Environmental Permit ref: EPR/BV1364ID/V006. The most recent amendment to the permit was a Variation decision letter dated February 2015.

As part of the permit application process in 2003, an HRA was completed by EDGE Consultants (UK) Ltd. (Edge) in 2003. An update was subsequently completed in 2008 by Coffey Geotechnics Limited (Coffey), modelling two source contaminants (nitrogen and phenol) using the model LandSim 2.5. We understand that discussions were subsequently held between the Environment Agency (EA) and The Arley Consulting Company Limited (TACCL) on behalf of Quercia Ltd. between 2008 and 2010 regarding amendments to the 2008 HRA. Based on available information, we understand that the 2010 model update (provided to Ramboll in a Landsim 2.5 by TACCL) represents the most recent version of the Landsim model agreed with the EA.

The Permit requires an HRA to be updated on a regular basis to ensure the conclusions remain appropriate in the context of the ongoing site operations and monitoring.

In response to this, the Client commissioned Ramboll (then Ramboll Environ UK Limited) to prepare an updated HRA¹ taking into account current conditions at the landfill and for the contaminants ('source terms') assessed in the 2003 HRA, and the parameters which had subsequently been agreed (by others) with the EA between 2008 and 2010. The 2016 modelling predicted that:

- The predicted 95th percentile concentrations of all hazardous substances (mercury, fuel oils, phenols and pesticides) exceeded Environmentally Acceptable Limits (EAL) for all landfill cells, with the exception of 'fuel oil'² in cell 3C. The exceedances ranged from the same order of magnitude to one order of magnitude higher than the EAL. The predicted time to the peak concentration at the base of the unsaturated zone ranged from a minimum of 30 years for pesticides (cell 3A) to 20,000 years for mercury (all cells); however, the peak times typically lay within the 100 to 300 year range.
- The predicted 95th percentile concentrations for the non-hazardous substances chloride and ammoniacal nitrogen exceeded the EALs, with the times to the peak concentrations at the compliance point being 300 years for chloride and 1,000 years for ammoniacal nitrogen.

However, the 2016 report identified that the modelling made a number of key conservative assumptions. Several of these had been accepted / agreed with the EA during previous HRAs

¹ Report entitled Clayton Hall Landfill Hydrogeological Risk Assessment Update, reference UK14-23562 Issue 1, dated 1st October 2016

² 'Fuel oil' is the term used within the Environmental Permit. This term is considered to encompass a range of hydrocarbon compounds, and Ramboll has prepared the 2019 HRA using the results of speciated total petroleum hydrocarbon (TPH) analysis, which presents the concentrations for a range of aliphatic and aromatic hydrocarbon fractions between carbon ranges C5 to C40 using the TPH Criteria Working Group methodology (TPH-CWG). This speciation is commonly used in risk assessment in the UK and accepted by the Environment Agency (EA).

(for example liner parameters, aquifer properties, use of the upper 95th percentile predicted concentration). However, Ramboll identified and included a number of alterations from the previous models to reflect current landfill conditions, namely:

- updates to the cell dimensions, including:
 - an increase in cell surface area for all cells;
 - an increase in final waste thickness; and
 - an increase in leachate head before over topping will occur; and
- an increase in the likely leachate concentration for all originally modelled compounds, based on the leachate monitoring data available at the time.

Sensitivity analysis identified that varying the cell dimensions had a moderate effect on the predicted concentrations, whilst the inclusion of biodegradation had a moderate impact on the model output for organic compounds (phenol and fuel oils). The variables used in the sensitivity analysis had little impact on the predicted concentrations of ammoniacal nitrogen or chloride.

It was recognised that conservative assumptions had been made for some parameters, primarily due to limited site-specific data, including:

- there is no groundwater emission limit for pesticides specified within the Environmental Permit. Therefore, as a conservative approach Ramboll had selected an EAL of 1×10^{-5} mg/l, based on the typical laboratory reporting limits for pesticides. Pesticides had not been detected in excess of laboratory reporting limits for several years and the source input concentration range was considered highly conservative. Additionally, a conservative range of partition coefficients was used in the model, reflecting “worst-case” pesticides (e.g. those most persistent);
- available leachate analysis for ‘fuel oils’ was relatively limited, with only four samples being analysed from 2008 to 2016. In the absence of speciated analysis for hydrocarbons (e.g. a speciated total petroleum hydrocarbon (TPH) analysis), a conservative range of partition coefficients was used to model fuel oils; and
- the superficial glacial deposits (which comprise the unsaturated zone and saturated zone below the engineered lined base of the landfill) were modelled to have the permeability of a sand (i.e. highly permeable). However, such glacial formations are typically heterogeneous, with varying amounts of clayey materials (as identified within boreholes logs from the area surrounding the landfill). The presence of clay horizons have been proven across the wider area of the site, which vary in lateral and vertical extent, although often several meters in thickness. In practice, these lithological variations will reduce the overall vertical and lateral hydraulic conductivity of these deposits, limiting the migration of leachate.

A number of recommendations were made to Quercia with regards to reviewing the model parameters, reviewing the existing landfill’s technical precautions, leachate and groundwater monitoring regime, and also obtaining additional site-specific data for the model inputs, including analysis of the leachate for speciated TPH and pesticide compounds.

1.3 Objectives

The overall objective of the work detailed herein was to update the 2016 HRA for the site using the Landsim 2.5 software, taking into account current conditions at the landfill for the contaminants (‘source terms’). The 2019 modelling has been based on the results of laboratory analysis of leachate which was sampled and submitted for analysis by Quercia between May 2017 and September 2018. In addition to mercury, chloride and ammoniacal nitrogen, the analysis included speciated for total petroleum hydrocarbons, speciated phenols and speciated pesticides.

1.4 Scope of Works

This HRA update has been undertaken in broad accordance with the EA published document 'Hydrogeological Risk Assessment for Landfills Four Yearly Review Template'³, with the following scope of works being completed:

- The Conceptual Site Model was summarised, identifying model input parameters and highlighting those parameters that require an update from the previous models, based on Ramboll's understanding of current site conditions. This included review of the following documents and files:
 - EDGE Consultants (UK) Ltd., Clayton Hall Landfill Site Environmental Setting and Installation Design (ESID) Report, Ref. CH-ESID, dated June 2003, on behalf of Quercia Ltd.;
 - EDGE Consultants (UK) Ltd., Clayton Hall Landfill Site Hydrogeological Risk Assessment Report, Ref. CH-HRA, dated June 2003, on behalf of Quercia Ltd. in support of the site PPC Application;
 - Coffey Geotechnics Ltd., Clayton Hall Landfill Hydrogeological Risk Assessment Update Report, Ref. 305.17-080707_R1.2-risk assessment, dated July 2008, on behalf of Quercia Ltd.;
 - available correspondence between the EA and TACCL between 25th November 2008 and 16th March 2010 (presented in Appendix 3); and
 - a 2010 LandSim 2.5 model file, which was updated from the 2008 HRA report based on the correspondence with the EA (we note that there does not appear to be an accompanying report associated with the 2010 model);
 - information provided by Quercia on recent cell capping, the current gas management plan, and current leachate and groundwater monitoring and sampling procedures;
- A review of the leachate levels and leachate sample analytical results provided by Quercia between May 2017 and September 2018 to identify current source term concentrations (laboratory certificates are presented in Appendix 6). This included a review of speciated laboratory data for phenols, total petroleum hydrocarbons (TPH) and pesticides.
- Identification of significant changes to the site that might affect the site conceptual model presented in the previous reports, such as the presence of additional capping layers, changes to the leachate and gas extraction systems, by way of discussion with site personnel;
- Ramboll has reviewed published literature on the main physical and chemical properties of the source compounds. In the case of phenols, a number of compounds have been detected by speciated laboratory analysis during the monitoring rounds. For modelling purposes Ramboll has grouped the phenols in five groups based on their physical and chemical properties.
- Hydrogeological risk assessment modelling using LandSim 2.5 for the source term contaminants mercury, individual speciated petroleum hydrocarbons (considered as a whole to be representative of the Environmental Permit requirements for fuel oils), the five phenol groups identified by Ramboll's review, chloride and ammoniacal nitrogen.
- Conclusions regarding the compliance of the landfill with the requirements of the Environmental Permitting Regulations 2010 and recommendations for further actions.

³ Published by the EA on the 29th April 2009, available at <https://www.gov.uk/government/publications/hydrogeological-risk-assessment-for-landfills-4-yearly-review-template>

1.5 Constraints and Limitations

This report has been prepared for the exclusive use of Quercia Limited. This report should not be used in whole or in part by any third parties without the express permission of Ramboll in writing.

Ramboll has endeavoured to assess the information provided to it during this appraisal. The report summarises information from a number of external sources and cannot offer any guarantees or warranties for the completeness or accuracy of information relied upon.

2. GENERAL SITE DESCRIPTION

The following sections describe the historical development of the current landfill and the environmental setting of the site.

2.1 Historical Development of the Landfill

The following information has been obtained from the Clayton Hall Landfill Site Environmental Setting and Installation Design Report, completed in June 2003, prepared for Quercia Ltd by EDGE Consultants UK Ltd (reference CH-ESID), herein referred to as the ESID report.

The ESID report was submitted in support of the PPC application for the continuation and completion of an existing lined landfill for non-hazardous waste. The PPC application included two lined cells; Cell 3 and Cell 4, covering approximately 6.6 hectares, plus associated ongoing areas. The PPC application also included the leachate treatment plant. Closed areas of past filling were not included within the report.

The landfill is located in a former sand quarry; topographically the surrounding land lies at 70m to 80m above Ordnance Datum (AOD). The site has been operated as a sand quarry and landfill since the 1940's; the first Waste Management License (No. 74) was granted in December 1977. This was updated in 1991 and was subsequently subject to various updates.

The majority of the site has had sand extracted from it, with backfilling of imported material or quarry waste. Old boreholes suggest varying depths of sand working, but generally not extending below 55m AOD.

Landfilling has taken place in Cell 1, Cell 2, Cell 3A, 3B, 3C and Cell 4 since 1991. At the time of the ESID report the landfill comprised the following cells:

- Cell 3, a lined cell originally constructed in three parts, cells 3A, 3B and 3C; and
- Cell 4, a lined cell which incorporates a historical clay lined cell 1.
- Cell 2, an unlined cell which historically accepted inert quarry waste (silts and silty sands). At the time of the ESID report it was 'virtually complete' and due for restoration within the following year or so.
- Cell 1, filling commenced in 1991, subsequently cell 1 was incorporated into cell 4.

The ESID report provides the following information on cell construction:

Table 2-1: ESID Report Landfill Cell Summary

Cell	ESID Report Construction Information	Date of Inception	Accepted Waste
3A	Formation level 42m AOD. 2m clay basal layer comprising locally won recompact clay with permeability less than 1×10^{-9} m/s. Geomembrane liner (HDPE) and geosynthetic clay liner (GCL) side slopes.	1994	Non hazardous, approx. 170,000 m ³ of mainly baled waste was deposited between 1994 and 2003
3B	Formation level 42m AOD. 2m thick HDPE geomembrane primary liner, over a 300m bentonite enriched soil (BES) secondary liner with permeability less than 1×10^{-10} m/s. Liner extends upslope to 47m AOD. HDPE and GCL side wall liners of 2mm thick HDPE geomembrane primary liner,	1995	

Cell	ESID Report Construction Information	Date of Inception	Accepted Waste
	over a geosynthetic (GCL) secondary liner, in a series of 4m high lifts from 47m AOD to 63m AOD, with an 8m lift to 71m AOD in 2003.		
3C	Formation level 42m AOD. 2m thick HDPE geomembrane primary liner, over a 300m bentonite enriched soil (BES) secondary liner with permeability less than 1×10^{-10} m/s. Liner extends upslope to 47m AOD. HDPE and GCL side wall liners of 2mm thick HDPE geomembrane primary liner, over a geosynthetic (GCL) secondary liner, in a series of 4m high lifts from 47m AOD to 63m AOD, with an 8m lift to 71m AOD in 2003.	1996	
4	2mm thick HDPE primary liner over a 300m thick and BES secondary liner. HDPE and GCL side slopes.	2002	Non-hazardous, approx. 10,000 m ³ of waste deposited between 2002 and 2003
2	No engineered liming system.	Approx. 1993.	Inert waste soils from quarrying operations.
1	Lined with 1m thick recompacted locally won clay with a permeability less than 1×10^{-9} m/s. Formation level 54m AOD, liner extended to c. 59m AOD.	1991	Wastes were removed from Cell 1 and deposited in Cell 3 to allow the construction of Cell 4. Cell 1 now lies within Cell 4.

Cells 1 and 2 are closed and do not form part of the site's Environmental Permit. As such they are excluded from this HRA.

The ESID report indicates that little groundwater management has been required.

2.2 Environmental Permit Monitoring Schedule

The site's current Environmental Permit (reference EPR/BV1364ID, issued 13th February 2015) contains a monitoring schedule for leachate, groundwater and surface water. These requirements are reproduced in Appendix 5 of this report.

2.3 Environmental Site Setting

The following information on the environmental site setting has been obtained from a review of publicly available information (British Geological Survey mapping, Environment Agency website) previous reports, including the ESID report, and available boreholes logs.

Table 2-2: Summary of the Environmental Site Setting

<p>Geology</p> <p>The majority of the Site is directly underlain by Devensian glaciofluvial deposits comprising sand and gravel. Underlying these, and directly underlying the west and south of the Site is Devensian Till. The underlying bedrock consists of the Sherwood Sandstone Group to depth comprising sandstone with subordinate mudstone and siltstone layers.</p> <p>Borehole logs indicate that the glaciofluvial deposits comprise horizons of more permeable sands and / or gravels which are interbedded with clays which typically have thicknesses of several meters or more. There does not appear to be a site-wide lateral correlation between the layers or lenses of sands, gravels, silts and clays. The glaciofluvial deposits are present to depths of approximately 18.7m to 26m AOD (and locally to 35m AOD), extending approximately 17.8m to 23.3m below the engineered lined base of the landfill which lies at 42m AOD. The overall thickness of the glaciofluvial deposits is ranges from approximately 20m to 50m across the site, but is more typically approximately 35 to 40m thick. The Sherwood Sandstone has been proven to underlie the glaciofluvial deposits in eight boreholes across the site.</p>
<p>Hydrogeology</p> <p>The head deposits and the Devensian glaciofluvial deposits are classified by the EA as a Secondary (undifferentiated) Aquifer. The Devensian glaciofluvial deposits are classified as a Secondary A Aquifer and the underlying Sherwood Sandstone Group is classified as a Principal Aquifer.</p> <p><i>Shallow Groundwater</i></p> <p>Shallow groundwater has been identified in the glaciofluvial deposits. Previous monitoring suggests very shallow hydraulic gradients to the south east which may be due to local variations in the hydrogeological properties of the underlying strata, e.g. presence of underlying aquitard lenses, such as glacial drift silty clay bands. Later studies produced for the site considered that there is no consistent water table within the drift deposits.</p> <p><i>Deep Groundwater</i></p> <p>Deeper groundwater lies within the deeper glaciofluvial sands and the underlying Sherwood Sandstone, typically lies between 38m and 40m AOD, i.e. approximately 2 to 4 m below the engineered landfill base. The regional hydraulic gradient may be considered to be towards the north, based on aquifer data from monitoring borehole at Lutra House (approximately 5 miles to the north) reported by the Environment Agency at 38 m AOD and previous monitoring on site (interpreted by others) suggests a northwards flow in the deep groundwater from BH106A to BH102D.</p> <p><i>Groundwater Abstractions</i></p> <p>The closest licensed groundwater abstraction is located 1.05 km south west of Site and is licensed to The Royal Ordnance for 'industrial/commercial/public services; general use'. A revoked a groundwater abstraction for public supply is was located approximately 1.1 km north east.</p> <p>There are no records of private abstractions in the vicinity of the Site.</p>
<p>Hydrology</p>

The River Lostock is located 25 m east of the Site at its closest point, and flows south to north at between 65 m AOD to 55 m AOD in the vicinity of the Site.

The Bryning Brook is located adjacent to the south of the site and flows from just to the east of the site access road at about 70 m AOD, westwards past the site and falling to below 50 m AOD at the A49 Preston Road. The Bryning Brook joins with the Bannister Brook, Bow Brook and Mill Brook before joining the River Lostock approximately 5.5 km downstream from the Site.

Field drains run along the edge of agricultural land to the east of the Site at three points along the foot of the slope bounding the Site to the east, and merge to form a small tributary that feeds into the River Lostock to the east of the Site.

3. REVIEW OF CONCEPTUAL HYDROGEOLOGICAL SITE MODEL

The conceptual hydrogeological site model that was developed previously for the ESID report is reviewed in this chapter to identify changes since the original assessment and modelling.

3.1 Sources

The contaminant source term assumptions made in the previous HRAs and relevant changes in site conditions since 2003 are summarised in Table 3-1 below.

Table 3-2 on the following pages summarises the basis for the derivation of the source term data used in the previous HRAs and this updated HRA.

The concentrations of source contaminants detected between May 2017 and September 2018 are presented in Appendix 2, and the analytical certificates in Appendix 6.

Table 3-1: Source Term Summary

Aspect	2003 assumptions and update in 2008/2010	2016 assumptions	2019 assumptions
Source composition			
Contaminant species present in the leachate	<p>2003 HRA assumed mercury, chloride, fuel oils, total pesticides and ammoniacal nitrogen as the source terms.</p> <p>The 2008 update compared the concentrations of these determinants in leachate data from 2006 to 2008 against the concentrations used as source terms in the 2003 modelling. In the 2008 HRA ammoniacal nitrogen and phenols were identified in leachate monitoring at higher concentrations than the source term concentrations used in the 2003 HRA. Only ammoniacal nitrogen and phenol were modelled in 2008.</p>	<p>A review of the 2008 to 2016 leachate monitoring presented in the site's annual reports was undertaken. Data is summarised in Table 3-2 below.</p> <p>A comparison of the minimum, mean/likely and maximum concentrations shows an increase in likely concentrations of compounds compared to the 2003 and 2008 HRAs, with the exception of pesticides.</p> <p>Pesticides were typically not detected above laboratory reporting limits, however they were recorded above the laboratory reporting limit on occasion so were included as source term contaminants for completeness. The 2003 source term concentration was considered appropriate.</p> <p>It should be noted that the general terms 'pesticides' and 'fuel oils' represent a range of compounds. In line with the 2003 assessment, a range of partition coefficients (Kd) for fuel oils was selected to represent mid to high carbon range hydrocarbons. The range used is as specified in the 2003 model. Similarly a range of Kd values was modelled for pesticides, to represent a range of pesticide compounds.</p>	<p>Leachate analytical data obtained between May 2017 and September 2018 has provided by Quercia.</p> <p>Ammoniacal nitrogen: concentrations (four monitoring rounds) have ranged from 1,600 to 3,810 mg/l (across all cells) during 2017 to 2018. This remains within the range previously detected. The 2019 modelling has used the 2017 to 2018 data.</p> <p>Chloride: The 2017-2018 dataset includes one sample result for chloride for two of the cells (cell 3A, 1,710 mg/l and cell 4, 1,960 mg/l). These fall within the range previously detected and due to limited recent analysis, the 2008 to 2014 chloride concentration range has been used in the 2019 modelling.</p> <p>Mercury: The dataset between May 2017 and September 2018 contained one analytical result for mercury from each cell. All concentrations were below the laboratory reporting limit of <0.00001 mg/l; this reporting limit is equal to the EAL. Previous results were generally below relevant laboratory reporting limits, although the reporting limit was higher than the EAL. The input concentrations for the 2019 modelling has been calculated from all available analysis (i.e. includes analysis prior to 2017). The minimum and most likely concentrations of mercury have been selected based on the range of lab reporting limits for mercury.</p>

Aspect	2003 assumptions and update in 2008/2010	2016 assumptions	2019 assumptions
			<p>Pesticides: below laboratory reporting limits (i.e. less than 0.0001 mg/l to <0.000004 mg/l) in all leachate cells during each of the three rounds of analysis, with the exception of one isolated detection of p,p-TDE (DDD) during one monitoring round in one cell (cell 3B, May 2017). There is no EAL within the Environmental Permit for pesticides. Based on the speciated results obtained between May 2017 and September 2018, and the previous results where pesticides were generally below laboratory reporting limits, pesticides have not been modelled in 2019.</p> <p>Phenol: a range of phenol compounds have been detected by speciated phenol analysis between May 2017 and September 2018. These compounds, and Ramboll's approach to modelling phenols is discussed in section 3.2.</p> <p>'Fuel oils': 'Fuel oil' is the term used within the Environmental Permit. This term is considered to encompass a range of hydrocarbon compounds. Previous analysis for a broad range of hydrocarbons was undertaken using several analytical methods which are not considered directly comparable. In order to obtain consistent hydrocarbon analysis which can be used within the model the 2017 – 2018 analysis included speciated total petroleum hydrocarbons (speciated TPH). This presents the concentrations of a range of aliphatic and aromatic hydrocarbon fractions between carbon ranges C5 to C40 using the TPH Criteria Working Group methodology (TPH-CWG). This speciation is commonly used in risk</p>

Aspect	2003 assumptions and update in 2008/2010	2016 assumptions	2019 assumptions
			<p>assessment in the UK and accepted by the Environment Agency (EA).</p> <p>Speciated TPH was analysed in three monitoring rounds for each cell. The analysis detected a number of TPH fractions between carbon range 5 and 35 (considered to be representative of 'fuel oils'). The total TPH concentrations (based on the sum of all TPH fractions analysed) range from 0.58 to 1.76 mg/l; 0.58 mg/l is the lowest recorded TPH concentration to date. The 2019 HRA has modelled individual TPH fractions based on the speciated TPH concentrations detected between May 2017 and September 2018, using chemical parameters which are relevant for each of the TPH fractions. For each landfill cell, the predicted concentration of each TPH fraction at the compliance point has been summed for comparison against the EAL.</p>
Control of source			
Cell area	<p>The source area comprises Cells 3A, 3BB, 3CC and 4 of the landfill, the locations of which are shown on Figure 2, Appendix 1.</p> <ul style="list-style-type: none"> – 2010 Cell 3A: 0.25 hectares; – 2010 Cell 3B: 0.812 hectares; – 2010 Cell 3C: 0.462 hectares; and – 2010 Cell 4: 1.2168 hectares 	<p>The current dimensions and of each cell have been measured from the December 2015 topographic drawing (reproduced as Figure 3, Appendix 1). This indicates that all cells have increased in size since the previous HRAs:</p> <ul style="list-style-type: none"> – Cell 3A: 1.2 hectares; – Cell 3B: 1.1 hectares; – Cell 3C: 1.4 hectares; and – Cell 4: 2.0 hectares. 	Cell dimensions as per the 2016 HRA.
Cell use	All areas are considered to be in active use for disposal of non-hazardous wastes.	Cell 3A, 3B and 3C are no longer active. Cell 4 remains active.	As 2016.

Aspect	2003 assumptions and update in 2008/2010	2016 assumptions	2019 assumptions
		Wastes are as detailed on the environmental permit.	
Waste thickness	Minimum waste thickness of 10m. Maximum waste thickness of 20m.	Maximum waste thickness of 40m estimated from 2015 topographic survey. Minimum waste thickness assumed 10m for purpose of modelling and to reflect that used in 2010 HRA.	Increased maximum waste thickness by 6m to 46m. The topographical survey suggests that the increase in waste thickness has only affected the central area of the landfill. The minimum waste thickness of 10m is considered to remain applicable.
Head of leachate when surface water break out occurs	Cell 3A, 3BB and 3CC: 34m; and Cell 4: 27m.	Calculated as height from cell base to lowest topographic point at edge of landfill cell. Estimated from 2015 topographic survey: <ul style="list-style-type: none"> – Cell 3A, 3B3B and 3C: 30m; and – Cell 4: 16m. 	As 2016.
Basal drainage	300mm piped stone blanket.	No change.	As 2016.
Engineered barrier system	Each cell is lined (refer to Table 2.2 Pathway Characteristics for liner details).	Each cell is lined (refer to Table 2.2 Pathway Characteristics for liner details).	As 2016.
Basal liner defects	Five pin holes <5mm ² and two holes 5-100mm ² per hectare.	No change.	As 2016.
Infiltration	Effective rainfall, capping infiltration and infiltration to grassland agreed for 2010 update.	No change.	As 2016.
Leachate head	Leachate head controlled at 1m within each cell. A maximum leachate head of 3m is allowed in the site's Permit in the case of pump failure. The 2008 HRA assumed a minimum head of 0.25m, likely 1m and maximum 3m. Following correspondence with the	Annual reports detail leachate head varying from around 0.2 to 2m but more typically in the range 0.5-1.5. The increased head of 10m as modelled in 2010 has been used to demonstrate sensitivity of this parameter.	As 2016.

Aspect	2003 assumptions and update in 2008/2010	2016 assumptions	2019 assumptions
	EA, the maximum head was revised to 10m to demonstrate impact of the elevated leachate head recorded on occasion.		
Landfill gas extraction and volatile source depletion	-	-	<p>The site operates a Gas Management Plan and Control Specification (revision 1: January 2019). This includes the construction of a permanent gas collection system subject to CQA protocols. The Gas Management Plan has been developed to reflect the methodology and protocols that will be adopted at the Clayton Hall landfill site and reflects the requirements relating to gas management as detailed in the site's Environmental Permit (Permit Number EPR/BV1364ID/V006). The system will be operated by an independent landfill gas contractor (YLEM Energy).</p> <p>Based on this, the model assumes that the ongoing landfill gas extraction will reduce volatile contaminants (i.e. source depletion) within the leachate over time (model default assumptions).</p> <p>TPH and phenol compounds are considered volatile when the boiling point is greater than 250°C at 101kPa, and/or vapour pressure is less than >0.01kPa at 293.15K. These measures are both noted in the EU solvents directive and are considered suitable for determination of volatility in this context.</p> <p>Ramboll has reviewed the boiling point and vapour pressure of the TPH fractions and phenol groups and where applicable has set the model to apply the default assumptions for a volatile source.</p>

Table 3-2: Leachate Concentrations Detected (range presented for all landfill cells)

Historical Concentrations (mg/l)		Ammoniacal Nitrogen (mg/l)	Chloride (mg/l)	Mercury (mg/l)	Phenols(mg/l)	Fuel Oil (hydrocarbons) (mg/l) (2008-2016 data 'TPH oil and grease')	Pesticides (mg/l)
2003 HRA	Min	1	200	ND	0.01	1	0.001
	Likely	237	921	ND	0.07	16	0.012
	Max	1190	4610	0.02	0.35	80	0.06
2006	Min	9.3	292	ND	0.01	1	Not detected
	Likely	485	517	ND	0.5	3.9	Not detected
	Max	856	731	ND	2.5	8	Not detected
2007-2008	Min	7.5	780	ND	0.01	1	No available data
	Likely	1042	780	ND	0.8	8.8	No available data
	Max	1600	780	ND	2.6	26	No available data
2008 HRA update - values used	Min	7.5	not modelled		0.01	not modelled	
	Likely	860			0.55		
	Max	1600			2.6		
2008-2016*	Min	2.4	2	0.001	0.01	20***	0.00001
	Likely	1461	1228	0.01	7	45***	0.00001 ¹
	Max	4620	3410	0.1	59	91***	0.0008
May 2017 – September 2018 (includes speciated pesticide, phenol and TPH analysis)	Min	1,600	1,710 ³	<0.00001 ²	A number of phenol compounds were detected by speciated analysis. See	Sum of all TPH fractions 0.58	Speciated pesticides all <0.0001 or lower except p,p-TDE (DDD) at 0.18. Pesticides not modelled in 2019.

Historical Concentrations (mg/l)		Ammoniacal Nitrogen (mg/l)	Chloride (mg/l)	Mercury (mg/l)	Phenols(mg/l)	Fuel Oil (hydrocarbons) (mg/l) (2008-2016 data 'TPH oil and grease')	Pesticides (mg/l)
					discussion in section 3.2		
	Likely	N/A	N/A	N/A	N/A	N/A	N/A
	Max	3,810	1,960 ³	<0.00001 ²	A number of phenol compounds were detected by speciated analysis. See discussion in section 3.2	Sum of all TPH fractions 1.76	Speciated pesticides <0.001 mg/l or lower except p,p-TDE (DDD), detected on one occasion at 0.0018 mg/l. Pesticides not modelled in 2019.

¹estimated based on data provided. Pesticides rarely detected above laboratory reporting limits.

²based on a dataset of four results per cell.

³ based on a limited dataset of two results per cell. Concentrations detected lie within the range modelled in 2016 (based on 2008 to 2014 data); therefore the 2008 to 2014 source input is considered to remain appropriate.

3.2 Speciated Phenol Analysis

Speciated phenol analysis was undertaken from leachate samples recovered from each cell in May 2017, June 2017, October 2017 and September 2018.

Samples obtained in May, June and October 2017 were analysed for a suite of 20 speciated phenols which included phenol; a range of methylphenols, nitrophenols, chlorophenols, dichlorophenols, tetrachlorophenols, pentachlorophenol, and dinitrophenols. Samples analysed in September 2018 were analysed for compounds including resorcinol, catechol, phenol, cresols (methylphenols), xylenols (dimethylphenols), naphthol, 2,3,5-trimethylphenol and 2-isopropylphenol.

The full suite of determinands can be seen in the lab certificates in Appendix 6.

A range of phenol compounds were identified during the monitoring; phenol, methylphenyls and dimethylphenol were detected in all monitoring rounds, with some monitoring rounds also detecting trichlorophenol, tetrachlorophenol, and (in one round) dinitrophenol and pentachlorophenol.

In order to represent the range of phenols detected within the analysis, Ramboll has grouped the detected phenol compounds with similar characteristics based on the chemical parameters which are programmed within the Landsim Model, and supplemented with published data for partition coefficient and degradation rates.

Table 3-3 presents the phenol groups which have been identified, and the parameters which have been used in the subsequent Landsim modelling:

Table 3-3: Summary of Phenol Groups, Concentrations, Soil Adsorption Coefficient (Koc) and Degradation Rates

Phenol group name	Compounds included in group	Partition coefficient (presented as a range of inputs used in the model)	Degradation rate (years). Applicable for all landfill cells.	Concentration range in leachate (minimum to maximum mg/l) detected within each phenol group, per cell			
				Cell 3A	Cell 3B	Cell 3C	Cell 4
Phenols group 1 - phenol +	Phenol, resorcinol, catechol	10, 28.8, 117	1	<MRL (all results)	<MRL – 3.47 (max. conc. is phenol)	<MRL – 2.61 (max. conc. is phenol)	<MRL – 0.74 (max. conc. is phenol)
Phenols group 2 - cresols +	2-,3-,4-methylphenols, DNOC	22, 158, 316	1	<MRL – 0.215 (max. conc. is 2-methylphenol)	0.0168 – 11.0 (max. conc. is DNOC)	<MRL – 2.620 (max. conc. is 4-methylphenol)	<MRL – 9.1 (max. conc. is DNOC)
Phenols group 3 - xyenols +	xyleneols, naphthol, 2,3,5trimethylphenol, 2-isopropylphenol, 2,4xylenol	170, 430, 800	1	<MRL – 0.0516 (max. conc. is 2,4-dimethylphenol)	<MRL – 0.0592 (max. conc. is 2,4-dimethylphenol)	<MRL – 0.0177 (max. conc. is 2,4-dimethylphenol)	<MRL – 0.00179 (max. conc. is 2,4-dimethylphenol)
Phenols group 4 - chlorophenols +	All chlorophenols, including pentachlorophenol	140, 500, 3000	1×10^{-9}	<MRL – 0.00293 (max. conc. is 2,4-dichlorophenol)	0.000839 – 0.0828 (max. conc. is pentachlorophenol)	0.000975 – 0.144 (max. conc. is pentachlorophenol)	0.000979 – 0.191 (max. conc. is pentachlorophenol)
Phenols group 5 - nitrophenols +	2-, 4-nitrophenol, 2,4dinotrophenol, dinoseb	10,60,500	1	<MRL	<MRL	<MRL – 0.0273 (max. conc. 2-nitrophenol)	<MRL
Note: Degradation rate have been assumed as 1year as per phenols for all readily biodegradable groups (groups 1, 2, 3 and 5). Assumed to be 1×10^{-9} years for non-readily biodegradable groups (group 5) to reflect limited potential. This is conservative in comparison to ranges provided in e.g. HSDB.							

3.3 Pathways

In order for contaminants (sources) to reach potential receptors, there has to be a viable pathway for the contaminant. The assumptions made in the 2003 HRA and relevant changes in site conditions since 2003 are summarised in Table 3-4 below. In summary, the previous pathway characteristics were unaltered for the 2008 HRA update.

Table 3-4: Pathway Characteristics

Aspect	2003 assumptions and update in 2008/2010	Current condition/alterations
Cell liner	<p>Cell 3A: 2m clay basal layer, geomembrane liner (HDPE) and geosynthetic clay liner (GCL) side slopes. Leachate drains to Cells 3B and 3C. 2003 HRA modelled as above, 2008 modelled as 3B and 3C.</p> <p>Cell 3B: HDPE and bentonite enriched soil (BES) basal layer, HDPE and GCL side slopes.</p> <p>Cell 3C: as per Cell 3B.</p> <p>Cell 4: HDPE and BES basal layer, HDPE and 0.5m thick compacted clay on side slopes.</p> <p>For Cells 3B, 3C and 4: the thickness of the BES is 0.3 to 0.35m. The hydraulic conductivity of the BES is 4×10^{-11} to 1×10^{-10} m/s (from conformance testing). Agreed with EA in 2010.</p> <p>Leachates from Cell 4 are managed separately from Cell 3A, B & C.</p>	<p>Assumptions for 3B, 3C and 4 as agreed in 2010.</p> <p>Assumptions for Cell 3A as provided in 2003 HRA.</p>
Geology	<p>Minimum 2m thick unsaturated zone comprising fine sand.</p> <p>Permeability: 10^{-5} to 10^{-4} m/s (as dug sand tests); 7×10^{-5} to 7×10^{-6} m/s (based on in situ permeability from falling head tests).</p> <p>Hydraulic gradient range as advised by EA for regional flow in Triassic aquifer, 0.002 (minimum) to 0.01 (maximum) with 0.004 most likely.</p> <p>Regional groundwater flow direction to the north / northeast, as advised by the EA in 2003.</p>	<p>Groundwater monitoring (Ramboll 2016) confirms that the likely depth to groundwater beneath the landfill cell bases (i.e. groundwater in the Sherwood Sandstone) remains approximately 2m below the base of the landfill.</p> <p>Permeability assumptions remain as per the 2003, 2008 / 2010 and 2016 models (fine sand). However, Ramboll considers this to be a conservative assumption.</p> <p>Boreholes drilled around the landfill (including the current Environmental Permit monitoring locations) have identified the glacial deposits comprising horizons of permeable sands and/or gravels, interbedded with clays which typically have thicknesses of several meters or more. These clay horizons are likely to reduce connectivity (and overall permeability) of the</p>

Aspect	2003 assumptions and update in 2008/2010	Current condition/alterations
		<p>glacial deposits underlying the landfill in both the unsaturated and saturated zones, and potentially influencing bulk aquifer flow.</p> <p>Up-hydraulic gradient groundwater quality similar to that assumed previously and within the Environmentally Acceptable Levels (EALs) (demonstrated by Environmental Permit groundwater monitoring).</p> <p>Regional groundwater flow data from the EA remains as originally agreed with the EA (north/northeast).</p>

3.4 Receptors

The Environmental Permitting (England and Wales) Regulations 2010 require that the entry of hazardous substances into groundwater must be prevented and that the entry of non-hazardous pollutants into groundwater must be minimised to prevent pollution.

The assumptions regarding the receptor characteristics made in the 2003 HRA and relevant changes in site conditions since are summarised in Table 3-5 below. In summary, the receptor characteristics remain unaltered from the 2008/2010 update.

Table 3-5: Receptor Characteristics

2003 assumptions and update in 2008/2010	Current condition/alterations
<p>Hazardous substances:</p> <p>Regional groundwater table at approx. 40m AOD within superficial basal sands, considered to be in hydraulic continuity with groundwater in the Sherwood Sandstone Group Principal Aquifer, the top of which is at approximately 25m AOD.</p> <p>Compliance monitoring points are located adjacent to the perimeter of the landfill.</p>	<p>Hazardous substances:</p> <p>No change in assumptions. Groundwater at the base of the unsaturated zone (i.e. the water table within the deep glacial deposits, 2m below the base of the landfill) represents the compliance point for hazardous substances.</p>
<p>Non-hazardous substances:</p> <p>EA advised a compliance point at Town Brow Farm, approximately 525m to the north northwest of the nearest point of Cell 3A.</p> <p>BH101 on the boundary of the historical landfill is specified in 2010 update as a compliance point. The measured distance is similar to Town Brow Farm.</p>	<p>Non-hazardous substances:</p> <p>The Ramboll 2016 groundwater monitoring report identified that the closest licensed groundwater abstraction is located 1.05 km southwest of site and is licensed to The Royal Ordnance for 'industrial/ commercial /public services; general use'.</p> <p>There are no records of private abstractions in the vicinity of the Site.</p> <p>No change to the compliance point.</p>

Groundwater emission limits, as specified within the Environmental Permit, are reproduced in Table 3-6 below. These have been selected as Environmentally Acceptable Levels (EALs) within the model.

Table 3-6: Environmentally Acceptable Levels (EAL)

Parameter	Environmentally Acceptable Level (EAL)
Ammoniacal Nitrogen	9 mg/l
Chloride	250 mg/l
Mercury	0.01 µg/l (equivalent to 1×10^{-5} mg/l)
Total Phenol	0.1 mg/l
Fuel oils (total TPH)	1 mg/l
Pesticides	Unspecified In 2016 the typical lab detection limit of 1×10^{-5} mg/l used in the absence of an Environmental Permit EAL. This is considered to represent a conservative EAL.

3.5 Summary of Key Changes to Conceptual Model

The 2019 conceptual model is subject to the following key updates:

- an increase in cell surface area for all cells from the 2003 and 2008/2010 models;
- an increase in final waste thickness to a maximum of 46m (minimum waste thickness remains as 10m);
- an increase in leachate head before over topping will occur (increased from the 2003 and 2008/2010 models);
- use of speciated TPH and speciated phenol analytical results to better define the contaminant sources;
- applying the model default approach to the degradation of volatile contaminants (including some phenols and TPH fractions), based on gas extraction;
- speciated pesticides have not been modelled as the laboratory data obtained to date suggests that the majority of pesticides remains below laboratory reporting limits. Note that recommendations for continued pesticide monitoring within the leachate are made in section 6.

4. HYDROGEOLOGICAL RISK ASSESSMENT

4.1 Numerical Modelling

A 'complex' HRA has been undertaken in accordance with relevant EA guidance using Landsim (v2.5.17 Environment Agency, 2007), which is the EA's preferred model for assessing the risks to groundwater from landfill sites.

The input parameters for the model are presented in Appendix 2. These are primarily based on the parameters used during the original modelling exercise undertaken in 2003, however they have been updated where appropriate based on more recent data or more accurate recent literature values (as described in Section 3).

Predicted concentrations have been presented for the 50th percentile confidence level and the 95th percentile confidence level. These outputs indicate the degree of confidence about a particular outcome; EA guidance indicates that the 50th percentile could be considered as the 'most likely' prediction, with the 95th percentile considered to be a reasonable worst case against which it is acceptable to make decisions taking into account the assumptions and limitations of the modelling process⁴.

Model input and output files are presented in Appendix 4. Electronic Landsim v2.5.17 files are also provided under separate cover.

4.2 Emissions to Groundwater

4.2.1 Hazardous substances

The modelled (predicted) concentrations of hazardous substances at the point at which they enter groundwater (i.e. base of the unsaturated zone) are summarised in Table 4-1.

Table 4-1: Hazardous substances - predicted concentrations at the base of the unsaturated zone, 2019

Parameter	EAL (mg/l)	Predicted peak concentration at base of the unsaturated zone (mg/l)		Time to peak (range if 50 th and 95 th percentiles peak at different times)
		50th percentile	95th percentile	
Cell 3A				
Mercury	1x10 ⁻⁵	1.2 x10 ⁻⁵	1.8 x10 ⁻⁴	2,000
Pesticides	No EAL specified in permit	Not applicable – see note	Not applicable – see note	Not applicable – see note
Phenols group 1 - phenol +	0.1	0.008	0.128	<100
Phenols group 2 - cresols +	0.1	0.004	0.046	<100
Phenols group 3 - xlenols +	0.1	5.7 x10 ⁻⁴	0.006	<100
Phenols group 4 - chlorophenols +	0.1	0.008	0.08	<100
Phenols group 5 - nitrophenols +	0.1	2.2 x10 ⁻⁴	6.5 x10 ⁻⁴	<100

⁴ EA publication Hydrogeological Risk Assessments for Landfills and the Derivation of Groundwater Control and Trigger Levels, Legislative Update for EPR 2010.

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Parameter	EAL (mg/l)	Predicted peak concentration at base of the unsaturated zone (mg/l)		Time to peak (range if 50 th and 95 th percentiles peak at different times)
		50th percentile	95th percentile	
Phenols TOTAL (sum of 5 above groups for comparison to total phenol EAL in the Permit)	0.1	0.02	0.26	<100
TPH Aliphatic C5-6	1	0.033	0.18	<100
TPH Aliphatic C6-8	1	3×10^{-4}	0.014	<100
TPH Aliphatic C8-10	1	$< 1 \times 10^{-5}$	6.5×10^{-5}	<100
TPH Aliphatic C10-12	1	$< 1 \times 10^{-5}$	$< 1 \times 10^{-5}$	N/A
TPH Aliphatic C12-16	1	$< 1 \times 10^{-5}$	$< 1 \times 10^{-5}$	N/A
TPH Aliphatic C16-35	1	$< 1 \times 10^{-5}$	$< 1 \times 10^{-5}$	N/A
TPH Aromatic C5-7	1	0.002	0.0063	<100
TPH Aromatic C7-8	1	3.4×10^{-4}	0.004	<100
TPH Aromatic C8-10	1	1×10^{-4}	0.0075	<100
TPH Aromatic C10-12	1	1×10^{-4}	0.013	<100
TPH Aromatic C12-16	1	2×10^{-5}	0.011	<100
TPH Aromatic C16-21	1	1.8×10^{-5}	0.006	<100
TPH Aromatic C21-35	1	$< 1 \times 10^{-5}$	6.5×10^{-5}	<100
Sum of TPH Fractions ('Total' TPH C5-53)	1	0.35	0.24	<100
Cell 3B				
Mercury	1×10^{-5}	$< 1 \times 10^{-5}$	3×10^{-5}	18,000
Pesticides	No EAL specified in permit	Not applicable – see note	Not applicable – see note	Not applicable – see note
Phenols group 1 - phenol +	0.1	0.004	0.4	<100
Phenols group 2 - cresols +	0.1	0.002	0.78	<100
Phenols group 3 - xlenols +	0.1	$< 1 \times 10^{-5}$	0.0017	<100
Phenols group 4 - chlorophenols +	0.1	1.4×10^{-4}	0.028	<100
Phenols group 5 - nitrophenols +	0.1	$< 1 \times 10^{-5}$	1.36×10^{-4}	<100
Phenols TOTAL (sum of 5 above groups for comparison to total phenol EAL in the Permit)	0.1	0.006	1.2	<100
TPH Aliphatic C5-6	1	4×10^{-5}	0.03	30
TPH Aliphatic C6-8	1	$< 1 \times 10^{-5}$	4×10^{-5}	<100
TPH Aliphatic C8-10	1	$< 1 \times 10^{-5}$	$< 1 \times 10^{-5}$	-
TPH Aliphatic C10-12	1	$< 1 \times 10^{-5}$	$< 1 \times 10^{-5}$	-

Parameter	EAL (mg/l)	Predicted peak concentration at base of the unsaturated zone (mg/l)		Time to peak (range if 50 th and 95 th percentiles peak at different times)
		50th percentile	95th percentile	
TPH Aliphatic C12-16	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aliphatic C16-35	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aromatic C5-7	1	< 1x10 ⁻⁵	1.4 x10 ⁻³	<100
TPH Aromatic C7-8	1	< 1x10 ⁻⁵	2.5 x10 ⁻⁴	<100
TPH Aromatic C8-10	1	< 1x10 ⁻⁵	4 x10 ⁻⁵	<100
TPH Aromatic C10-12	1	< 1x10 ⁻⁵	1.5 x10 ⁻⁵	<100
TPH Aromatic C12-16	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aromatic C16-21	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aromatic C21-35	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
Sum of TPH Fractions ('Total' TPH C5-53)	1	4 x10 ⁻⁵	0.03	<100
Cell 3c				
Mercury	1x10 ⁻⁵	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
Pesticides	No EAL specified in permit	Not applicable – see note	Not applicable – see note	Not applicable – see note
Phenols group 1 - phenol +	0.1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
Phenols group 2 - cresols +	0.1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
Phenols group 3 - xlenols +	0.1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
Phenols group 4 - chlorophenols +	0.1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
Phenols group 5 - nitrophenols +	0.1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
Phenols TOTAL (sum of 5 above groups for comparison to total phenol EAL in the Permit)	0.1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aliphatic C5-6	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aliphatic C6-8	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aliphatic C8-10	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aliphatic C10-12	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aliphatic C12-16	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aliphatic C16-35	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aromatic C5-7	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aromatic C7-8	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aromatic C8-10	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aromatic C10-12	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A

Parameter	EAL (mg/l)	Predicted peak concentration at base of the unsaturated zone (mg/l)		Time to peak (range if 50 th and 95 th percentiles peak at different times)
		50th percentile	95th percentile	
TPH Aromatic C12-16	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aromatic C16-21	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
TPH Aromatic C21-35	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A
Sum of TPH Fractions ('Total' TPH C5-53)	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	N/A-
Cell 4				
Mercury	1x10 ⁻⁵	< 1x10 ⁻⁵	1.2 x10⁻⁵	20,000
Pesticides	No EAL specified in permit	Not applicable – see note	Not applicable – see note	Not applicable – see note
Phenols group 1 - phenol +	0.1	3 x10 ⁻⁴	0.023	<100
Phenols group 2 - cresols +	0.1	4.6 x10 ⁻⁴	0.067	<100
Phenols group 3 - xlenols +	0.1	< 1x10 ⁻⁵	3.6 x10 ⁻⁴	<100
Phenols group 4 - chlorophenols +	0.1	7 x10 ⁻⁵	8.3 x10 ⁻⁴	<100
Phenols group 5 - nitrophenols +	0.1	< 1x10 ⁻⁵	8 x10 ⁻⁵	<100
Phenols TOTAL (sum of 5 above groups for comparison to total phenol EAL specified in the Permit)	0.1	8 x10 ⁻⁴	0.09	<100
TPH Aliphatic C5-6	1	3.8 x10 ⁻⁵	0.0078	<100
TPH Aliphatic C6-8	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aliphatic C8-10	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aliphatic C10-12	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aliphatic C12-16	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aliphatic C16-35	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aromatic C5-7	1	2.3 x10 ⁻⁵	7 x10 ⁻⁴	<100
TPH Aromatic C7-8	1	< 1x10 ⁻⁵	9 x10 ⁻⁵	<100
TPH Aromatic C8-10	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aromatic C10-12	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aromatic C12-16	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aromatic C16-21	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
TPH Aromatic C21-35	1	< 1x10 ⁻⁵	< 1x10 ⁻⁵	-
Sum of TPH Fractions ('Total' TPH C5-53)	1	6 x10 ⁻⁵	0.008	<100

Parameter	EAL (mg/l)	Predicted peak concentration at base of the unsaturated zone (mg/l)		Time to peak (range if 50 th and 95 th percentiles peak at different times)
		50th percentile	95th percentile	
Notes: Pesticides have not been modelled in 2019; refer to table 3-1 for justification. Environmentally Acceptable Limit from the Environmental Permit Bold text indicates a predicted exceedance of the EAL at the compliance point				

4.2.2 Non-hazardous substances

The predicted concentrations of non-hazardous substances at the Town Brow Farm compliance point are summarised in Table 4-3. It should be noted that the model provides a single cumulative predicted concentration for the landfill as a whole at the compliance point, rather than a concentration per landfill cell.

Table 4-2: Predicted concentrations: non-hazardous substances at the Town Brow Farm compliance point

Parameter	EAL (mg/l)	Predicted peak concentration at compliance point (mg/l)		Time to peak (range of 50 th and 95 th percentiles peak at different times)
		50th percentile	95th percentile	Years
Ammoniacal Nitrogen	9	160	3,000	1,000
Chloride	250	38	1,000	200-600
Notes: N/A indicates that the contaminant is not predicted to reach the compliance point Environmentally Acceptable Limit from the Environmental Permit Bold text indicates a predicted exceedance of the EAL at the compliance point				

4.2.3 Summary

Hazardous Substances

The 2019 HRA has been updated using leachate monitoring analysis obtained by Quercia, which provides speciated source term data for the hazardous substances 'fuel oils' (as speciated TPH-CWG), speciated phenols and speciated pesticides.

The speciated leachate analysis has allowed model parameters to be refined, principally with regards to degradation rates and partition coefficient (Kd). These changes have reduced the predicted peak concentrations at groundwater in the Sherwood Sandstone aquifer underlying the cells. The 2019 predicted results for each hazardous compound are summarised below:

- Mercury has been below laboratory method detection limits in the majority of samples of leachate analysed since 2008. The current laboratory method reporting limits is 0.01 ug/l, (equivalent to 0.00001 mg/l or 1×10^{-5} mg/l) and is equal to the EAL, although historically some of the method reporting limits have exceeded the EAL. As a conservative approach and because an EAL has been specified in the Environmental Permit, the 2019 modelling has included mercury. The model does not predict a exceedance of the EAL at the compliance point based on the 50th percentile (most likely) for any cells. It does predict a marginal exceedance for cells 3A and 4 at the 95th percentile confidence level, although the timescales

for the peak concentrations to reach the compliance point are in the region of 2,000 to 20,000 years.

- For pesticides, the speciated analysis suggests that pesticides are typically below laboratory detection limits within the leachate. Furthermore, there is no EAL specified in the Environmental Permit for pesticides. Based on this, pesticides have not been modelled in the 2019 HRA. Subject to future leachate monitoring and agreement with the EA, future HRA updates may be able to discount modelling for pesticides.
- Analysing the leachate for speciated TPH has allowed fraction specific partition coefficients and degradation rates to be used within the 2019 model. The predicted peak concentrations of individual TPH fractions, together with the predicted peak concentrations of the sum of all fractions, are below the EAL for each cell (based on the 50th percentile and the 95th percentile predictions).
- Speciated phenol analysis has detected a range of phenols within the leachate in each cell, with the concentrations and types of phenol compound detected varying between the cells and between monitoring rounds. For the 2019 model the phenol compounds detected have been grouped into five groups of similar partition coefficients and degradation rates.

Of these five groups, the modelling suggests that for cells 3A and 3B, the more mobile phenol compounds (those with lower partition coefficients), principally phenol, resorcinol and catechol (phenol group 1) and cresols (methylphenols, phenol group 2) are predicted to exceed the EAL at the 95th percentile confidence level. However, at the more likely 50th percentile confidence level the model predicts peak concentrations of these phenol groups to be lower than the EAL. The timescale predicted for the peak concentrations to reach the compliance point (groundwater beneath the cells) is in the region of 100 years.

Cell 3B leachate was typically found to contain higher concentrations of the group 1 and 2 phenol compounds than the other cells (most notably cresols i.e. methylphenols). Capping works in cells 3A and 3B have now been completed (see section 4.4) and the ongoing gas extraction programme (section 4.4) is considered likely to increase the potential for volatilisation and degradation of these phenol groups.

Non-hazardous Substances

For the non-hazardous substances chloride and ammoniacal nitrogen, the 2019 HRA predicts that:

- Peak ammoniacal nitrogen concentrations exceed the EAL at 50th percentile and 95th percentile confidence level. However, the predicted time to reach peak concentrations at the compliance point (Town Brow Farm) is in the region of 1,000 years.
- Peak chloride concentrations are an order of magnitude below the EAL at the most likely 50th percentile confidence level, but exceed the EAL at the 95th percentile confidence level. The predicted time to reach peak concentrations at the compliance point is in the region of 200 to 600 years.

Groundwater Monitoring Data

Groundwater monitoring data obtained by Quercia as part of its Environmental Permit monitoring between 2008 and 2019 indicates that concentrations of phenol, cresols and xylenols within deep monitoring wells targeting the Sherwood Sandstone were below laboratory method reporting limits of 0.01 mg/l.

Concentrations of ammoniacal nitrogen within deep monitoring wells is typically one order of magnitude below the EAL. This includes BH118A, which is located north of cell 3A (i.e. between the landfill and the Town Brow compliance point). One result was recorded in deep BH106A

(south of cell 4) in December 2017 where a concentration of 9.21 mg/l was reported; however subsequent analysis was below the EAL.

4.3 Sensitivity Analysis, Assumptions and Limitations

A sensitivity analysis was undertaken in the 2016 HRA to assess the relative importance of the model input parameters. General comments on the sensitivity and confidence in the parameters used within the base model (i.e. the model presented in Sections 3 and 4 of this report) are presented in Appendix 2. The 2016 sensitivity analysis is considered to remain applicable to the 2019 HRA.

For many parameters such as the geological properties of the unsaturated and saturated zones, there is no new available data to justify revision to the previously-defined input ranges. In these cases, the ranges chosen for the previous models were reviewed and were only altered in the sensitivity analysis if appropriate. However, it should be noted that Ramboll considers the permeability of the glacial deposits in the unsaturated and saturated zone to be a conservative assumption, given that they are representative of a sand. The actual connectivity and permeability of the glacial deposits is likely to be influenced by the presence of clay horizons.

The key findings of the sensitivity analysis include:

- The cell dimensions have a moderate effect on the predicted concentrations. These dimensions are considered to be relatively well defined, based on the most recent topographical survey data for the site. The cell dimensions affect several interconnected parameters including cell length, width, cell surface area, aquifer pathway width, length and estimated dispersivity. Increasing cell dimensions (e.g. area of the cell) increases the predicted concentrations and vice versa.
- The thickness of the waste and estimated head of leachate when surface water break out occurs have a moderate effect on the output. These parameters are one of the most significant actual changes since the 2010 model, given the increased height of the landfill. The impact of varying waste thickness and head is demonstrated in Table 4-3 below. The range of input values currently considered appropriate is limited, although the model does not appear to be particularly sensitive to the waste thickness.
- Within the model, biodegradation is significant for organic compounds (such as fuel oils and phenols). Groundwater monitoring (Ramboll, 2016) suggests that geochemical conditions are suitable for anaerobic biodegradation. However, the processes involved and rate at which this occurs will vary. It is considered reasonable to assume some biodegradation within the model. The inclusion of a low end (slow) range of anaerobic degradation rates are considered appropriate for this site setting. Increase in degradation rates has a moderate effect on predicted concentrations, with high end (faster) degradation rates reducing the predicted concentrations of phenols and fuel oils. This has been demonstrated by the use of speciated source term data and species-specific degradation rates in the 2019 model. .

The variables used in the sensitivity analysis have little impact on the predicted concentrations of ammoniacal nitrogen or chloride. The predicted peak concentrations in 2016 and 2019 are higher than the previous HRA predicted, which is likely to be due to the increased input concentrations, but also potentially reflecting the inherent conservatism within the model and the mobility of these compounds.

Based on the current available data, the base model used is considered to have inherent conservatism, but is appropriate at present. The parameters considered to be inherently conservative include:

- biodegradation rates;

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- source term concentrations; and ;
- the potential for a reduced connectivity and permeability of the glacial deposits (when compared against the permeability of a sand assumed within the base model), due to the presence of clay horizons within the glacial deposits.

4.4 Review of Technical Precautions

The following section provides a summary of the technical precautions which Quercia has implemented, or will be implementing in the near future:

4.4.1 Capping Layer

Quercia has provided a document entitled 'Landfill Cap Construction Proposals and CQA Plan' for the site (prepared on behalf of Quercia by The Arley Consulting Company Limited, report number 08469/54C, October 2016).

The document indicates that the in summary the capping system will comprise subgrade (150mm thick blinding layer above the surface of the waste mass / waste cover soils); geomembrane liner (1mm thick low density polyethylene LLDPE), overlain by a non-woven protector geotextile, soil protection and restoration materials. The cap design, construction method, construction quality assurance requirements, conformance and compliance testing and method of reporting and validating the cap are presented in the document. Cell 3A is currently capped.

Quercia has also provided a drawing entitled '2019 Permanent Cap Layout' (drawing number 3635/11/001, reproduced in Appendix 7 of this report). The drawing indicates that an area of 18,230m³ is to be capped in 2019; this capping area covers approximately three quarters of cell 3C and extends west to partially cap cell 3B. Quercia has confirmed that these works commenced in early August 2019 and are anticipated to be complete within 12 weeks.

The drawing also shows two areas (cell 3B and 3C) where a geocomposite drainage layer will be installed. In 2018 an area of temporary capping was installed on the eastern flank of cell 4.

4.4.2 Leachate Management

Quercia has provided a document entitled EWIO33c Clayton Hall Leachate Management Plan, dated 16th July 2019. The document indicates that its purpose is to meet the requirements of condition 1.1.1, 2.6.1 and Schedule 3 table S3.1 of Environmental Permit BV1364V, to manage leachate to minimise risks of pollution from operation of the leachate plant.

The procedure applies to all aspects of leachate management, including leachate management of the active cells and operation and control of the leachate treatment plant.

There are seven leachate extraction points across the site.

The procedure identifies that Permit requires that leachate levels are maintained below 3m, as measured at each in-cell extraction point. The permit also requires that samples are taken from each of these points and analysed for a range of parameters on a quarterly basis. Monitoring requirements are detailed in the monitoring procedure EWIO19c (EWIO19c is summarised in section 5 of this HRA report).

Leachate is automatically extracted from the extraction points by air pump within the leachate chambers and electric pumps with a float valve within the drainage systems. The system is designed to provide continual control of leachate head at or below 2.5 m above the base of the cell.

Leachate is pumped to the leachate treatment plant for aerobic biological oxidation. During aerobic biological treatment, organic compounds can be largely oxidised to carbon dioxide and water, and ammoniacal nitrogen can be oxidised to form nitrate (nitrification). Treated leachate is discharged to sewer in accordance with Trade Effluent Consent to Discharge from United Utilities.

The procedure contains contingency actions in the event of breakdown or failure of the plant components.

The site's Quality, Health, Safety and Environmental Manager (QSHE) in conjunction with the Operations Manager will review and improve the procedure at least annually and in response to incidents.

4.4.3 Gas Management

Quercia has provided a Gas Management Plan and Control Specification dated January 2019 (revision 1). The document was put together to meet in part the requirements of the Environmental Permitting Regulations (England and Wales) 2010 and reflects current practice at the site, takes account of changes in personnel and provides detail of relevant changes in protocols and procedures. This document describes the specification and expected standards for the installation of the gas collection and utilisation systems, and the operational practices and checks that will be undertaken to ensure that Quercia meets the Regulatory Body Best Practice Guidance.

YLEM Energy is responsible for the management of landfill gas generated by emplaced waste which has been capped and not being actively filled.

The Clayton Hall permit requires that surface emissions from the capped area of the site is measured on an annual basis. Testing will be carried out as per the specification given in the EA guidance document LFTGN07 v2 2010 or subsequent revision. The permit requires that permanently, temporarily and uncapped areas are monitored for methane concentration on an annual basis. The whole site is to be measured in agreement with the EA for total methane emission.

A gas review at the site carried out by the Environment Agency early in 2018; one of the actions was to undertake a new gas risk assessment (GRA). To meet this requirement, Quercia engaged a specialist contractor to undertake this gas risk assessment. Quercia reports that *"it is almost certain that the results of the risk assessment will require a gas management system to be installed"*.

Any revised gas collection system design for the site will be developed by Quercia in conjunction with the Gas Management Company, YLEM, to address issues identified in the assessment where a significant risk has been identified.

The construction of the permanent gas collection system will be subject to CQA protocols. The construction of temporary and sacrificial systems will be subject to an appropriate level of CQA as deemed necessary based on the installation to be carried and any potential environmental impact of the planned works. the Gas management Plan should be referred to for further details.

Perimeter borehole monitoring is undertaken by Quercia staff. With the exception of the perimeter borehole, GS04 which is monitored on a weekly basis, each perimeter borehole is monitored on a monthly basis using a portable, certified gas analyser with measurements taken for the methane and carbon dioxide content in each. Results obtained are compared against compliance levels previously agreed with the Environment Agency in 2012⁵.

Quercia will employ differing technologies for the utilisation or disposal of the landfill gas dependent upon the quantity of methane within the landfill gas. This could include dedicated and blended high temperature flare systems and / or generator set, and low calorific value flare systems.

⁵ Reported in Annual Environmental Monitoring & Performance Review (2017) for the Area Regulated by Environmental Permit No. BV1364, at Clayton Hall Landfill Site, Chorley, Lancashire; February 2018, Report No. 08469/162; The Arley Consulting Company Limited.

5. REQUISITE SURVEILLANCE

Requisite surveillance takes the form of leachate, groundwater monitoring and surface water monitoring.

The Environmental Permit requires Quercia to monitor leachate, groundwater and surface water. These tables are reproduced in this report as Appendix 5. Quercia has developed procedures which are summarised below.

5.1 Leachate and Surface Water Monitoring

Leachate levels within Cells 3B, 3C and 4 require monthly monitoring (Environmental Permit Schedule 3, Table S3.1 Leachate Levels and Monitoring Requirements, reproduced in Appendix 5 of this report)). Leachate levels in Cell 3A require quarterly monitoring. For all cells, the Permit limit is a head of leachate 3m above the cell base.

Other leachate monitoring requirements are described in Table S3.9 of the Permit, which includes annual reporting of hazardous substances and quarterly monitoring of a range of chemical parameters including pH, ammoniacal nitrogen, chloride and metals.

Monitoring of point source emissions to water (other than to sewer) are scheduled in Table S3.3 of the Permit and relate to monthly spot sample monitoring from site drainage discharged into a drainage ditch in the southwestern corner of the site (known as monitoring location SD1). The limit is 50mg/l suspended solids.

Other monitoring requirements are presented in Table S3.10 of the Permit and relate to sampling locations S1 to S4 on the River Lostock and Bryning Brook. Sampling is required monthly for ammoniacal nitrogen, chloride, suspended solids, visual oil and grease, pH and electrical conductivity.

Quercia has developed a document entitled EWI019c Leachate and Surface Water Monitoring dated September 2019. The purpose of this procedure is to monitor leachate and surface water and to meet the requirements of conditions of the following permits:

- Environmental Permit BV1364 for the landfill site
- Waste Management licence Number 74 (closed areas)
- Environmental Permit EAWML/54375 for the transfer station.
- EA Consent to Discharge yard washings and surface drainage into Bryning Brook (Ref No 017091485).
- United Utilities consent to discharge trade effluent to sewer (Ref No 716T5-2-108).

The responsible person will request the appropriate sample bottles from the laboratory, as listed on form Clayton Hall Leachate Waster Sample Analysis Request form - NWM211 and prepare the sample bottles by labelling each bottle with the sample name and date.

The landfill supervisor provides a monthly monitoring schedule to the responsible person who will carry out the monitoring. This will detail the monitoring points and samples which are required to be taken.

5.1.1 Leachate Monitoring and Sampling

For leachate monitoring and sampling the responsible person will:

- measure leachate levels using of a dip meter. This will be carried out on the operational cells a monthly basis at 4 locations: L3A, L3B, L3C and L4A as shown on TACCL Dwg No 08469/14A. Monitoring will be reduced to a quarterly basis as cells are finally capped and

become non-operational cells. The depth to the base of the landfill cell wells will be measured on an annual basis.

- Check all around the chamber and pipework for signs of damage or leaks and check to ensure the pump is operational. Observations are recorded on Leachate Level Monitoring Record – NWM264 and problems or issues reported to the relevant manager.
- Check to see whether gas is being extracted by checking the valve is open or closed on the gas line and whether gas extraction can be heard.
- The maximum permitted leachate level is 3m above the base of the cell. If the control level is exceeded then this must be reported to the operations manager immediately. Subsequent action is detailed in the Leachate Management Plan – EW1033c.
- In accordance with schedule 3, table S3.9 of the Permit, the responsible person will collect samples of leachate on a quarterly basis from 5 locations: L3A, L3B, L3C, L4A & L4B, i.e. the operational cells, (to be reduced to on an annual basis as cells are finally capped and become non-operational cells as detailed in the Permit schedule 3, table S3.9). The Table detailed on Clayton Hall Leachate Water Sample Analysis Request Form – NWM211 lists a summary of determinants for monitoring leachate.

5.1.2 Surface Water Monitoring and Sampling

Surface water is discharged to Bryning Brook, which is a tributary to the River Lostock.

- the responsible person will collect samples of surface water on a monthly basis from 9 locations; upstream & downstream of both Bryning Brook & the River Lostock, SD1, S1, S2, S3 and S4 as shown on TACCL drawing No 08469/16. The Table detailed on Clayton Hall Leachate Water Sample Analysis Request Form – NWM211 lists a summary of determinants for monitoring surface water. The sample point SD1 will sometimes be dry. If no sample is available, it is recorded as 'dry'.
- At each sampling point, before sampling, the responsible person observes river conditions i.e. for visible oil and grease and records.
- At the sampling point, samples are collected from the river/stream by submerging a sample bottle in the river. The downstream sample is collected first.

5.1.3 Testing, Results and Recording

- Once all samples have been collected these are stored in a fridge within the onsite laboratory pending them being sent to the external laboratory for testing. Prior to collection, the responsible person will place the samples and freezer blocks in a cool box to keep the samples at the appropriate temperature during transport.
- Samples are sent to a UKAS accredited laboratory for testing and analysis. A copy of Clayton Hall Leachate Water Sample Analysis Request Form – NWM211 accompanies the samples.
- Results from testing are returned to the responsible person for review against permit conditions. The results are recorded on the internal company database and compared with previous results in order to identify trends. Anything unusual is reported to management.
- Results from testing are kept at the site and information regarding the results is also forwarded to The Arley Consulting Company Limited (TACCL) on a monthly basis for collation into the Clayton Hall Landfill Environmental Monitoring Quarterly and Annual Reports. A draft report is sent to the Company. After authorisation by the Company, TACCL submit the report to the EA.
- Where, as a result of testing, exceedance of Permit conditions are detected, the information will be recorded and the Environment Agency will be informed in line with permit conditions.

5.2 Groundwater Monitoring

The Permit requires groundwater monitoring from boreholes BH3 (a shallow well installed within the fluvio-glacial deposits), BH111 (a well installed within the deep glaciofluvial and top of Sherwood Sandstone), BH113, BH118A and BH124 (deep wells installed within the Sherwood Sandstone), with samples analysed for ammoniacal nitrogen, chloride (monthly) and mercury, total phenol and total petroleum hydrocarbons (quarterly). The Permit establishes emission limits for these determinands (Environmental Permit Schedule 3, Table S3.4, reproduced in this report as Appendix 5).

Other monitoring requirements are described in Table S3.7 of the Permit and include up- and down- or cross-gradient monitoring of water levels (quarterly) and a range of determinands including metals and salts (annually). Hazardous substances are monitored annually for the first six years of operation, then every two years thereafter.

Quercia has provided a document entitled EWI032c Groundwater Monitoring – Clayton Hall dated 16th July 2019. The purpose of this procedure stated as:

- To ensure compliance with Waste Management Licence number 74 & PPC Permit BV1364/V006.
- To comply with the Environmental Protection Act 1990 (Section 34 – Duty of Care) & the Health & Safety at Work Act 1974.
- To ascertain risk to the public & the environment and to have adequate controls in place in the event of groundwater readings exceeding “Trigger Levels” (*referred to as EALs in this report*).
- To review the effectiveness of the leachate controls systems.
- To trace trends in groundwater and migration.

The document indicates that routine groundwater monitoring is carried out on a monthly basis. More detailed testing is carried out in quarterly and annual monitoring. Laboratory results are collated and forwarded to TACCL on a monthly basis and field results are collated and forwarded to TACCL on a quarterly basis.

All results are submitted to the Environment Agency quarterly. Results are collated and reviewed annually with assessment of trends and review of control and trigger levels reported in the Annual Monitoring Report.

The Landfill Manager or appointed nominee is responsible for groundwater monitoring at the Landfill, summarised below:

- Table NWM211 Clayton Hall Leachate & Water Sample Analysis Request Form lists a summary of determinants for monitoring groundwater. The landfill manager requests the appropriate sample bottles from the laboratory, as listed on form NWM211.
- The landfill manager provides a monthly monitoring schedule to the monitoring technician detailing the monitoring points and samples required.
- On a monthly basis dip readings and samples are taken from the Groundwater Monitoring Boreholes as required in Table NWM179 Summary of Determinands for Monitoring Groundwater and NWM211 Clayton Hall Leachate & Water Sample Analysis Request Form.
- On a monthly basis dip readings and samples are taken from the Groundwater Monitoring Boreholes as per Table NWM179 Summary of Determinands for Monitoring Groundwater and NWM211 Clayton Hall Leachate & Water Sample Analysis Request Form. On a monthly basis dip readings and samples are taken from the Groundwater Monitoring Boreholes as per Table NWM179 Summary of Determinands for Monitoring Groundwater and NWM211 Clayton Hall Leachate & Water Sample Analysis Request Form.

- Before sampling, groundwater level monitoring is undertaken using a groundwater dip meter.
- The borehole is purged of three borehole volumes (or less if this would prevent a sample from being obtained).
- After purging groundwater is abstracted for sampling by dedicated Waterra sampling system. If there is no Waterra system in the borehole a clean baler is used which is discarded at the end of the sampling round.
- Temperature is monitored straight away (i.e. at the monitoring point, not at the lab) using a self-calibrating digital temperature gauge by the monitoring technician. Temperature readings are recorded in the field notebook and passed to the landfill manager for logging on NWM191 Results for Surface & Ground Water & Leachate Monitoring form.
- The date the sample was collected and date of the test are recorded on NWM191.
- When all samples are collected the landfill manager arranges for a courier to take the samples to a third party laboratory.
- The landfill manager checks the monitoring and laboratory results against the trigger levels. In the event of control levels being exceeded senior management is informed. Results are forwarded to TACCL for assessment.
- In the event of trigger levels being exceeded, the EA will be advised immediately, together with TACCL's initial comments and recommendations. Repeat sampling / validation will be instigated immediately. TACCL will assess further actions and submit proposals to the EA, with a view to instigating an appropriate course of action.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The Environmental Permitting (England and Wales) Regulations 2010 require that the entry of hazardous substances into groundwater must be prevented and that the entry of non-hazardous pollutants into groundwater must be minimised to prevent pollution. The 2019 model predicts that:

- Some phenol compounds (hazardous substances) are predicted to reach the compliance point (groundwater in the Sherwood Sandstone underlying the landfill) at concentrations in excess of the EAL, based on the 95th percentile predictions. This is principally associated with mobile phenol compounds which have been detected in leachate in cells 3A and 3B, with peak concentrations predicted to be reached in the region of 100 years. For all cells the 50th percentile ('more likely') predictions for phenol compounds are below the EAL.
- Mercury (a hazardous substance) is predicted to reach groundwater underlying the landfill in excess of the EAL based on the 95th percentile predictions. For all cells the 50th percentile ('more likely') predictions for mercury are below the EAL. The concentrations of mercury detected in the leachate to date are typically below laboratory method detection limits, although historically in some monitoring rounds the detection limit exceeded the EAL. The model predictions are considered to reflect the range of detection limits used historically, and the inherent conservatism of the model.
- The non-hazardous substances chloride and ammoniacal nitrogen are predicted to reach to the compliance point at the Town Brow at concentrations in excess of the EAL, with peak concentrations reached in the region of 200 to 600 years.

Groundwater analysis from monitoring wells around the landfill is undertaken by Quercia as part of the site's Environmental Permit requirements. This includes four deep wells targeting the Sherwood Sandstone aquifer located to the north, east, south and west of the landfill. The results of the groundwater analysis from 2008 to 2019 provided by Quercia indicates that the concentrations of the hazardous substances (TPH, phenol compounds and mercury) detected in groundwater in the Sherwood Sandstone are below relevant EAL (and in many cases below the laboratory method detection limit), and that non-hazardous substance concentrations (chloride and ammoniacal nitrogen) are typically an order of magnitude below relevant EALs.

Cell 3A is capped and cells 3C and 3B are currently being partially capped. A gas management plan has also been implemented. Concentrations of phenols in the leachate in cells 3a and 3B may reduce over time due to the ongoing gas extraction system increasing volatilisation and degradation of the more mobile phenols.

6.2 Recommendations

Based on the current model predictions, the following recommendations are made:

- It is recommended that Quercia enhances the existing leachate monitoring procedure (EWI019c) and sample request form (Clayton Hall Leachate Water Sample Analysis Request Form – NWM211) to include quarterly monitoring and sampling of the leachate collected from the leachate monitoring points installed in each cell. In the first instance it is recommended that the quarterly enhanced monitoring programme is taken over a twelve month period. Analysis should be undertaken for the determinands required in the Environmental Permit (table S3.9 in the Permit and reproduced in Appendix 5 of this report), and should also include quarterly analysis of:
 - speciated phenols;
 - speciated pesticides;
 - speciated TPH-CWG (indicative of fuel oils);

- mercury with a detection limit of 0.01ug/l (equivalent to 0.00001mg/l) which is also the EAL;
 - chloride; and
 - ammoniacal nitrogen.
- In conjunction it is recommended that Quercia enhances the existing groundwater monitoring procedure (EWI032c). The programme should continue to include quarterly monitoring of up-gradient, cross gradient and down-gradient monitoring wells (to include BH3, BH106A, BH111, BH113, BH118A and BH124) for water level; electrical conductivity; chloride; ammoniacal nitrogen; and pH (as specified in Table S3.7 of the Permit, reproduced in appendix 5). It is also recommended that the quarterly groundwater monitoring includes analysis for hazardous substances over a twelve month period (concurrent with the leachate enhanced monitoring programme), so that the results of the groundwater monitoring are comparable with the predictions of future updated HRAs, as follows:
 - speciated phenols;
 - speciated pesticides;
 - speciated TPH-CWG (indicative of fuel oils); and
 - mercury with a detection limit of 0.01ug/l (equivalent to 0.00001mg/l) which is also the EAL.
- The results from each enhanced leachate and groundwater monitoring rounds should be regularly compared against the EALs within the Environmental Permit. Should exceedances of the EALs be detected, or trends identified which suggest that an exceedance may occur, Quercia may need to consider reviewing the current technical precautions and the requisite surveillance.
- After the twelve month monitoring period, and subject to leachate and groundwater monitoring results being below the EALs, the leachate and groundwater monitoring frequency can be reduced in line with the permit requirements. However, it is recommended that the use of speciated laboratory analytical methods for the hazardous substances TPH-CWG, pesticides and phenols in leachate and groundwater is continued, in order to provide a consistent dataset for future HRA updates.
- Subject to the results of future leachate monitoring being below laboratory method reporting limits for speciated pesticides and in agreement with the EA, future HRA updates may be able to discount modelling for pesticides.

7. REFERENCES

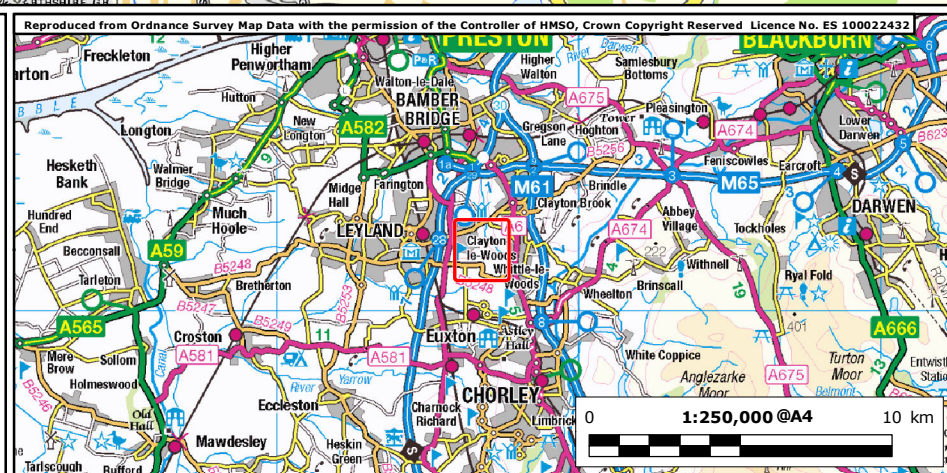
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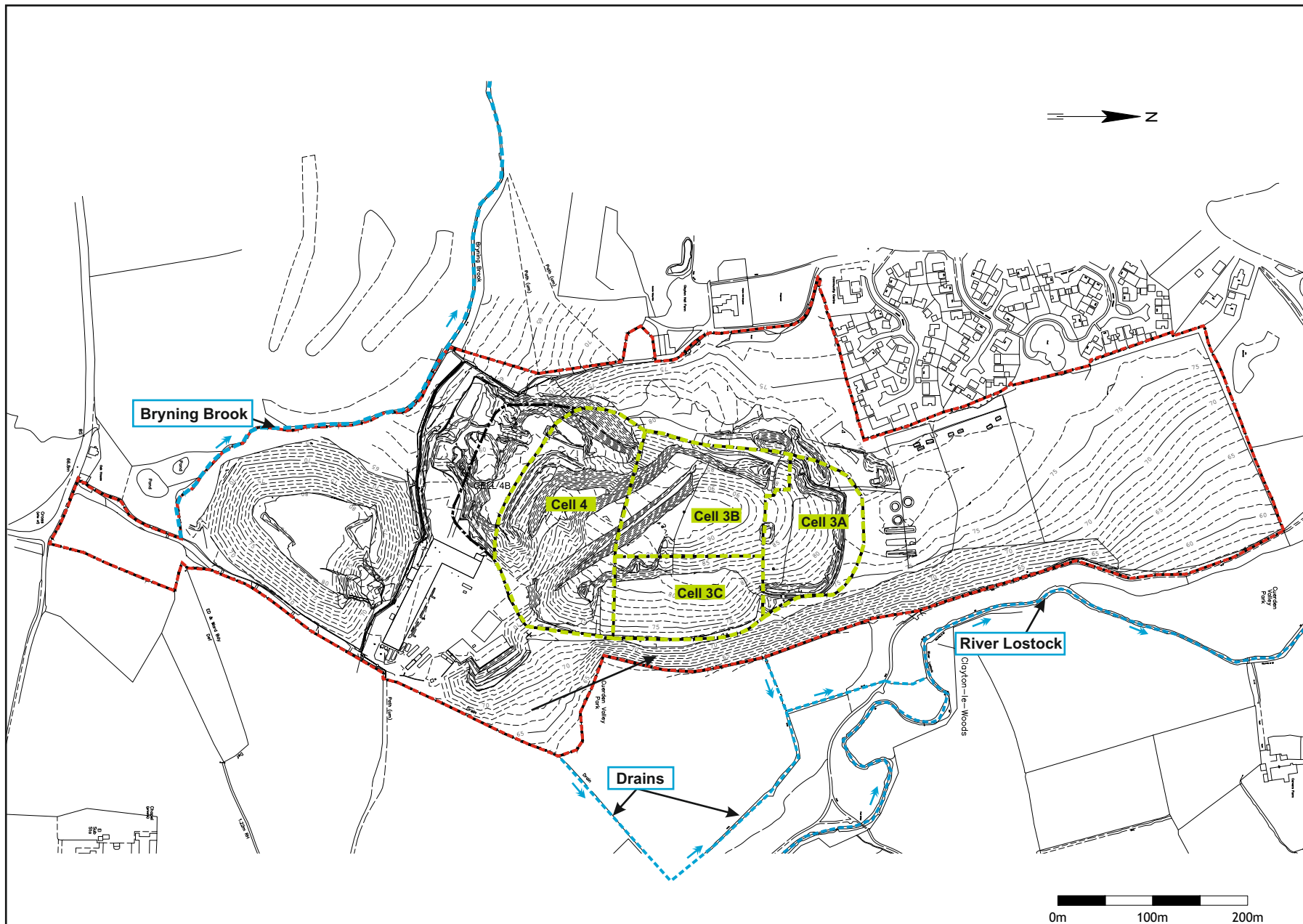
APPENDIX 1

FIGURES



Title Figure 1: Site Location	Site Clayton Hall Landfill Site	Date August 2019	
Project No. 1700003260	Client Quercia Limited	Scale As shown	
		Issue 1 Drawn by HR	

Path: P:\Contracts\UK230xx\UK14-230XX Burges Salmon Chorley landfill\Figures for Report\Figures for report\IRE_A4_Portrait_SiteLoc_v2.mxd



- Key
- Approximate Site Boundary
 - Existing Cell Boundary
 - Surface water course

Title Figure 2: Landfill Cell Layout

Project No. 1700003260

Site Clayton Hall Landfill, Chorley, Lancashire, PR6 7DT

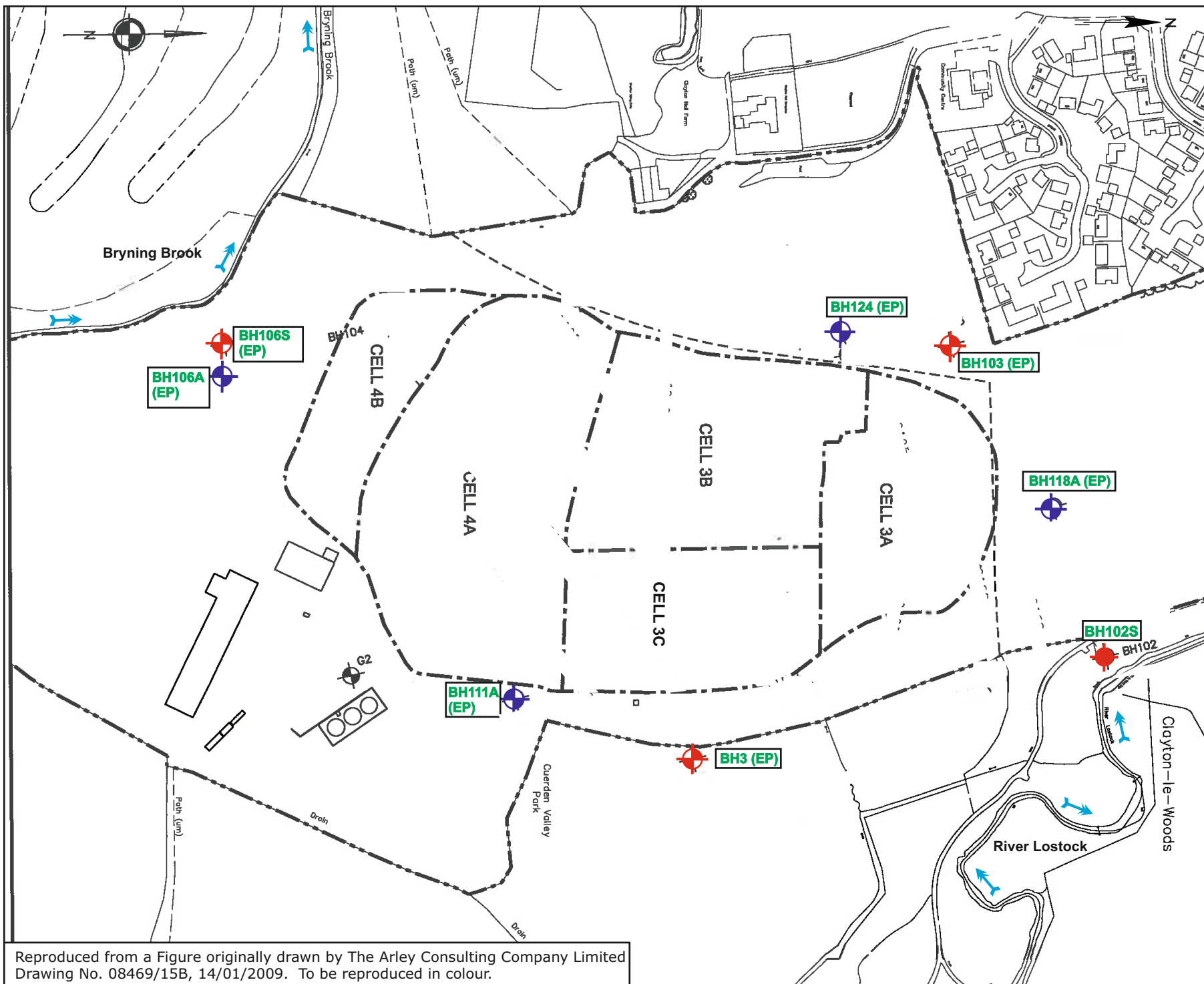
Client Quercia Limited (site operator)

Date August 2019

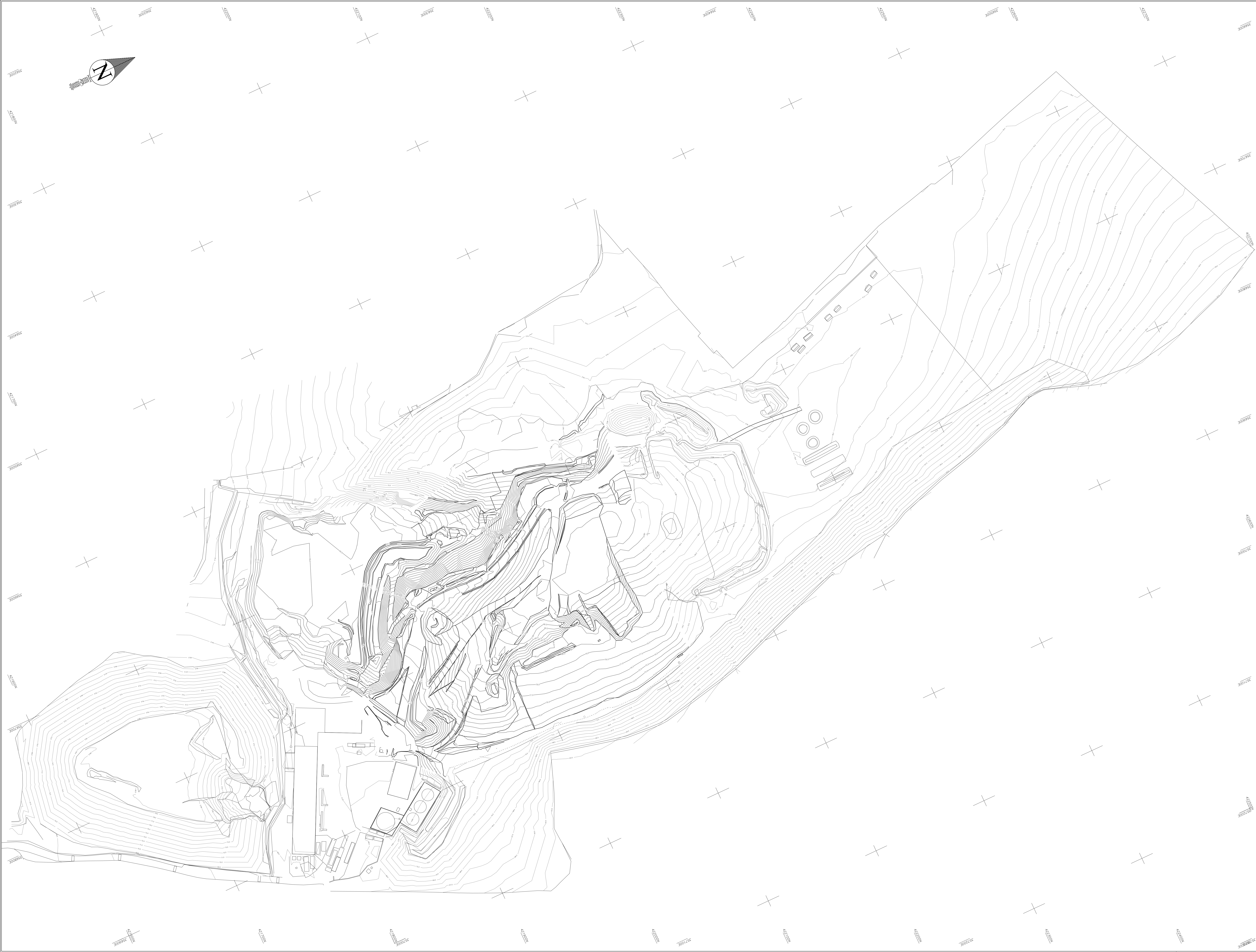
Scale Refer to Scale Bar

Issue 1 Drawn by JC

RAMBOLL



<p>Key</p> <ul style="list-style-type: none"> --- Landfill Boundary ----- Installation Boundary ● Groundwater monitoring borehole installed in the Sherwood Sandstone ⊕ Groundwater monitoring borehole installed in the deeper fluvio-glacial deposits ⊙ Groundwater monitoring borehole installed in the shallow fluvio-glacial deposits <p>BH106S (EP) Green annotation indicates a monitoring well specified for sampling in the Environmental Permit</p>	
Title	Figure 3: Location of Environmental Permit Groundwater Monitoring Wells
Project No.	1700003260
Site	Clayton Hall Landfill, Chorley, Lancashire, PR6 7DT
Client	Quercia Limited (site operator)
Date	August 2019
Scale	NTS
Issue	1
Drawn by	RH



Notes

TerraConsult

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

Client

Quercia Ltd

Site

Clayton Hall Landfill

Title

Combined Topographical
Survey - 27/04/2018

Scale

1:1,000 @ A0

Drawing No.

3277/0/084

Rev

Date

Description

File

3277084CombinedTopo270418.dwg

Date

04/18

Engineer

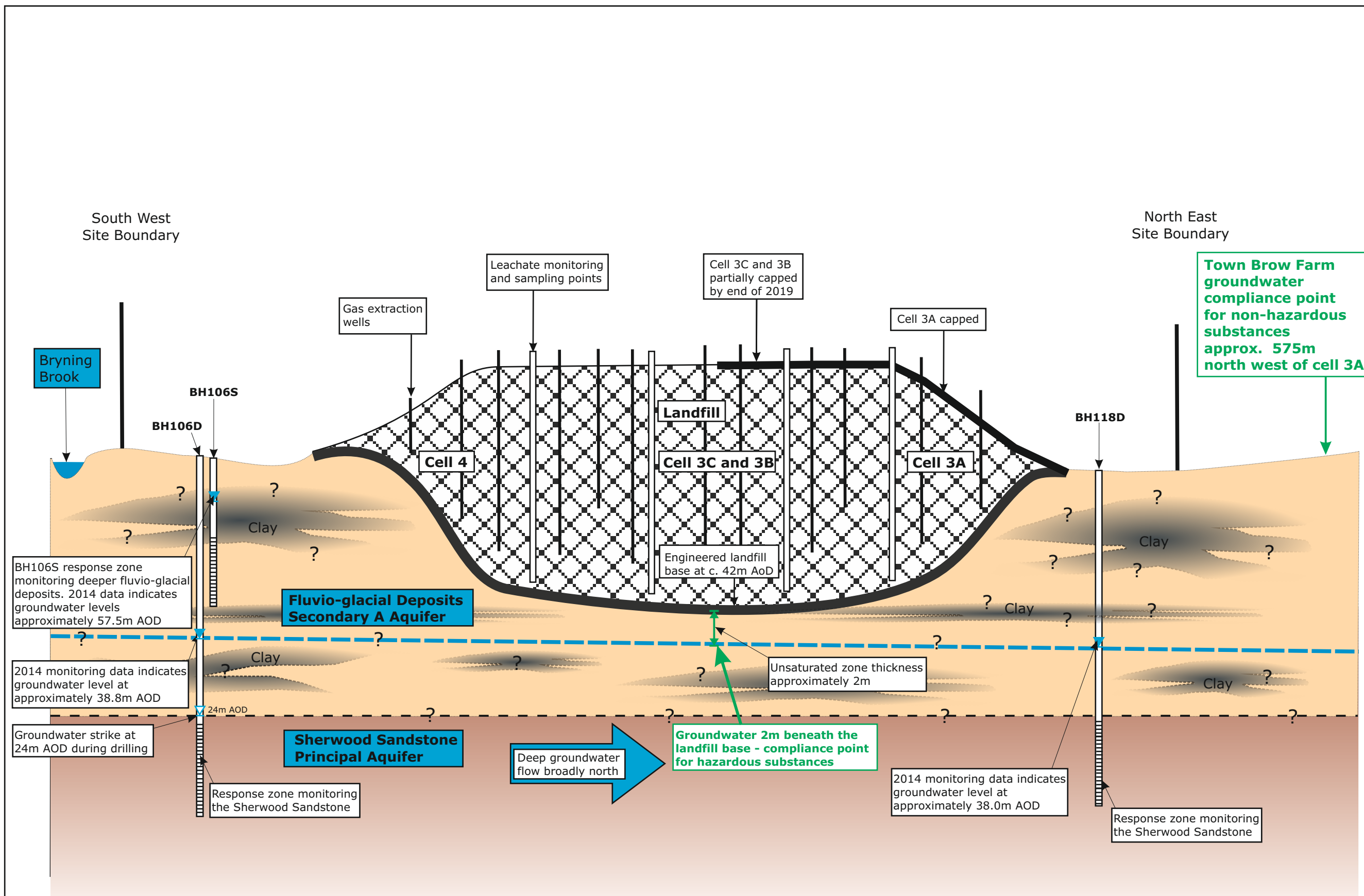
JW

Drawn

PP

Checked

DRAFT



Key

Title Figure 5: Conceptual Site Model

Project No. 1700003260

Site Clayton Hall Landfill, Chorley, Lancashire, PR6 7DT

Client Quercia Limited (site operator)

Date August 2019

Scale NTS

Issue 1

Drawn by JM

RAMBOLL

APPENDIX 2

MODEL INPUT PARAMETERS

Appendix 2 Table 1: Summary of Hydrogeological Risk Assessment Input Parameters – Source and Pathway Features

Parameter	Units	2010 Input	2016 Input (if altered from 2003)	2019 Input (if altered)	Distribution	Justification	Sensitivity / Confidence in input value
Calculation Settings							
Clay liner	-	Unretarded No biodegradation	-	-	N/A	Use agreed 2010 HRA inputs.	Moderate reduction in concentrations for organics if biodegradation included.
Unsaturated Pathway	-	Retarded Biodegradation	-	-	N/A	Low end of range anaerobic biodegradation included. Degradation rates lower than used in 2010 for phenols.	Biodegradation is significant for organic compounds. Recent groundwater monitoring indicates geochemical conditions suitable for anaerobic biodegradation. Biodegradation is likely to occur in the majority of subsurface environments, however the processes involved and rate at which this occurs will vary. It is considered reasonable to assume some degradation. The inclusion of low end of range anaerobic degradation rates are considered appropriate for this site setting. Increase in degradation rates has a moderate effect on predicted concentrations. Variations considered in quantitative reporting.
Aquifer Pathway	-	Retarded No biodegradation	Biodegradation	-	N/A	Low end of range anaerobic biodegradation included.	
Saturated vertical pathways	-	No pathway	-	-	N/A	Use agreed 2010 HRA inputs	No pathway
Time slices	-	30/100/300/1000	-	-	N/A	Use agreed 2010 HRA inputs	EA recommended.
Number of iterations	-	201	-	-	N/A	Use agreed 2010 HRA inputs	Greater number of iterations tried, minimal difference in output. Number of iteration considered suitable for model.
Time offset	Yrs	Cell 3a 0 Cell3b 6 Cell 3c 5 Cell 4 6	0	-	N/A	No time off set	Minimal increase in predicted concentrations with increased time offset.
Duration of management control yrs from start waste disposal	Yrs	10	20	-	N/A	Site details	Sensitivity of parameter minimal for range of values appropriate.
Leachate recirculated	m3/hr	0.5	-	-	N/A	Site details	Minor increase in maximum concentrations if excluded. Value reflects site practice.
Infiltration							
Infiltration to open waste	mm/yr	650, 50	-	-	Normal	Use agreed 2010 HRA inputs	Sensitivity of parameter minimal for range of values appropriate.
Cap design infiltration	mm/yr	50, 20	-	-	Normal	Use agreed 2010 HRA inputs	Potential for improvement in design

Parameter	Units	2010 Input	2016 Input (if altered from 2003)	2019 Input (if altered)	Distribution	Justification	Sensitivity / Confidence in input value
							considered. Sensitivity of parameter minimal for range of values appropriate.
End of filling (yrs from start of waste disposal)	yrs	10	20	-	Single	Cell 3a commenced tipping 1994 (ESID report), now completed and capping commenced. Cell 3b commenced tipping 1995 (ESID report), now completed and capping commenced. Cell 3c commenced tipping 1996 (ESID report), now completed and capping commenced. Cell 4 commenced tipping 2002 (ESID report), still active, current planning permission to 2028. 20 years appropriate to reflect all cells.	Time scales as reported by Site. High confidence, little variability in values justifiable.
PE Cap?	-	Yes	-	-	-	Use agreed 2010 HRA inputs	Inclusion of capping significant. Capping will be place at the end of the life of each cell. Some capping works have already begun.
Infiltration to grassland	mm/yr	350,50	-	-	Normal	Use agreed 2010 HRA inputs	LandSim recommended values
Start of cap degradation (yrs form end waste disposal)	Yrs	250	-	-	-	Use agreed 2010 HRA inputs. LandSim recommended values	LandSim recommended values
End cap degradation (yrs from end waste disposal)	yrs	1000	-	-	-	Use agreed 2010 HRA inputs. LandSim recommended values	LandSim recommended values
Cell Geometry							
Number of cells the same	value	1	-	-	-	2010 HRA: Four cells modelled separately, combined output for off-site receptor.	LandSim recommended values
Cell length at base	m	Cell 3a: 25 Cell 3b: 70 Cell 3c: 70 Cell 4: 78	-	-	-	Use agreed 2010 HRA inputs. Base dimensions will be unchanged.	Base dimensions will be unchanged
Cell width at Base	m	Cell 3a: 50 Cell 3b: 58 Cell 3c: 33 Cell 4: 78	-	-	-	Use agreed 2010 HRA inputs. Base dimensions will be unchanged.	Base dimensions will be unchanged
Top area of each cell	ha	Cell 3a: 0.25 Cell 3b: 0.812 Cell 3c: 0.462 Cell 4: 1.2168	Cell 3a: 1.2 Cell 3b: 1.1 Cell 3c: 1.4 Cell 4: 2.0	-	-	Current cell dimensions measured from 2015 Topo survey, maximum lengths below. Areas measured more accurately from plan to reflect shape of each cell. Cell 4 length east – west 175m Length north - south 120m Cell 3c length east - west 115m Length north south 140m Cell 3B length east west 95m Length north south 120m Cell 3A length east west 140m Length north south 95m	High confidence in values as measured off survey. Limited potential to vary within model. Overall cell dimensions have moderate influence over predicted concentrations.

Parameter	Units	2010 Input	2016 Input (if altered from 2003)	2019 Input (if altered)	Distribution	Justification	Sensitivity / Confidence in input value
Base area of each cell	ha	Cell 3a: 0.125 Cell 3b: 0.406 Cell 3c: 0.231 Cell 4: 0.6084	-	-	-	Use agreed 2010 HRA inputs. Base dimensions will be unchanged.	Base dimensions will be unchanged
Base area of landfill	ha	Cell 3a: 0.125 Cell 3b: 0.406 Cell 3c: 0.231 Cell 4: 0.6084	-	-	-	Use agreed 2010 HRA inputs. Base dimensions will be unchanged.	Base dimensions will be unchanged
Top area of landfill	ha	Cell 3a: 0.25 Cell 3b: 0.812 Cell 3c: 0.462 Cell 4: 1.2168	Cell 3a: 1.2 Cell 3b: 1.1 Cell 3c: 1.4 Cell 4: 2.0	-	-	Assumed equal to area of each cell as presented previously in the agreed 2010 HRA.	High confidence in values as measured off survey. Limited potential to vary within model. Overall cell dimensions have moderate influence over predicted concentrations.
Head of leachate when surface water break out occurs	m	Cell 3: 34 Cell 4: 27	Cell 3: 30 Cell 4: 16	-	Uniform	Calculated as height from cell base to lowest topographic point at edge of landfill cell.	Sensitivity of parameter minor.
Final waste thickness	m	10, 20	Cell 3a: 10, 40 Cell 3b: 10, 40 Cell 3c: 10, 40 Cell 4: 10, 40 Then updated to increase waste thickness by 6m in cells 3b, 3c and 4.	Cell 3a: 10, 43 Cell 3b: 10, 48 Cell 3c: 10, 46 Cell 4: 10, 43	Uniform	2016 maximum waste thickness estimated from 2015 topographic survey. Minimum waste thickness assumed 10m for purpose of modelling and to reflect that used in 2010 HRA. (Assumed minimum basal level of 42mAOD discussed in 2016 HRA report). A model update was completed in 2017 to predict effects of proposed increase in waste thickness across parts of cells 3b, 3c and 4 to a maximum additional thickness of 6m. The 2019 topographic survey suggests this has been completed and the survey has been used to estimate the new maximum waste thickness. The increase in waste thickness has only affected the central area of the landfill as a whole thus it is reasonable to assume the original 10m minimum waste thickness for all cells to reflect the outer areas of each cell for the purposes of modelling.	Sensitivity of parameter minor.
Waste porosity	fraction	0.1, 0.15	-	-	Uniform	Use agreed 2010 HRA inputs, no additional data available.	-
Waste density	kg/l	1, 1.2	-	-	Uniform	Use agreed 2010 HRA inputs, no additional data available.	-
Waste field capacity	fraction	0.2, 0.4	-	-	Uniform	Use agreed 2010 HRA inputs. Values suggested within LandSim to represent any landfill. Values limited to porosity in model.	-
Primary Drainage System							
Specified head	m	0.25, 1, 10	0.25,1,3	-	Triangular	2003 values used to reflect compliant landfill. It is understood works are in progress to address the leachate build up issues.	Sensitivity of parameter minor. Leachate monitoring and managements procedures in place. 2003 values considered appropriate.
Engineered Barrier							
Composite Barrier	-					Cell 3a: 2m compacted clay with permeability 1E-9. Cells 3b, 3c, and 4 as Composite liner and membrane details below.	Inputs as design details, no further information available to suggest alternative input valid.
Design thickness of mineral Liner	m	0.3,0.35	-	-	Uniform	Use agreed 2010 HRA inputs, no additional data available.	
Moisture content	fraction	0.18,0.22	-	-	Uniform	Use agreed 2010 HRA inputs, no additional data available.	

Parameter	Units	2010 Input	2016 Input (if altered from 2003)	2019 Input (if altered)	Distribution	Justification	Sensitivity / Confidence in input value
Hydraulic conductivity	m/s	4E-11, 1E-10	-	-	Log Uniform	Use agreed 2010 HRA inputs, no additional data available.	
Longitudinal dispersivity	m	0.03,0.035	-	-	Uniform	Use agreed 2010 HRA inputs, no additional data available.	
Membrane defects						Use agreed 2010 HRA inputs, no additional data available.	
Pin holes		0,5	-	-		Use agreed 2010 HRA inputs, no additional data available.	
Holes		0,2	-	-		Use agreed 2010 HRA inputs, no additional data available.	
Tears		0, 0.0001, 0.0001	-	-		Use agreed 2010 HRA inputs, no additional data available.	
Unsaturated Pathway							
Geological Unit	-		Sands	Sands		Use agreed 2010 HRA inputs, no additional data available.	No further information available to suggest alternative input range valid. Range reflects typical sands.
Pathway length	m	2	-	-	Single	Use agreed 2010 HRA inputs, additional groundwater monitoring data confirms this.	
Moisture content	fraction	0.05, 0.1, 0.15	-	-	Triangular	Use agreed 2010 HRA inputs, no additional data available.	
Density	Kg/l	1.7, 2.1	-	-	Uniform	Use agreed 2010 HRA inputs, no additional data available.	
Hydraulic conductivity	m/s	1E-0.007, 5E-0.005, 0.0001	-	-	Log triangular	Use agreed 2010 HRA inputs, no additional data available.	
Fraction organic carbon (Retardation)	fraction	0.0005, 0.001	-	-	Uniform	Use agreed 2010 HRA inputs, no additional data available.	
Longitudinal dispersivity	m	0.2	-	-	Single	Use agreed 2010 HRA inputs, no additional data available.	
Saturated Zone							
Geological Unit	-	?	Sands/Sandstone	Sands/Sandstone			
Mixing Zone	m	1,6	-	-	Uniform	Use agreed 2010 HRA inputs, no additional data available.	No further information available to suggest alternative input range valid.
Pathway width	m	Cell 3a: 55,125 Cell 3b: 100,160 Cell 3c: 45, 125 Cell 4: 145, 190	Cell 3a: 140 Cell 3b: 95 Cell 3c: 115 Cell 4: 175	-	Single (2010 HRA: uniform)	Amended to reflect Cell widths (east - west).	Limited potential to vary within model as based on measured cell widths. Overall cell dimensions have moderate influence over predicted concentrations.
Hydraulic conductivity	m/s	1E-7, 5E-5, 1E-4	-	-	Log triangular	Use agreed 2010 HRA inputs, no additional data available.	No further information available to suggest alternative input range valid. Range reflects typical sands.
Regional gradient	-	0.002,0.004,0.01	-	-	Triangular	Use agreed 2010 HRA inputs, no additional data available.	
Pathway porosity	fraction	0.2, 0.3	-	-	Uniform	Use agreed 2010 HRA inputs, no additional data available.	
Pathway bulk density (Retardation)	kg/l	1.6, 1.8	-	-	Uniform	Use agreed 2010 HRA inputs, no additional data available.	
Fraction organic carbon (Retardation)	fraction	0.0005, 0.001	-	-	Uniform	Use agreed 2010 HRA inputs, no additional data available.	
Longitudinal dispersivity	m	60,90	50,90	-	Uniform	2016: LandSim indicates that longitudinal dispersivity is approximately 10% of the length of the pathway. Pathway lengths to receptor to the north north west:	

Parameter	Units	2010 Input	2016 Input (if altered from 2003)	2019 Input (if altered)	Distribution	Justification	Sensitivity / Confidence in input value
						Cell 3A: 525m, Cell 3b: 620, Cell 3c: 620, Cell 4: 840. Single parameter for all cells taken as range.	
Transverse dispersivity	m	20,30	15,25	-	Uniform	2016: LandSim indicates that transverse dispersivity is approximately 3% of the length of the pathway. Single parameter for all cells taken as range.	

Appendix 2 Table 2 - Summary of Hydrogeological Risk Assessment Input Parameters – Source Inputs

Parameter	Units	Input	Distribution	Justification
Ammoniacal Nitrogen				
Concentration in leachate	mg/l	Cell 3a: 2090,2565,3750 Cell 3b: 1600,1645,1750 Cell 3c: 2000,2525,3810 Cell 4: 1680,1995,2690	Log Triangular	Calculated from 2017-2018 monitoring data (four sample results per cell). Concentrations for previous modelling used a log triangular distribution defined as 2.4, 1461, 4620mg/l for each cell, calculated from 2008-2014 leachate data provided.
Kappa value constant (m)	kg/l	0	Single	LandSim default value.
Kappa value constant (c)	kg/l	0.59	Single	LandSim default value.
Partition Coefficient (Kd)	l/kg	0.5, 2	Log Uniform	LandSim default value.
Degradation rates	years	1E9	Single	No degradation
Mercury				
Concentration in leachate	mg/l	1E-5, 1E-5, 0.1	Log Triangular	Calculated from all leachate data provided. 2017-2018 dataset only include one samples result per cell all of which were <detection limit of 0.01ug/l. Recent dataset minimal, however typically recent results are below detection limits of 1E-5mg/l. Min and mostly concentrations inputs have therefore been altered to reflect this. Previously 0.001 and 0.01mg/l used as min and most likely.
Kappa value constant (m)	kg/l	0.0767	Single	LandSim default value.
Kappa value constant (c)	kg/l	0.1643	Single	LandSim default value.
Partition Coefficient (Kd)	l/kg	450, 3835	Log Uniform	LandSim default value.
Degradation rates	years	1E9	Single	No degradation
Chloride				
Concentration in leachate	mg/l	2, 1228, 3410	Log Triangular	Calculated from 2008-2014 leachate data provided. 2017-2018 dataset includes one sample result for each of two cells, the other two cells do not have any new data. Both results obtained fall within the range used previously. Input range therefore assumed as per previous.
Kappa value constant (m)	kg/l	0.0767	Single	LandSim default value.
Kappa value constant (c)	kg/l	0.1643	Single	LandSim default value.
Partition Coefficient (Kd)	l/kg	450, 3835	Log Uniform	LandSim default value.
Degradation rates	years	1E9	Single	No degradation
Fuel Oils SUPERCEDED BY TPH (SPECIATED) DATA				
Concentration in leachate	mg/l	20, 40, 91	Log Triangular	Calculated from 2008-2014 leachate data provided.
Kappa value constant (m)	kg/l	-	-	No kappa value identified.
Kappa value constant (c)	kg/l	-	-	No kappa value identified.
Partition Coefficient (Koc)	l/kg	1000, 100000	Loguniform	Lab data provided as 'fuel oils' or 'tph oil and grease' this covers numerous individual compounds. Kd range selected to represent mid to high carbon range hydrocarbons. Range as specified in 2003 HRA.
Degradation rates	years	1.5, 3, 10	Triangular	Typical low end of range anaerobic degradation rates for mid to high carbon range hydrocarbons. Environment Agency 2002 R&D P2-228/TR, EA 2004 P5-079/TR1,
TPH (speciated)				

Parameter	Units	Input	Distribution	Justification
Concentration in leachate	mg/l	See table 2 below	Logtriangular	Calculated from all four rounds of speciated TPH data available. Considered to be more representative of TPH concentrations in leachate than previous analysis.
Kappa value constant (m)	kg/l	-	-	No kappa value identified.
Kappa value constant (c)	kg/l	-	-	No kappa value identified.
Partition Coefficient (Koc)	l/kg	See table 2 below	Loguniform	Literature values selected for each TPH fraction (Nathanail C.P. et al (2015). The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.).
Degradation rates	years	See table 2 below	Uniform	Typical low end of range anaerobic and aerobic degradation rates used sourced from: <ul style="list-style-type: none"> Environment Agency, 2004d. Review of the Fate and Transport of Selected /Contaminants in the Soil Environment. Draft Technical Report P5-079/TR1. Environment Agency 2002 R&D P2-228/TR. The effects of contaminant concentrations on the potential for natural attenuation. Mackay, D., W. Shiu, et al. (1991). Illustrated Handbook of physical-chemical properties and environmental fate for organic chemicals. Polynuclear aromatic hydrocarbons, polychlorinated dioxins and dibenzofurans. Boca Raton, Florida, Lewis Publishers: 1-367
Phenols - SUPERCEDED BY SPECIATED PEHNOL DATA				
Concentration in leachate	mg/l	0.01, 7, 59	Log Triangular	Calculated from 2008-2014 leachate data provided.
Kappa value constant (m)	kg/l	-	-	No kappa value identified.
Kappa value constant (c)	kg/l	-	-	No kappa value identified.
Partition Coefficient (Koc)	l/kg	28.8	Single	LQM, 2014.
Degradation rates	years	1	Single	Typical anaerobic degradation rates. Environment Agency 2002 R&D P2-228/TR. <i>The effects of contaminant concentrations on the potential for natural attenuation.</i>
Phenols (speciated)				
Concentration in leachate	mg/l	See table 3 below	Logtriangular	Data from three rounds of sampling were analysed for eight speciated phenols, data from the latest round was analysed for 20 speciated phenols. This data has been combined and phenol compounds grouped for ease of modelling and to better estimate risks across the different analytical results.
Kappa value constant (m)	kg/l	-	-	No kappa value identified.
Kappa value constant (c)	kg/l	-	-	No kappa value identified.
Partition Coefficient (Koc)	l/kg	See table 3 below	Loguniform	koc were derived using numerous literature sources including Environment Agency publications and online databases such as ECHA, HSDB and Toxnet (main reference list in notes below). The ranges of koc provided reflect the typical ranges within and across the literature sources.
Degradation rates	years	See table 3 below	Uniform	Phenol degradation rates - Assumed as 1year as per phenols for all readily biodegradable groups, assumed 1E9 for non-readily biodegradable groups to reflect limited potential. This is conservative in comparison to ranges provided on e.g. HSDB.
Pesticides (total) SUPERCEDED BY SPECIATED PESTICIDE DATA WHICH IS TYPICALLY BELOW MDL				
Concentration in leachate	mg/l	0.00001, 0.00001, 0.0008	Log Triangular	Calculated from 2008-2014 leachate data provided. Estimated for total pesticides. Three rounds of testing from 2017-2018 included pesticides. p,p-TDE (DDD) was detected at low concentrations (0.18ug/l) on one occasion in one cell. All other results were <detection limits.
Kappa value constant (m)	kg/l	-	-	No kappa value identified.
Kappa value constant (c)	kg/l	-	-	No kappa value identified.
Partition Coefficient (Koc)	l/kg	5.3, 200, 1164	Triangular	Range as specified in 2003 HRA.

Parameter	Units	Input	Distribution	Justification
Degradation rates	years	1E9	Single	No degradation

- Not defined

Appendix 2 Table 3 - Summary of TPH Source Input Parameters

Parameter	Koc	Degradation rates	Concentration in leachate Jan 2019 update using data from four recent monitoring rounds			
Distribution	loguniform	uniform	Logtriangular (min, most likely, max)			
Units	l/kg	years	ug/l			
	All cells	All cells	Cell 4	Cell 3A	Cell 3B	Cell 3C
TPH fraction			LT4	LT3A	LT3B	LT3C
TPH Aliphatic C5-6	812	0.3-6	268, 276.5, 316	232, 298, 313	245, 393, 548	266, 381.5, 563
TPH Aliphatic C6-8	3802	0.3-6	77, 87, 112	52, 76.5, 79	76, 118.5, 227	82, 113, 209
TPH Aliphatic C8-10	30200	0.3-6	46, 58, 77	23, 49, 52	66, 78, 143	66, 71, 127
TPH Aliphatic C10-12	239883	0.3-6	137, 161.5, 186	38, 101, 126	132, 142, 219	120, 148.5, 190
TPH Aliphatic C12-16	5370318	0.3-6	10, 17.5, 50	10, 11.5, 50	10, 15.5, 50	10, 25, 50
TPH Aliphatic C16-35	5.75E+08	4-10	10, 62.5, 685	54, 70, 148	15, 62, 262	11, 86.5, 317
TPH Aromatic C5-7 (benzene)	67.6	0.2-1.4	7, 10, 10	7, 10, 10	10, 10, 11	10, 10, 11
TPH Aromatic C7-8 (toluene)	204	0.1-1	5, 10, 10	4, 10, 10	8, 10, 10	10, 10, 10
TPH Aromatic C8-10	1585	0.2-2	42, 84.5, 106	18, 37.5, 68	54, 63, 186	47, 63.5, 176
TPH Aromatic C10-12	2512	0.3-3	91, 108, 124	25, 67.5, 84	88, 94.5, 146	80, 99, 127
TPH Aromatic C12-16	5012	1-3	39, 46.5, 121	25, 43, 235	50, 165.5, 458	61, 181.5, 456
TPH Aromatic C16-21	14125	1-10	50, 65, 127	10, 30, 183	22, 108, 207	24, 119.5, 200
TPH Aromatic C21-35	125892	4-10	50, 65.5, 183	10, 35.5, 100	50, 123, 143	50, 134.5, 164

Appendix 2 Table 4 - Summary of Speciated Phenol Source Input Parameters

Parameter	Koc	Degradation rates	Concentration in leachate			
Distribution	Triangular	uniform	single			
Units	l/kg	years	mg/l			
	All cells	All cells	Cell 4	Cell 3A	Cell 3B	Cell 3C
Compound			LT4	LT3A	LT3B	LT3C
Phenols group 1 - phenol +	10, 28.8,117	1	0.001, 0.263075, 0.97	0.001, 0.135475, 0.488	0.979, 2.34725, 5.35	0.321, 2.798, 9.01
Phenols group 2 - cresols +	22, 158, 316	1	0.0078, 2.5811725, 9.12781	0.001, 0.09081, 0.2985	2.6487, 10.28765, 16.8	0.7974, 5.819975, 17.1
Phenols group 3 - xlenols +	170, 430, 800	1	0.001, 0.0729475, 0.29	0.001, 0.01545, 0.0516	0.00574, 0.31104, 1.17	0.0122, 0.33155, 1.28
Phenols group 4 - chlorophenols +	140, 500, 3000	1E9	0.001, 0.002385, 0.00954	0.001, 0.08895475, 0.3519	0.001, 0.13386125, 0.5216	0.001, 0.14814475, 0.5371
Phenols group 5 - nitrophenols +	10,60,500	1	0.001	0.001	0.001	0.001, 0.013825, 0.0553

Notes:

- Phenol compounds grouped for ease of modelling to reflect similar compound types, similar koc and degradation properties.
- Phenol degradation rates - Assumed as 1year as per phenols for all readily biodegradable groups, assumed 1E9 for non-readily biodegradable groups to reflect limited potential. This is conservative in comparison to ranges provided on e.g. HSDB.

Phenol group	Compounds included in group
Phenols group 1 - phenol +	Phenol, resorcinol, catechol
Phenols group 2 - cresols +	2-,3-,4-methylphenols, DNOC
Phenols group 3 - xlenols +	Xlenols, naphthol, 2,3,5trimethylphenol, 2-isopropylphenol, 2,4xlenol
Phenols group 4 - chlorophenols +	All chlorophenols, including pentachlorophenol
Phenols group 5 - nitrophenols +	2-, 4-nitrophenol, 2,4dinotrophenol, dinoseb

Additional Assumptions for Landsim modelling:

TPH and phenol compounds are considered volatile if boiling point <250°C at 101kPa, and/or vapour pressure >0.01kPA at 293.15K. These measures are both noted in the EU solvents directive and are considered suitable for determination of volatility in this context. Source depletion for VOCs includes assumption that the landfill gas extraction will reduce the source over time.

Literature Sources:

- Environment Agency 2002 R&D P2-228/TR. The effects of contaminant concentrations on the potential for natural attenuation.
- Mackay, D., W. Shiu, et al. (1991). Illustrated Handbook of physical-chemical properties and environmental fate for organic chemicals. Polynuclear aromatic hydrocarbons, polychlorinated dioxins and dibenzofurans. Boca Raton, Florida, Lewis Publishers: 1-367
- Environment Agency (2008) Compilation of data for priority organic pollutants for derivation of Soil Guideline Values. Science Report: SC050021/SR7. Environment Agency, Bristol.
- Nathanail C.P. et al (2015). The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.
- <https://toxnet.nlm.nih.gov/>
- <https://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>
- <https://echa.europa.eu>

APPENDIX 3

CORRESPONDANCE WITH THE ENVIRONMENT AGENCY (2008 / 2010)

Howard Rushton/Grahame Crank
Quercia Ltd
Aspinwall House
Walker Road
Walker Office Park
Guide
Blackburn
BB1 2QE

Our ref: DL/BV1364

Your ref:

Date: 25 November 2008

Dear Howard,

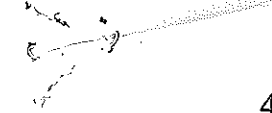
RE: Clayton Hall Landfill Site: Hydrogeological Risk Assessment : Update Report

Further to the submission of the following report;

- Clayton Hall Landfill Site : Hydrogeological Risk Assessment : Update Report (Report Number 305.17-080707-R2-risk assessment) Dated July 2008.

In order that the suitability of the report the above report can be assessed please provide a response to the following;

1. The fixed head input parameter has been modelled as being a maximum of 3m. However, this does not reflect the recent leachate heads that have been experienced at the site which have been in excess of 9m. Please amend the fixed head parameter to take account of the revised leachate heads and determine the impact of these elevated heads;
2. The input parameters for the barrier are incorrect. The thickness of the liner that has been modelled for all areas of the site is given as 500mm whereas this should be 300mm. Please amend this parameter and re-assess the impact;
3. Please confirm that the previously assumed relevant pathways including their nature and characteristics (e.g. the purifying powers of soils and sub-soils) remain applicable in the light of information gathered since the last HRA. This should include geology, groundwater flow and groundwater quality with particular reference to upstream groundwater quality;

- 
4. Please confirm that the unsaturated zone thickness remains 2m. Is the regional and local groundwater at the same level as was modelled as part of the PPC application for the site?
 5. Please confirm that the private and licensed abstractions remain applicable and confirm the presence or otherwise of new abstractions. Does Town Brow Farm remain the compliance point for List II substances?
 6. Please confirm that Environment Assessment Levels (EAL's), which should consider whether the previously assumed EAL's are still relevant or whether new EAL's need to be determined (e.g. if background groundwater quality has deteriorated or if new priority contaminants need to be considered);
 7. Please confirm whether ongoing leachate monitoring has identified the presence of any other significant source contaminants in addition to those modelled as part of the 2003 HRA;
 8. Please justify the contaminant half lives that have been modelled;
 9. Please confirm that the cap has been modelled as degrading after 250 years.
 10. The Landsim guidance document requires timeslices of 30, 100, 300, 1000 years and infinity which differ to those that have been used. Please justify the selected parameters that have been used;
 11. Please justify the infiltration to waste parameter. Although the input parameters of (350,50) were outlined within earlier versions of Landsim this is not the case for Landsim 2.5. The input parameter used is considered to represent infiltration to grassland and not to waste;

If you have any queries concerning the above please do not hesitate to contact myself on the telephone number below.

Yours faithfully,

Darren Legge
Technical Specialist (Contaminated Land and Groundwater)

Direct Dial: 01772 714128

16th December 2008

Environment Agency
Lutra House
Dodd Way, Off Seedlee Road
Walton Summit
Bamber Bridge
Preston
Lancashire
PR5 8BX

Attention: Darren Legge

Dear Darren,

RE: Clayton Hall Landfill - Hydrogeological Update Report

Further to your letter to Quercia Ltd dated 25th November 2008 regarding the Hydrogeological Update Report for Clayton Hall Landfill Site, please find below our responses to your comments.

1. We have updated our LandSim model to account for a maximum leachate head of 10m. Please see updated LandSim results in Table 1 (attached). *what does it show??*
2. We have updated our LandSim model to account for an engineered barrier thickness of 0.3m. We have also adjusted the longitudinal dispersivity accordingly to 0.03m. Please see updated LandSim results in Table 1 (attached).
3. The previously assumed relevant pathways, their nature and characteristics and the conceptual site model remain applicable. In the previous HRA, the values used for pathway characteristics were conservative and these have been maintained, e.g.
 - Geology type (sand) and permeabilities (likely 5×10^{-5} m/s)
 - Hydraulic gradient (likely 1:250)

Upstream groundwater quality is measured at BH104D. Monitoring results indicate that the modelled determinands (ammoniacal nitrogen and phenol) are below EAL's.

4. We can confirm that the unsaturated zone (UZ) thickness is 2m (taken to be between 42m AOD and 40m AOD). Quarterly and annual monitoring results show that the groundwater levels have generally remained within the expected range. The UZ thickness is greater than 2m in places (e.g. BH106D) but conservatively modelled in LandSim as 2m.

Coffey Geotechnics Limited

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Registered in England No. 06326315 Vat Number: 638 923 407

305.17-081215-L1.1-landsim

5. BH101 (deep instrument) is the compliance point for List II substances (not Town Brow Farm, noted as the location of a possible private abstraction point in the previous Hydrogeological Risk Assessment). The model indicates that no significant contamination is shown to be present at BH101D (see Table 1 attached). BH101 is downstream of the landfill site (on the boundary of the old landfill) and, therefore, no significant contamination should occur at abstraction points further away.
6. We can confirm that the Environmental Assessment Limits (EAL's) remain the same. Monitoring results show that baseline groundwater quality remains similar to groundwater samples tested since 2003.
7. Elevated levels of ammoniacal nitrogen and phenol in the leachate since 2003 were identified and LandSim modelling has been undertaken for these two determinands (see Table 1 attached). Ongoing monitoring since 2003 has not identified any other significant sources of contamination in the leachate.
8. Ammoniacal nitrogen has a relatively long half-life and is conservatively set at 1×10^9 years in the LandSim model. Phenol has a relatively short half-life by comparison and is estimated to be between 2 and 20 days by the Australian Department of the Environment and a week or more by the Agency for Toxic Substances and Disease Registry (ATSDR). Therefore, we have modified the modelled half-life value for phenol to reflect a uniform distribution between 2 and 20 days (previously set at a value equivalent to 10 days).
9. We have updated our model to account for cap degradation from 250 years onwards.
10. We have updated our model such that the modelled timeslices are as per the LandSim default values (i.e. 30, 100, 300, 100 years to infinity).
11. We have updated our model to account for modified infiltration values. Met Office long term average rainfall (1971-2000) for Manchester Ringway Station is 806mm/yr. We have assumed some evaporation from the waste body would occur and estimate a revised infiltration value of 650mm/yr.

The results of the LandSim model (see Table 1 attached) show that the predicted 50th percentile (i.e. "most likely") concentrations of ammoniacal nitrogen and phenol are below the trigger levels of 9 mg/l and 0.1 mg/l respectively referenced in the Environmental Permit for the site.

If you have any queries regarding the above please do not hesitate to contact Andrew Belton or the undersigned.

For and on behalf of Coffey Geotechnics Ltd

Mark Durham

Project Engineer

cc Howard Rushton
Quercia Ltd

Attachments: Tables 1 and 2 – Summary of LandSim 2.5 results
LandSim 2.5 model results

Results

Tables 1 and 2 summarise the results of the LandSim 2.5 revised modelling carried out in December 2008 for ammoniacal nitrogen and phenols respectively.

Table 1 – Predicted maximum concentrations of phenol at the base of unsaturated zone

		Phenol			
		50 th % (mg/l)	time (yr)	95 th % (mg/l)	time (yr)
Cell Name	3a	$<1 \times 10^{-6}$	NA	$<1 \times 10^{-6}$	NA
	3b	$<1 \times 10^{-6}$	NA	1.1×10^{-4}	25
	3c	$<1 \times 10^{-6}$	NA	$<1 \times 10^{-6}$	NA
	4	$<1 \times 10^{-6}$	NA	1.4×10^{-4}	19

NA – Not Applicable (i.e. corresponding concentration is too small to detect)

Table 2 – Predicted maximum concentrations of ammoniacal nitrogen at the off-site compliance point

	Ammoniacal Nitrogen			
	50 th % (mg/l)	time (yr)	95 th % (mg/l)	time (yr)
Off-site compliance point	1.1	930	31.5	1250

The results show that there is no impact from phenol at the base of the unsaturated zone and no significant impact from ammoniacal nitrogen at the off-site compliance point based on the 50th percentile values (i.e. "most likely").

Model to assess impact of lined Cells 3B, 3C and proposed Cell 4 (Phases 3b, 3c and 4) on base of unsaturated zone and receptor (Town Brow Farm). Aquifer groundwater flow is to N at 40m AOD. Biodegradation within unsaturated zone for phenol and fuel oil.

Concentration of Ammoniacal_N in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.47821E-016

95% of values less than 1.26614E-014

Minimum 0

Maximum 1.37762E-009

Mean 6.85578E-012

Std. Dev. 9.71697E-011

Variance 9.44195E-021

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.7606E-014

90% of values less than 8.71169E-006

95% of values less than 0.00176148

Minimum 0

Maximum 0.688494

Mean 0.00424954

Std. Dev. 0.0488343

Variance 0.00238479

At 300 years

05% of values less than 1.57417E-016

10% of values less than 3.18295E-014

50% of values less than 9.57327E-005

90% of values less than 1.07812

95% of values less than 2.3342

Minimum 0

Maximum 8.94185

Mean 0.410355

Std. Dev. 1.21774

Variance 1.4829

At 1000 years

05% of values less than 1.14902E-011

10% of values less than 1.61699E-008

50% of values less than 1.09429

90% of values less than 9.97113

95% of values less than 19.5335

Minimum 7.82481E-013

Maximum 192.708

Mean 4.59711

Std. Dev. 15.1727

Variance 230.211

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 7.97432E-014

90% of values less than 3.93267E-011

95% of values less than 4.03816E-009

Minimum 0

Maximum 0.005217

Mean 4.76919E-005

Std. Dev. 0.000437885

Variance 1.91744E-007

Model to assess impact of lined Cells 3B, 3C and proposed Cell 4 (Phases 3b, 3c and 4) on base of unsaturated zone and receptor (Town Brow Farm). Aquifer groundwater flow is to N at 40m AOD. Biodegradation within unsaturated zone for phenol and fuel oil.

Concentration of Phenols in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.10274E-013

95% of values less than 7.70504E-011

Minimum 0

Maximum 1.42256E-006

Mean 7.86894E-009

Std. Dev. 1.00585E-007

Variance 1.01174E-014

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 3.15415E-016

90% of values less than 2.44016E-008

95% of values less than 3.04259E-007

Minimum 0

Maximum 4.577E-005

Mean 6.60475E-007

Std. Dev. 4.68653E-006

Variance 2.19635E-011

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 6.25802E-012

90% of values less than 4.5652E-008

95% of values less than 1.67785E-007

Minimum 0

Maximum 8.57693E-006

Mean 1.18557E-007

Std. Dev. 7.84792E-007

Variance 6.15899E-013

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.90411E-010

95% of values less than 2.76401E-009

Minimum 0

Maximum 4.59286E-006

Mean 3.495E-008

Std. Dev. 3.44565E-007

Variance 1.18725E-013

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 2.73595E-015

Mean 1.36117E-017

Std. Dev. 1.92979E-016

Variance 3.72409E-032

Model to assess impact of lined Cells 3B, 3C and proposed Cell 4 (Phases 3b, 3c and 4) on base of unsaturated zone and receptor (Town Brow Farm). Aquifer groundwater flow is to N at 40m AOD. Biodegradation within unsaturated zone for phenol and fuel oil.

Phase: Phase 3b

Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 10.0789

95% of values less than 50.047

Minimum 0

Maximum 161.52

Mean 6.92916

Std. Dev. 24.6212

Variance 606.205

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 10.6208

90% of values less than 267.612

95% of values less than 319.059

Minimum 0

Maximum 524.881

Mean 94.6327

Std. Dev. 119.997

Variance 14399.2

At 300 years

05% of values less than 67.7458

10% of values less than 91.3955

50% of values less than 166.813

90% of values less than 295.965

95% of values less than 318.485

Minimum 0

Maximum 481.576

Mean 179.128

Std. Dev. 84.74

Variance 7180.87

At 1000 years

05% of values less than 3.73252

10% of values less than 8.09685

50% of values less than 24.0695

90% of values less than 64.4065

95% of values less than 94.0466

Minimum 0

Maximum 256.478

Mean 32.9952

Std. Dev. 31.7408

Variance 1007.48

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 5.44735E-014

90% of values less than 4.96512E-013

95% of values less than 1.41476E-012

Minimum 0

Maximum 0.125072

Mean 0.000869588

Std. Dev. 0.0091263

Variance 8.32893E-005

Model to assess impact of lined Cells 3B, 3C and proposed Cell 4 (Phases 3b, 3c and 4) on base of unsaturated zone and receptor (Town Brow Farm). Aquifer groundwater flow is to N at 40m AOD. Biodegradation within unsaturated zone for phenol and fuel oil.

Phase: Phase 3b

Concentration of Phenols at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.65866E-007

95% of values less than 4.46481E-005

Minimum 0

Maximum 0.00476823

Mean 4.36063E-005

Std. Dev. 0.000367624

Variance 1.35147E-007

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.30019E-006

95% of values less than 6.63205E-006

Minimum 0

Maximum 0.00029187

Mean 3.68537E-006

Std. Dev. 2.38666E-005

Variance 5.69613E-010

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 2.2984E-013

90% of values less than 2.23042E-009

95% of values less than 1.15709E-008

Minimum 0

Maximum 1.00732E-007

Mean 2.37477E-009

Std. Dev. 1.08428E-008

Variance 1.17566E-016

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 2.12807E-015

Mean 1.05874E-017

Std. Dev. 1.50103E-016

Variance 2.25308E-032

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Model to assess impact of lined Cells 3B, 3C and proposed Cell 4 (Phases 3b, 3c and 4) on base of unsaturated zone and receptor (Town Brow Farm). Aquifer groundwater flow is to N at 40m AOD. Biodegradation within unsaturated zone for phenol and fuel oil.

Phase: Phase 3c

Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 96.3324

Mean 0.498464

Std. Dev. 6.79881

Variance 46.2238

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 364.244

Mean 9.50982

Std. Dev. 48.0457

Variance 2308.39

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 221.175

95% of values less than 265.604

Minimum 0

Maximum 407.173

Mean 67.6535

Std. Dev. 101.098

Variance 10220.8

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 40.8051

95% of values less than 57.1056

Minimum 0

Maximum 130.568

Mean 12.1235

Std. Dev. 21.111

Variance 445.673

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.98832E-013

95% of values less than 4.9697E-013

Minimum 0

Maximum 4.1088E-012

Mean 1.3042E-013

Std. Dev. 4.98503E-013

Variance 2.48506E-025

Model to assess impact of lined Cells 3B, 3C and proposed Cell 4 (Phases 3b, 3c and 4) on base of unsaturated zone and receptor (Town Brow Farm). Aquifer groundwater flow is to N at 40m AOD. Biodegradation within unsaturated zone for phenol and fuel oil.

Phase: Phase 3c

Concentration of Phenols at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.70629E-007

Mean 1.19173E-009

Std. Dev. 1.28599E-008

Variance 1.65376E-016

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.000114565

Mean 8.51745E-007

Std. Dev. 8.99581E-006

Variance 8.09245E-011

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.35987E-010

95% of values less than 1.92764E-009

Minimum 0

Maximum 1.54037E-007

Mean 1.92757E-009

Std. Dev. 1.41801E-008

Variance 2.01075E-016

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Model to assess impact of lined Cells 3B, 3C and proposed Cell 4 (Phases 3b, 3c and 4) on base of unsaturated zone and receptor (Town Brow Farm). Aquifer groundwater flow is to N at 40m AOD. Biodegradation within unsaturated zone for phenol and fuel oil.

Phase: Phase 4

Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 53.387

95% of values less than 127.254

Minimum 0

Maximum 284.268

Mean 16.6256

Std. Dev. 44.0954

Variance 1944.4

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 132.589

90% of values less than 301.049

95% of values less than 333.467

Minimum 0

Maximum 570.122

Mean 135.847

Std. Dev. 127.257

Variance 16194.4

At 300 years

05% of values less than 57.9451

10% of values less than 84.2101

50% of values less than 173.31

90% of values less than 290.97

95% of values less than 336.306

Minimum 8.35267

Maximum 510.836

Mean 180.774

Std. Dev. 86.9071

Variance 7552.84

At 1000 years

05% of values less than 5.53416

10% of values less than 6.59416

50% of values less than 26.1019

90% of values less than 69.7936

95% of values less than 85.3468

Minimum 0.813724

Maximum 156.495

Mean 34.1863

Std. Dev. 28.2858

Variance 800.087

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 8.58964E-014

90% of values less than 1.00148E-012

95% of values less than 1.80225E-012

Minimum 0

Maximum 0.0194151

Mean 0.000186072

Std. Dev. 0.00186176

Variance 3.46614E-006

Model to assess impact of lined Cells 3B, 3C and proposed Cell 4 (Phases 3b, 3c and 4) on base of unsaturated zone and receptor (Town Brow Farm). Aquifer groundwater flow is to N at 40m AOD. Biodegradation within unsaturated zone for phenol and fuel oil.

Phase: Phase 4

Concentration of Phenols at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.20429E-005

95% of values less than 7.2699E-005

Minimum 0

Maximum 0.00405015

Mean 4.10121E-005

Std. Dev. 0.000304664

Variance 9.28202E-008

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.06173E-012

90% of values less than 3.30443E-006

95% of values less than 1.37226E-005

Minimum 0

Maximum 0.000200751

Mean 3.45561E-006

Std. Dev. 1.79911E-005

Variance 3.23679E-010

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 6.19938E-013

90% of values less than 2.15511E-009

95% of values less than 7.85338E-009

Minimum 0

Maximum 6.77148E-008

Mean 1.66642E-009

Std. Dev. 6.8643E-009

Variance 4.71186E-017

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.31585E-015

Mean 7.62048E-018

Std. Dev. 9.33597E-017

Variance 8.71603E-033

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Model to assess impact of lined Cells 3B, 3C and proposed Cell 4 (Phases 3b, 3c and 4) on base of unsaturated zone and receptor (Town Brow Farm). Aquifer groundwater flow is to N at 40m AOD. Biodegradation within unsaturated zone for phenol and fuel oil.

Phase: Phase 3a*Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Model to assess impact of lined Cells 3B, 3C and proposed Cell 4 (Phases 3b, 3c and 4) on base of unsaturated zone and receptor (Town Brow Farm). Aquifer groundwater flow is to N at 40m AOD. Biodegradation within unsaturated zone for phenol and fuel oil.

Phase: Phase 3a*Concentration of Phenols at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Martin Lovelock

From: Legge, Darren [darren.legge@environment-agency.gov.uk]
Sent: 08 October 2009 13:45
To: Martin Lovelock
Subject: Clayton Hall LFS : HRA Review
 Martin,

We agreed at the meeting we had on 18 August 2009 that we would have a look at the Coffey reply re the HRA Review and send our comments to you. You can then review the most recent Coffey HRA submission and amend in order to justify his revised monitoring plan.

My comments re the Coffey letter of December 2008 are;

1. Before we could agree to the suitability of the review the actual input parameters and graphical plots would need to be provided. The information provided by Coffey only includes the outputs but none of the other information;
2. Coffey have related the 50%ile concentrations as being the most likely and as such have reported these values. However, the 95%ile provides a higher degree of confidence with regard the performance of the engineering measures at the site and allows for any uncertainties when estimating this performance. On this basis, the 95%ile is considered to be what we as an Agency prefer as it provides a more reasonable assessment level. Any further assessments will need to consider the 95%ile;

Without having first reviewed the missing input parameters and graphical plots it appears that phenol is ok (this was initially assessed as being a List I substance but is now List II) but ammoniacal nitrogen isn't. The DWS is 0.39mg/l and the current trigger level is 9mg/l whilst the output at 95%ile is 31.5mg/l although it takes 1250 years to achieve this. Currently the monitoring has not indicated any breach of the trigger level and it will take a significant number of years to achieve this concentration. However in time it could be that modelling becomes a more accurate predictive tool and the time period for the higher concentrations to occur is reduced. If this was the case, remedial measures will be required.

It is interesting that the original HRA that was submitted in 2003 as part of the permit application modelled a 1m head and that this resulted in a maximum ammoniacal nitrogen concentration of 1.49mg/l. Therefore, using an increased leachate head makes the situation worse.

3. Any further modelling/justification should confirm when the current trigger level for ammoniacal nitrogen will be exceeded after relevant leachate heads and input parameters are used.

Regards

Darren
 Darren Legge
 Technical Specialist (Geotechnics and Landfill Engineering)
 Groundwater and Contaminated Land Team, NW Region, North Area.

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08/10/2009

Martin Lovelock

From: Grahame Crank [Grahame.Crank@neales-waste.co.uk]
Sent: 24 February 2010 17:01
To: Martin Lovelock
Cc: Claire Gettinby
Subject: FW: Hra clayton hall
Attachments: LandSim model inputs.pdf; Phenols - base of 3a.pdf; Phenols - base of 3b.pdf; Phenols - base of 3c.pdf; Phenols - base of 4.pdf; Phenols - compliance point.pdf; Amm N - compliance point.pdf

From: Mark Durham [mailto:Mark_Durham@coffey.com]
Sent: 24 February 2010 16:06
To: Grahame Crank
Cc: Kourosh Azimi
Subject: RE: Hra clayton hall

Grahame,

Further to the comments from Darren Legge (EA) to our HRA update report in July 2008, we have the following comments.

We have taken the opportunity to update the LandSim 2.5 model undertaken in July 2008. The updated model takes in to account the most recent monitoring data to the end of 2009, revised engineered barrier inputs (taking account of as-built information and conformance testing) and treatment of leachate on site as follows.

- Leachate inventory – "likely" value of 1,000 mg/l, maximum of 2,000 mg/l – *check?*
- Engineered barrier (see EDGE CQA reports from 2002 and 2003)
 - thickness of BES 0.3 to 0.35m (thickness greater in places, e.g. 0.36 to 0.39m)
 - Hydraulic conductivity of BES 4×10^{-11} to 1×10^{-10} m/s (from conformance testing)
- Leachate – rate of 0.5 m³/hr for each cell to account for leachate treatment rate of 50 m³/day – ? (see below)

A leachate treatment system is in operation at the site. Leachate is pumped from the landfill cells and transported to three 30,000 litre treatment tanks at a rate of 50 m³/day. The leachate is treated at this location prior to disposal to sewer. Testing of ammoniacal nitrogen shows levels are generally at a maximum of around 200 mg/l (licensed disposal to sewer limit is 250 mg/l). LandSim 2.5 assumes any *no* leachate that is treated is recirculated into the landfill. The updated model includes treatment of the leachate at the rate specified above and in conjunction with conservative "likely" and maximum input values.

Leachate heads remain the same, conservatively modelled with a maximum level of 10m. We have attached pdf files with the relevant model data as follows.

- LandSim 2.5 model inputs
- Six pdf graphical output files, one for ammoniacal nitrogen at the compliance point and five for phenol at the base of the unsaturated zone for each cell and at the compliance point.

The results using the 95th percentile show no impact (i.e. results below trigger levels) from phenol at the base of the unsaturated zone or ammoniacal nitrogen at the compliance point. Model predictions indicate that ammoniacal nitrogen does not exceed the trigger level of 9 mg/l at the compliance point at any point in the future.

I hope this satisfies your immediate requirements. If you have any queries, please do not hesitate to contact me.

Regards,

25/02/2010

Martin Lovelock

From: Legge, Darren [darren.legge@environment-agency.gov.uk]

Sent: 05 March 2010 15:46

To: Martin Lovelock

Cc: Glyn-Jones, Thomas

Subject: Clayton Hall LFS : HRA Review

Martin,

I have assessed your letter of 26 February 2010 and concerning the HRA review that was originally provided by Coffey.

I note that you have revised the model input parameters to take account of the further information that has been obtained since the initial submission was made. However, the input parameters for the number of defects to the geomembrane remain well below those used as the Landsim 2.5 default values. The reason for this has never been justified. Please could you confirm why these low values have been used?

Regards

Darren Legge
Technical Specialist (Geotechnics and Landfill Engineering)
Groundwater and Contaminated Land Team, NW Region, North Area.

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Martin Lovelock

From: Martin Lovelock
Sent: 09 March 2010 09:47
To: 'Legge, Darren'
Subject: Clayton Hall

Darren

I have just received the following response from Coffeys regarding your query about geomembrane defects and the values used in the LandSim model submitted recently.

Please confirm receipt of this and the model itself and let me know whether you are now satisfied with the HRA review submitted.

Coffeys response is as follows:

In response to the EA comments, the number of defects (pin holes, holes and tears) to the geomembrane used in the LandSim 2.5 model I emailed on 24th February utilises LandSim default values based on CQA supervision of the lining system. This is selected in LandSim 2.5 by ticking the box at the top of the "Engineered Barrier" input parameter page.

We have utilised these default values as EDGE / Coffey provided CQA supervision during the lining works at Clayton Hall from 2002 onwards.

Best Regards

MARTIN LOVELOCK
Technical Director

THE ARLEY CONSULTING COMPANY LIMITED
Chorleian House, 49 - 51 St Thomas's Road, Chorley, Lancashire, PR7 1JE

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Martin Lovelock

From: Legge, Darren [darren.legge@environment-agency.gov.uk]
Sent: 16 March 2010 15:00
To: Martin Lovelock
Cc: Glyn-Jones, Thomas
Subject: RE: Clayton Hall

Martin,

Further to the submission of the HRA review for the above site by Coffey via their letter to the Environment Agency dated 23 July 2008 and subsequent correspondence the most recent being your emails of 8 and 9 March 2010.

I can confirm that we can accept the risk assessment.

Where the operator proposes, via a variation to the existing permit, to manage leachate above the current levels and this is supported by the required groundwater risk assessment, further risk assessments will be required in order to ensure that;

- The ability of the site to provide for effective landfill gas management will not be adversely effected and lateral migration will not result;
- The stability of the waste and the landfill as a whole will not be effected;
- Accident scenarios will be considered that will assess the impact of an increased leachate head;
- The increased leachate heads will not result in surface outbreak and resultant odours or contamination off the contained area.
- To assist us in determining a permit variation please provide the necessary amendments to the leachate management plan.

Regards

Darren

Darren Legge
 Technical Specialist (Geotechnics and Landfill Engineering)
 Groundwater and Contaminated Land Team, NW Region, North Area.

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 Fax: 01772 627730
 email: darren.legge@environment-agency.gov.uk

From: Martin Lovelock [mailto:mlovelock@taccl.co.uk]
Sent: 09 March 2010 09:47
To: Legge, Darren
Subject: Clayton Hall

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Darren

APPENDIX 4

MODEL INPUT AND OUTPUT FILES

Calculation Settings

Number of iterations: 201

Results calculated using sampled PDFs

Full Calculation

Clay Liner:

Unretarded values used for simulation

No Biodegradation

Unsaturated Pathway:

Retarded values used for simulation

Biodegradation

Saturated Vertical Pathway:

No Vertical Pathway

Aquifer Pathway:

Retarded values used for simulation

Biodegradation

Timeslices at: 30, 100, 300, 1000

Decline in Contaminant Concentration in Leachate

TPH aliphatic C12-16 Half life (years): 10	Volatile
TPH aliphatic C16-35 c (kg/l): 0	Non-Volatile m (kg/l): 0
TPH aromatic C5-7 (benzene) Half life (years): 10	Volatile
TPH aromatic C7-8 (toluene) Half life (years): 10	Volatile
TPH aromatic C8-10 Half life (years): 10	Volatile
TPH aromatic C10-12 Half life (years): 10	Volatile
TPH aromatic C12-16 Half life (years): 10	Volatile
TPH aromatic C16-C21 c (kg/l): 0	Non-Volatile m (kg/l): 0
TPH aromatic C21-35 c (kg/l): 0	Non-Volatile m (kg/l): 0
Phenols group 1-phenol+ Half life (years): 10	Volatile
Phenols group 2 - cresols+ Half life (years): 10	Volatile
Phenols group 3 - xylenols + Half life (years): 10	Volatile
Phenols group 4 - chlorophenols+ Half life (years): 10	Volatile
Phenols group 5 - nitrophenols + Half life (years): 10	Volatile

Contaminant Half-lives (years)

Unsaturated Pathway:

TPH aliphatic C5-6	UNIFORM(0.3,6)
TPH aliphatic C6-8	UNIFORM(0.3,6)
TPH aliphatic C8-10	UNIFORM(0.3,6)
TPH aliphatic C10-12	UNIFORM(0.3,6)
TPH aliphatic C12-16	UNIFORM(0.3,6)
TPH aliphatic C16-35	UNIFORM(4,10)
TPH aromatic C5-7 (benzene)	UNIFORM(0.2,1.4)
TPH aromatic C7-8 (toluene)	UNIFORM(0.1,1)
TPH aromatic C8-10	UNIFORM(0.2,2)
TPH aromatic C10-12	UNIFORM(0.3,3)
TPH aromatic C12-16	UNIFORM(1,3)
TPH aromatic C16-C21	UNIFORM(1,10)
TPH aromatic C21-35	UNIFORM(4,10)
Phenols group 1-phenol+	SINGLE(1)
Phenols group 2 - cresols+	SINGLE(1)
Phenols group 3 - xylenols +	SINGLE(1)
Phenols group 4 - chlorophenols+	SINGLE(1e+009)
Phenols group 5 - nitrophenols +	SINGLE(1)

Aquifer Pathway:

TPH aliphatic C5-6	UNIFORM(0.3,6)
TPH aliphatic C6-8	UNIFORM(0.3,6)
TPH aliphatic C8-10	UNIFORM(0.3,6)
TPH aliphatic C10-12	UNIFORM(0.3,6)
TPH aliphatic C12-16	UNIFORM(0.3,6)
TPH aliphatic C16-35	UNIFORM(4,10)
TPH aromatic C5-7 (benzene)	UNIFORM(0.2,1.4)
TPH aromatic C7-8 (toluene)	UNIFORM(0.1,1)
TPH aromatic C8-10	UNIFORM(0.2,2)
TPH aromatic C10-12	UNIFORM(0.3,3)
TPH aromatic C12-16	UNIFORM(1,3)
TPH aromatic C16-C21	UNIFORM(1,10)
TPH aromatic C21-35	UNIFORM(4,10)
Phenols group 1-phenol+	SINGLE(1)
Phenols group 2 - cresols+	SINGLE(1)
Phenols group 3 - xylenols +	SINGLE(1)
Phenols group 4 - chlorophenols+	SINGLE(1e+009)
Phenols group 5 - nitrophenols +	SINGLE(1)

Background Concentrations of Contaminants

Justification for Contaminant Properties

Landsim and literature values [CHANGED] [CHANGED] [CHANGED] [CHANGED] [CHANGED] [CHANGED]
[CHANGED] [CHANGED] [CHANGED] [CHANGED] [CHANGED] [CHANGED] [CHANGED] [CHANGED]

All units in milligrams per litre

Phase: Cell 3b**Infiltration Information**

Cap design infiltration (mm/year):	NORMAL(50,20)
Infiltration to waste (mm/year):	NORMAL(650,50)
Infiltration to grassland (mm/year):	NORMAL(350,50)
End of filling (years from start of waste deposit):	20
Start of cap degradation (years from end of waste deposit):	250
End of cap degradation (years from end of waste deposit):	1000

Justification for Specified Infiltration

2010 HRA

Duration of management control (years from the start of waste disposal): 20

Leachate recirculated AND TREATED (m³/hr for this phase) SINGLE(0.5)**Cell dimensions**

Cell width (m):	58
Cell length (m):	70
Cell top area (ha):	1.1
Cell base area (ha):	0.406
Number of cells:	1
Total base area (ha):	0.406
Total top area (ha):	1.1
Head of Leachate when surface water breakout occurs (m)	SINGLE(30)
Waste porosity (fraction)	UNIFORM(0.1,0.15)
Final waste thickness (m):	UNIFORM(10,48)
Field capacity (fraction):	UNIFORM(0.2,0.4)
Waste dry density (kg/l)	UNIFORM(1,1.2)

Justification for Landfill Geometry

2010 HRA and updated based on current cell dimensions

Source concentrations of contaminants*All units in milligrams per litre*

Declining source term

Ammoniacal_N	LOGTRIANGULAR(1600,1645,1750) <i>Data are spot measurements of Leachate Quality</i>
Chloride	LOGTRIANGULAR(2,1228,3410) <i>Data are spot measurements of Leachate Quality</i>
Mercury	LOGTRIANGULAR(1e-005,1e-005,0.1) <i>Substance to be treated as List 1</i>
Pesticides (total)	LOGTRIANGULAR(1e-005,1e-005,0.0008) <i>Substance to be treated as List 1</i>
TPH aliphatic C5-6	LOGTRIANGULAR(0.245,0.393,0.548) <i>Substance to be treated as List 1</i>
TPH aliphatic C6-8	LOGTRIANGULAR(0.076,0.118,0.227) <i>Substance to be treated as List 1</i>
TPH aliphatic C8-10	LOGTRIANGULAR(0.066,0.078,0.143) <i>Substance to be treated as List 1</i>
TPH aliphatic C10-12	LOGTRIANGULAR(0.132,0.142,0.219) <i>Substance to be treated as List 1</i>
TPH aliphatic C12-16	LOGTRIANGULAR(0.01,0.0115,0.05) <i>Substance to be treated as List 1</i>
TPH aliphatic C16-35	LOGTRIANGULAR(0.015,0.062,0.262) <i>Substance to be treated as List 1</i>
TPH aromatic C5-7 (benzene)	LOGTRIANGULAR(0.01,0.01,0.011) <i>Substance to be treated as List 1</i>
TPH aromatic C7-8 (toluene)	LOGTRIANGULAR(0.008,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH aromatic C8-10	LOGTRIANGULAR(0.054,0.063,0.186) <i>Substance to be treated as List 1</i>
TPH aromatic C10-12	LOGTRIANGULAR(0.088,0.0945,0.146) <i>Substance to be treated as List 1</i>
TPH aromatic C12-16	LOGTRIANGULAR(0.05,0.165,0.458) <i>Substance to be treated as List 1</i>
TPH aromatic C16-C21	LOGTRIANGULAR(0.022,0.108,0.207) <i>Substance to be treated as List 1</i>
TPH aromatic C21-35	LOGTRIANGULAR(0.05,0.123,0.143) <i>Substance to be treated as List 1</i>
Phenols group 1-phenol+	LOGTRIANGULAR(0.98,2.35,5.35) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols+	LOGTRIANGULAR(2.65,10.29,16.8) <i>Substance to be treated as List 1</i>
Phenols group 3 - xlenols +	LOGTRIANGULAR(0.0057,0.31,1.17) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols+	LOGTRIANGULAR(0.001,0.13,0.52) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols +	SINGLE(0.001) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

2010 HRA and 2008-2019 leachate data [CHANGED] [CHANGED] [CHANGED] [CHANGED] [CHANGED]

Source concentrations of contaminants*All units in milligrams per litre*

Ammoniacal_N	LOGTRIANGULAR(1600,1645,1750) <i>Data are spot measurements of Leachate Quality</i>
Chloride	LOGTRIANGULAR(2,1228,3410) <i>Data are spot measurements of Leachate Quality</i>
Mercury	LOGTRIANGULAR(1e-005,1e-005,0.1) <i>Substance to be treated as List 1</i>
Pesticides (total)	LOGTRIANGULAR(1e-005,1e-005,0.0008) <i>Substance to be treated as List 1</i>
TPH aliphatic C5-6	LOGTRIANGULAR(0.245,0.393,0.548) <i>Substance to be treated as List 1</i>
TPH aliphatic C6-8	LOGTRIANGULAR(0.076,0.118,0.227) <i>Substance to be treated as List 1</i>
TPH aliphatic C8-10	LOGTRIANGULAR(0.066,0.078,0.143) <i>Substance to be treated as List 1</i>
TPH aliphatic C10-12	LOGTRIANGULAR(0.132,0.142,0.219) <i>Substance to be treated as List 1</i>
TPH aliphatic C12-16	LOGTRIANGULAR(0.01,0.0115,0.05) <i>Substance to be treated as List 1</i>
TPH aliphatic C16-35	LOGTRIANGULAR(0.015,0.062,0.262) <i>Substance to be treated as List 1</i>
TPH aromatic C5-7 (benzene)	LOGTRIANGULAR(0.01,0.01,0.011) <i>Substance to be treated as List 1</i>
TPH aromatic C7-8 (toluene)	LOGTRIANGULAR(0.008,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH aromatic C8-10	LOGTRIANGULAR(0.054,0.063,0.186) <i>Substance to be treated as List 1</i>
TPH aromatic C10-12	LOGTRIANGULAR(0.088,0.0945,0.146) <i>Substance to be treated as List 1</i>
TPH aromatic C12-16	LOGTRIANGULAR(0.05,0.165,0.458) <i>Substance to be treated as List 1</i>
TPH aromatic C16-C21	LOGTRIANGULAR(0.022,0.108,0.207) <i>Substance to be treated as List 1</i>
TPH aromatic C21-35	LOGTRIANGULAR(0.05,0.123,0.143) <i>Substance to be treated as List 1</i>
Phenols group 1-phenol+	LOGTRIANGULAR(0.98,2.35,5.35) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols+	LOGTRIANGULAR(2.65,10.29,16.8) <i>Substance to be treated as List 1</i>
Phenols group 3 - xylenols +	LOGTRIANGULAR(0.0057,0.31,1.17) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols+	LOGTRIANGULAR(0.001,0.13,0.52) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols +	SINGLE(0.001) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

2010 HRA and 2008-2019 leachate data [CHANGED] [CHANGED] [CHANGED] [CHANGED] [CHANGED]

Drainage Information

Fixed Head.

Head on EBS is given as (m): TRIANGULAR(0.25,1,3)

Justification for Specified Head

2010 HRA and Permit

Barrier Information

There is a composite barrier

Justification for Engineered Barrier Type

2010 HRA

Liner installed under CQA

Design thickness of clay (m): UNIFORM(0.3,0.35)

Density of clay (kg/l): UNDEFINED

Pathway moisture content (fraction): UNIFORM(0.18,0.22)

Onset of FML degradation (years since filling commenced) 150

Pathway longitudinal dispersivity (m): UNIFORM(0.03,0.035)

Time for area of defects to double (years) 100

Membrane defects (number per hectare):

Pin holes: Minimum 0, Maximum 5

Holes: Minimum 0, Maximum 2

Tears: Minimum 0, Most Likely 0.0001, Maximum 0.0001

The most likely value for the PDFs representing the density of pinholes and holes will move from the minimum value selected above to the maximum value selected above over the time period before FML degradation commences

Justification for Composite: Flexible Membrane Liner

2010 HRA

Hydraulic conductivity of mineral lower liner (m/s): LOGUNIFORM(4e-011,1e-010)

Justification for Composite: Clay or BES Substrate Properties

2010 HRA

Retardation parameters for clay liner

No retardation values used in this simulation.

Check 'Unretarded Contaminant Transport' setting under simulation preferences.

Sands pathway parameters*Modelled as unsaturated pathway*

Pathway length (m):	SINGLE(2)
Flow Model:	porous medium
Pathway moisture content (fraction):	TRIANGULAR(0.05,0.1,0.15)
Pathway Density (kg/l):	UNIFORM(1.7,2.1)

Justification for Unsat Zone Geometry

2010 HRA

Pathway hydraulic conductivity values (m/s):	LOGTRIANGULAR(1e-007,5e-005,0.0001)
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Justification for Unsat Zone Hydraulics Properties

2010 HRA

Pathway longitudinal dispersivity (m):	SINGLE(0.2)
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Justification for Unsat Zone Dispersion Properties

2010 HRA

Retardation parameters for Sands pathway

Modelled as unsaturated pathway

Uncertainty in Kd (l/kg):

Ammoniacal_N	LOGUNIFORM(0.5,2)
Chloride	SINGLE(0)
Mercury	LOGUNIFORM(450,3835)
Pesticides (total): Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(5.3,200,1164)
TPH aliphatic C5-6: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(812)
TPH aliphatic C6-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(3802)
TPH aliphatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(30200)
TPH aliphatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(239883)
TPH aliphatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.37e+006)
TPH aliphatic C16-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.75e+008)
TPH aromatic C5-7 (benzene): Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(67.6)
TPH aromatic C7-8 (toluene): Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(204)
TPH aromatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(1585)
TPH aromatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(2512)
TPH aromatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5012)
TPH aromatic C16-C21: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(14125)
TPH aromatic C21-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(125900)
Phenols group 1-phenol+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,28.8,117)
Phenols group 2 - cresols+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(22,158,316)
Phenols group 3 - xylenols +: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(170,430,800)
Phenols group 4 - chlorophenols+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(140,500,3000)
Phenols group 5 - nitrophenols +: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,60,500)
Fraction of Organic Carbon (fraction)	UNIFORM(0.0005,0.001)

Justification for Kd Values by Species

Am N, Hg, Chloride - Landsim. Phenols, fuel oils, pesticides - literature, HRA 2010.

Aquifer Pathway Dimensions for Phase

Pathway length (m):	UNIFORM(615,735)
	SINGLE(95)

Phase: Cell 3a**Infiltration Information**

Cap design infiltration (mm/year):	NORMAL(50,20)
Infiltration to waste (mm/year):	NORMAL(650,50)
Infiltration to grassland (mm/year):	NORMAL(350,50)
End of filling (years from start of waste deposit):	20
Start of cap degradation (years from end of waste deposit):	250
End of cap degradation (years from end of waste deposit):	1000

Justification for Specified Infiltration

2010 HRA

Duration of management control (years from the start of waste disposal): 22

Leachate recirculated AND TREATED (m³/hr for this phase) SINGLE(0.5)

Cell dimensions

Cell width (m):	50
Cell length (m):	25
Cell top area (ha):	1.2
Cell base area (ha):	0.125
Number of cells:	1
Total base area (ha):	0.125
Total top area (ha):	1.2
Head of Leachate when surface water breakout occurs (m)	SINGLE(30)
Waste porosity (fraction)	UNIFORM(0.1,0.15)
Final waste thickness (m):	UNIFORM(10,43)
Field capacity (fraction):	UNIFORM(0.2,0.4)
Waste dry density (kg/l)	UNIFORM(1,1.2)

Justification for Landfill Geometry

2010 HRA and 2019 topo

Source concentrations of contaminants*All units in milligrams per litre*

Declining source term

Ammoniacal_N	LOGTRIANGULAR(2090,2565,3750) <i>Data are spot measurements of Leachate Quality</i>
Chloride	LOGTRIANGULAR(2,1228,3410) <i>Data are spot measurements of Leachate Quality</i>
Mercury	LOGTRIANGULAR(1e-005,1e-005,0.1) <i>Substance to be treated as List 1</i>
Pesticides (total)	LOGTRIANGULAR(1e-005,1e-005,0.0008) <i>Substance to be treated as List 1</i>
TPH aliphatic C5-6	LOGTRIANGULAR(0.232,0.298,0.313) <i>Substance to be treated as List 1</i>
TPH aliphatic C6-8	LOGTRIANGULAR(0.052,0.076,0.079) <i>Substance to be treated as List 1</i>
TPH aliphatic C8-10	LOGTRIANGULAR(0.023,0.049,0.052) <i>Substance to be treated as List 1</i>
TPH aliphatic C10-12	LOGTRIANGULAR(0.038,0.101,0.126) <i>Substance to be treated as List 1</i>
TPH aliphatic C12-16	LOGTRIANGULAR(0.01,0.0115,0.05) <i>Substance to be treated as List 1</i>
TPH aliphatic C16-35	LOGTRIANGULAR(0.054,0.07,0.148) <i>Substance to be treated as List 1</i>
TPH aromatic C5-7 (benzene)	LOGTRIANGULAR(0.007,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH aromatic C7-8 (toluene)	LOGTRIANGULAR(0.004,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH aromatic C8-10	LOGTRIANGULAR(0.018,0.037,0.068) <i>Substance to be treated as List 1</i>
TPH aromatic C10-12	LOGTRIANGULAR(0.025,0.067,0.084) <i>Substance to be treated as List 1</i>
TPH aromatic C12-16	LOGTRIANGULAR(0.025,0.043,0.235) <i>Substance to be treated as List 1</i>
TPH aromatic C16-C21	LOGTRIANGULAR(0.01,0.03,0.183) <i>Substance to be treated as List 1</i>
TPH aromatic C21-35	LOGTRIANGULAR(0.01,0.035,0.1) <i>Substance to be treated as List 1</i>
Phenols group 1-phenol+	LOGTRIANGULAR(0.001,0.135,0.49) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols+	LOGTRIANGULAR(0.001,0.09,0.3) <i>Substance to be treated as List 1</i>
Phenols group 3 - xlenols +	LOGTRIANGULAR(0.001,0.015,0.05) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols+	LOGTRIANGULAR(0.001,0.09,0.35) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols +	SINGLE(0.001) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

2010 HRA and 2008-2019 leachate data [CHANGED] [CHANGED] [CHANGED] [CHANGED]

Source concentrations of contaminants*All units in milligrams per litre*

Ammoniacal_N	LOGTRIANGULAR(2090,2565,3750) <i>Data are spot measurements of Leachate Quality</i>
Chloride	LOGTRIANGULAR(2,1228,3410) <i>Data are spot measurements of Leachate Quality</i>
Mercury	LOGTRIANGULAR(1e-005,1e-005,0.1) <i>Substance to be treated as List 1</i>
Pesticides (total)	LOGTRIANGULAR(1e-005,1e-005,0.0008) <i>Substance to be treated as List 1</i>
TPH aliphatic C5-6	LOGTRIANGULAR(0.232,0.298,0.313) <i>Substance to be treated as List 1</i>
TPH aliphatic C6-8	LOGTRIANGULAR(0.052,0.076,0.079) <i>Substance to be treated as List 1</i>
TPH aliphatic C8-10	LOGTRIANGULAR(0.023,0.049,0.052) <i>Substance to be treated as List 1</i>
TPH aliphatic C10-12	LOGTRIANGULAR(0.038,0.101,0.126) <i>Substance to be treated as List 1</i>
TPH aliphatic C12-16	LOGTRIANGULAR(0.01,0.0115,0.05) <i>Substance to be treated as List 1</i>
TPH aliphatic C16-35	LOGTRIANGULAR(0.054,0.07,0.148) <i>Substance to be treated as List 1</i>
TPH aromatic C5-7 (benzene)	LOGTRIANGULAR(0.007,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH aromatic C7-8 (toluene)	LOGTRIANGULAR(0.004,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH aromatic C8-10	LOGTRIANGULAR(0.018,0.037,0.068) <i>Substance to be treated as List 1</i>
TPH aromatic C10-12	LOGTRIANGULAR(0.025,0.067,0.084) <i>Substance to be treated as List 1</i>
TPH aromatic C12-16	LOGTRIANGULAR(0.025,0.043,0.235) <i>Substance to be treated as List 1</i>
TPH aromatic C16-C21	LOGTRIANGULAR(0.01,0.03,0.183) <i>Substance to be treated as List 1</i>
TPH aromatic C21-35	LOGTRIANGULAR(0.01,0.035,0.1) <i>Substance to be treated as List 1</i>
Phenols group 1-phenol+	LOGTRIANGULAR(0.001,0.135,0.49) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols+	LOGTRIANGULAR(0.001,0.09,0.3) <i>Substance to be treated as List 1</i>
Phenols group 3 - xylenols +	LOGTRIANGULAR(0.001,0.015,0.05) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols+	LOGTRIANGULAR(0.001,0.09,0.35) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols +	SINGLE(0.001) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

2010 HRA and 2008-2019 leachate data [CHANGED] [CHANGED] [CHANGED] [CHANGED]

Drainage Information

Fixed Head.

Head on EBS is given as (m):

TRIANGULAR(0.25,1,3)

Justification for Specified Head

2010 HRA

Barrier Information

There is a single clay barrier

Justification for Engineered Barrier Type

2010 HRA

Design thickness of clay (m):

SINGLE(2)

Density of clay (kg/l):

UNDEFINED

Pathway moisture content (fraction):

UNIFORM(0.18,0.22)

Justification for Clay: Liner Thickness

2010 HRA

Hydraulic conductivity of liner (m/s):

LOGTRIANGULAR(1e-010,1e-009,1e-008)

Pathway longitudinal dispersivity (m):

SINGLE(0.2)

Justification for Clay: Hydraulics Properties

2010 HRA

Retardation parameters for clay liner

No retardation values used in this simulation.

Check 'Unretarded Contaminant Transport' setting under simulation preferences.

Sands pathway parameters*Modelled as unsaturated pathway*

Pathway length (m):	SINGLE(2)
Flow Model:	porous medium
Pathway moisture content (fraction):	TRIANGULAR(0.05,0.1,0.15)
Pathway Density (kg/l):	UNIFORM(1.7,2.1)

Justification for Unsat Zone Geometry

2010 HRA

Pathway hydraulic conductivity values (m/s):	LOGTRIANGULAR(1e-007,5e-005,0.0001)
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Justification for Unsat Zone Hydraulics Properties

2010 HRA

Pathway longitudinal dispersivity (m):	SINGLE(0.2)
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Justification for Unsat Zone Dispersion Properties

2010 HRA

Retardation parameters for Sands pathway

Modelled as unsaturated pathway

Uncertainty in Kd (l/kg):

Ammoniacal_N	LOGUNIFORM(0.5,2)
Chloride	SINGLE(0)
Mercury	LOGUNIFORM(450,3835)
Pesticides (total): Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(5.3,200,1164)
TPH aliphatic C5-6: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(812)
TPH aliphatic C6-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(3802)
TPH aliphatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(30200)
TPH aliphatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(239883)
TPH aliphatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.37e+006)
TPH aliphatic C16-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.75e+008)
TPH aromatic C5-7 (benzene): Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(67.6)
TPH aromatic C7-8 (toluene): Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(204)
TPH aromatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(1585)
TPH aromatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(2512)
TPH aromatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5012)
TPH aromatic C16-C21: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(14125)
TPH aromatic C21-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(125892)
Phenols group 1-phenol+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,28.8,117)
Phenols group 2 - cresols+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(22,158,316)
Phenols group 3 - xylenols +: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(170,430,800)
Phenols group 4 - chlorophenols+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(140,500,3000)
Phenols group 5 - nitrophenols +: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,60,500)
Fraction of Organic Carbon (fraction)	UNIFORM(0.0005,0.001)

Justification for Kd Values by Species

Am N, Hg, Chloride - Landsim. Phenols, fuel oils, pesticides - literature, HRA 2010. [CHANGED] [CHANGED]

Aquifer Pathway Dimensions for Phase

Pathway length (m):	UNIFORM(517.5,612.5)
	SINGLE(140)

Phase: Cell 3c**Infiltration Information**

Cap design infiltration (mm/year):	NORMAL(50,20)
Infiltration to waste (mm/year):	NORMAL(650,50)
Infiltration to grassland (mm/year):	NORMAL(350,50)
End of filling (years from start of waste deposit):	20
Start of cap degradation (years from end of waste deposit):	250
End of cap degradation (years from end of waste deposit):	1000

Justification for Specified Infiltration

2010 HRA

Duration of management control (years from the start of waste disposal): 22

Leachate recirculated AND TREATED (m³/hr for this phase) SINGLE(0.5)

Cell dimensions

Cell width (m):	33
Cell length (m):	70
Cell top area (ha):	1.4
Cell base area (ha):	0.231
Number of cells:	1
Total base area (ha):	0.231
Total top area (ha):	1.4
Head of Leachate when surface water breakout occurs (m)	SINGLE(30)
Waste porosity (fraction)	UNIFORM(0.1,0.15)
Final waste thickness (m):	UNIFORM(10,46)
Field capacity (fraction):	UNIFORM(0.2,0.4)
Waste dry density (kg/l)	UNIFORM(1,1.2)

Justification for Landfill Geometry

2010 HRA and updated based on current cell dimensions

Source concentrations of contaminants*All units in milligrams per litre*

Declining source term

Ammoniacal_N	LOGTRIANGULAR(2000,2525,3810) <i>Data are spot measurements of Leachate Quality</i>
Chloride	LOGTRIANGULAR(2,1228,3410) <i>Data are spot measurements of Leachate Quality</i>
Mercury	LOGTRIANGULAR(1e-005,1e-005,0.1) <i>Substance to be treated as List 1</i>
Pesticides (total)	LOGTRIANGULAR(1e-005,1e-005,0.0008) <i>Substance to be treated as List 1</i>
TPH aliphatic C5-6	LOGTRIANGULAR(0.266,0.381,0.563) <i>Substance to be treated as List 1</i>
TPH aliphatic C6-8	LOGTRIANGULAR(0.082,0.113,0.209) <i>Substance to be treated as List 1</i>
TPH aliphatic C8-10	LOGTRIANGULAR(0.066,0.071,0.127) <i>Substance to be treated as List 1</i>
TPH aliphatic C10-12	LOGTRIANGULAR(0.12,0.148,0.19) <i>Substance to be treated as List 1</i>
TPH aliphatic C12-16	LOGTRIANGULAR(0.01,0.025,0.05) <i>Substance to be treated as List 1</i>
TPH aliphatic C16-35	LOGTRIANGULAR(0.011,0.086,0.317) <i>Substance to be treated as List 1</i>
TPH aromatic C5-7 (benzene)	LOGTRIANGULAR(0.01,0.01,0.011) <i>Substance to be treated as List 1</i>
TPH aromatic C7-8 (toluene)	LOGTRIANGULAR(0.01,0.01,0.011) <i>Substance to be treated as List 1</i>
TPH aromatic C8-10	LOGTRIANGULAR(0.047,0.063,0.176) <i>Substance to be treated as List 1</i>
TPH aromatic C10-12	LOGTRIANGULAR(0.08,0.099,0.127) <i>Substance to be treated as List 1</i>
TPH aromatic C12-16	LOGTRIANGULAR(0.061,0.181,0.456) <i>Substance to be treated as List 1</i>
TPH aromatic C16-C21	LOGTRIANGULAR(0.024,0.119,0.2) <i>Substance to be treated as List 1</i>
TPH aromatic C21-35	LOGTRIANGULAR(0.05,0.134,0.164) <i>Substance to be treated as List 1</i>
Phenols group 1-phenol+	LOGTRIANGULAR(0.32,2.8,9.01) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols+	LOGTRIANGULAR(0.8,5.82,17.1) <i>Substance to be treated as List 1</i>
Phenols group 3 - xylenols +	LOGTRIANGULAR(0.012,0.33,1.28) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols+	LOGTRIANGULAR(0.001,0.15,0.54) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols +	LOGTRIANGULAR(0.001,0.01,0.055) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

2010 HRA and 2008-2019 leachate data [CHANGED] [CHANGED]

Source concentrations of contaminants*All units in milligrams per litre*

Ammoniacal_N	LOGTRIANGULAR(2000,2525,3810) <i>Data are spot measurements of Leachate Quality</i>
Chloride	LOGTRIANGULAR(2,1228,3410) <i>Data are spot measurements of Leachate Quality</i>
Mercury	LOGTRIANGULAR(1e-005,1e-005,0.1) <i>Substance to be treated as List 1</i>
Pesticides (total)	LOGTRIANGULAR(1e-005,1e-005,0.0008) <i>Substance to be treated as List 1</i>
TPH aliphatic C5-6	LOGTRIANGULAR(0.266,0.381,0.563) <i>Substance to be treated as List 1</i>
TPH aliphatic C6-8	LOGTRIANGULAR(0.082,0.113,0.209) <i>Substance to be treated as List 1</i>
TPH aliphatic C8-10	LOGTRIANGULAR(0.066,0.071,0.127) <i>Substance to be treated as List 1</i>
TPH aliphatic C10-12	LOGTRIANGULAR(0.12,0.148,0.19) <i>Substance to be treated as List 1</i>
TPH aliphatic C12-16	LOGTRIANGULAR(0.01,0.025,0.05) <i>Substance to be treated as List 1</i>
TPH aliphatic C16-35	LOGTRIANGULAR(0.011,0.086,0.317) <i>Substance to be treated as List 1</i>
TPH aromatic C5-7 (benzene)	LOGTRIANGULAR(0.01,0.01,0.011) <i>Substance to be treated as List 1</i>
TPH aromatic C7-8 (toluene)	LOGTRIANGULAR(0.01,0.01,0.011) <i>Substance to be treated as List 1</i>
TPH aromatic C8-10	LOGTRIANGULAR(0.047,0.063,0.176) <i>Substance to be treated as List 1</i>
TPH aromatic C10-12	LOGTRIANGULAR(0.08,0.099,0.127) <i>Substance to be treated as List 1</i>
TPH aromatic C12-16	LOGTRIANGULAR(0.061,0.181,0.456) <i>Substance to be treated as List 1</i>
TPH aromatic C16-C21	LOGTRIANGULAR(0.024,0.119,0.2) <i>Substance to be treated as List 1</i>
TPH aromatic C21-35	LOGTRIANGULAR(0.05,0.134,0.164) <i>Substance to be treated as List 1</i>
Phenols group 1-phenol+	LOGTRIANGULAR(0.32,2.8,9.01) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols+	LOGTRIANGULAR(0.8,5.82,17.1) <i>Substance to be treated as List 1</i>
Phenols group 3 - xylenols +	LOGTRIANGULAR(0.012,0.33,1.28) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols+	LOGTRIANGULAR(0.001,0.15,0.54) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols +	LOGTRIANGULAR(0.001,0.01,0.055) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

2010 HRA and 2008-2019 leachate data [CHANGED] [CHANGED]

Drainage Information

Fixed Head.

Head on EBS is given as (m):

TRIANGULAR(0.25,1,3)

Justification for Specified Head

2010 HRA and Permit

Barrier Information

There is a composite barrier

Justification for Engineered Barrier Type

2010 HRA

Liner installed under CQA

Design thickness of clay (m):

UNIFORM(0.3,0.35)

Density of clay (kg/l):

UNDEFINED

Pathway moisture content (fraction):

UNIFORM(0.18,0.22)

Onset of FML degradation (years since filling commenced)

150

Pathway longitudinal dispersivity (m):

UNIFORM(0.03,0.035)

Time for area of defects to double (years)

100

Membrane defects (number per hectare):

Pin holes:

Minimum 0, Maximum 5

Holes:

Minimum 0, Maximum 2

Tears:

Minimum 0, Most Likely 0.0001, Maximum 0.0001

The most likely value for the PDFs representing the density of pinholes and holes will move from the minimum value selected above to the maximum value selected above over the time period before FML degradation commences

Justification for Composite: Flexible Membrane Liner

2010 HRA

Hydraulic conductivity of mineral lower liner (m/s):

LOGUNIFORM(4e-011,1e-010)

Justification for Composite: Clay or BES Substrate Properties

2010 HRA

Retardation parameters for clay liner

No retardation values used in this simulation.

Check 'Unretarded Contaminant Transport' setting under simulation preferences.

Sands pathway parameters*Modelled as unsaturated pathway*

Pathway length (m):	SINGLE(2)
Flow Model:	porous medium
Pathway moisture content (fraction):	TRIANGULAR(0.05,0.1,0.15)
Pathway Density (kg/l):	UNIFORM(1.7,2.1)

Justification for Unsat Zone Geometry

2010 HRA

Pathway hydraulic conductivity values (m/s):	LOGTRIANGULAR(1e-007,5e-005,0.0001)
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Justification for Unsat Zone Hydraulics Properties

2010 HRA

Pathway longitudinal dispersivity (m):	SINGLE(0.2)
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Justification for Unsat Zone Dispersion Properties

2010 HRA

Retardation parameters for Sands pathway

Modelled as unsaturated pathway

Uncertainty in Kd (l/kg):

Ammoniacal_N	LOGUNIFORM(0.5,2)
Chloride	SINGLE(0)
Mercury	LOGUNIFORM(450,3835)
Pesticides (total): Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(5.3,200,1164)
TPH aliphatic C5-6: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(812)
TPH aliphatic C6-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(3802)
TPH aliphatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(30200)
TPH aliphatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(239883)
TPH aliphatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.37e+006)
TPH aliphatic C16-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.75e+008)
TPH aromatic C5-7 (benzene): Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(67.6)
TPH aromatic C7-8 (toluene): Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(204)
TPH aromatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(1585)
TPH aromatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(2512)
TPH aromatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5012)
TPH aromatic C16-C21: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(14125)
TPH aromatic C21-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(125892)
Phenols group 1-phenol+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,28.8,117)
Phenols group 2 - cresols+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(22,158,316)
Phenols group 3 - xylenols +: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(170,430,800)
Phenols group 4 - chlorophenols+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(140,500,3000)
Phenols group 5 - nitrophenols +: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,60,500)
Fraction of Organic Carbon (fraction)	UNIFORM(0.0005,0.001)

Justification for Kd Values by Species

Am N, Hg, Chloride - Landsim. Phenols, fuel oils, pesticides - literature, HRA 2010. [CHANGED] [CHANGED]

Aquifer Pathway Dimensions for Phase

Pathway length (m):	UNIFORM(615,755)
	SINGLE(115)

Phase: Cell 4**Infiltration Information**

Cap design infiltration (mm/year):	NORMAL(50,20)
Infiltration to waste (mm/year):	NORMAL(650,50)
Infiltration to grassland (mm/year):	NORMAL(350,50)
End of filling (years from start of waste deposit):	20
Start of cap degradation (years from end of waste deposit):	250
End of cap degradation (years from end of waste deposit):	1000

Justification for Specified Infiltration

2010 HRA

Duration of management control (years from the start of waste disposal): 22

Leachate recirculated AND TREATED (m³/hr for this phase) SINGLE(0.5)

Cell dimensions

Cell width (m):	78
Cell length (m):	78
Cell top area (ha):	2
Cell base area (ha):	0.6084
Number of cells:	1
Total base area (ha):	0.6084
Total top area (ha):	2
Head of Leachate when surface water breakout occurs (m)	SINGLE(16)
Waste porosity (fraction)	UNIFORM(0.1,0.15)
Final waste thickness (m):	UNIFORM(10,43)
Field capacity (fraction):	UNIFORM(0.2,0.4)
Waste dry density (kg/l)	UNIFORM(1,1.2)

Justification for Landfill Geometry

2010 HRA and updated based on current cell dimensions

Source concentrations of contaminants*All units in milligrams per litre*

Declining source term

Ammoniacal_N	LOGTRIANGULAR(1680,1995,2690) <i>Data are spot measurements of Leachate Quality</i>
Chloride	LOGTRIANGULAR(2,1228,3410) <i>Data are spot measurements of Leachate Quality</i>
Mercury	LOGTRIANGULAR(1e-005,1e-005,0.1) <i>Substance to be treated as List 1</i>
Pesticides (total)	LOGTRIANGULAR(1e-005,1e-005,0.0008) <i>Substance to be treated as List 1</i>
TPH aliphatic C5-6	LOGTRIANGULAR(0.0268,0.276,0.316) <i>Substance to be treated as List 1</i>
TPH aliphatic C6-8	LOGTRIANGULAR(0.077,0.087,0.112) <i>Substance to be treated as List 1</i>
TPH aliphatic C8-10	LOGTRIANGULAR(0.046,0.058,0.077) <i>Substance to be treated as List 1</i>
TPH aliphatic C10-12	LOGTRIANGULAR(0.137,0.161,0.186) <i>Substance to be treated as List 1</i>
TPH aliphatic C12-16	LOGTRIANGULAR(0.01,0.017,0.05) <i>Substance to be treated as List 1</i>
TPH aliphatic C16-35	LOGTRIANGULAR(0.01,0.062,0.685) <i>Substance to be treated as List 1</i>
TPH aromatic C5-7 (benzene)	LOGTRIANGULAR(0.007,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH aromatic C7-8 (toluene)	LOGTRIANGULAR(0.005,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH aromatic C8-10	LOGTRIANGULAR(0.042,0.084,0.106) <i>Substance to be treated as List 1</i>
TPH aromatic C10-12	LOGTRIANGULAR(0.091,0.108,0.124) <i>Substance to be treated as List 1</i>
TPH aromatic C12-16	LOGTRIANGULAR(0.039,0.046,0.121) <i>Substance to be treated as List 1</i>
TPH aromatic C16-C21	LOGTRIANGULAR(0.05,0.065,0.127) <i>Substance to be treated as List 1</i>
TPH aromatic C21-35	LOGTRIANGULAR(0.05,0.065,0.183) <i>Substance to be treated as List 1</i>
Phenols group 1-phenol+	LOGTRIANGULAR(0.001,0.26,0.97) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols+	LOGTRIANGULAR(0.008,2.58,9.12) <i>Substance to be treated as List 1</i>
Phenols group 3 - xlenols +	LOGTRIANGULAR(0.001,0.073,0.29) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols+	LOGTRIANGULAR(0.001,0.002,0.0095) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols +	SINGLE(0.001) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

2010 HRA and 2008-2019 leachate data [CHANGED] [CHANGED]

Source concentrations of contaminants*All units in milligrams per litre*

Ammoniacal_N	LOGTRIANGULAR(1680,1995,2690) <i>Data are spot measurements of Leachate Quality</i>
Chloride	LOGTRIANGULAR(2,1228,3410) <i>Data are spot measurements of Leachate Quality</i>
Mercury	LOGTRIANGULAR(1e-005,1e-005,0.1) <i>Substance to be treated as List 1</i>
Pesticides (total)	LOGTRIANGULAR(1e-005,1e-005,0.0008) <i>Substance to be treated as List 1</i>
TPH aliphatic C5-6	LOGTRIANGULAR(0.0268,0.276,0.316) <i>Substance to be treated as List 1</i>
TPH aliphatic C6-8	LOGTRIANGULAR(0.077,0.087,0.112) <i>Substance to be treated as List 1</i>
TPH aliphatic C8-10	LOGTRIANGULAR(0.046,0.058,0.077) <i>Substance to be treated as List 1</i>
TPH aliphatic C10-12	LOGTRIANGULAR(0.137,0.161,0.186) <i>Substance to be treated as List 1</i>
TPH aliphatic C12-16	LOGTRIANGULAR(0.01,0.017,0.05) <i>Substance to be treated as List 1</i>
TPH aliphatic C16-35	LOGTRIANGULAR(0.01,0.062,0.685) <i>Substance to be treated as List 1</i>
TPH aromatic C5-7 (benzene)	LOGTRIANGULAR(0.007,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH aromatic C7-8 (toluene)	LOGTRIANGULAR(0.005,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH aromatic C8-10	LOGTRIANGULAR(0.042,0.084,0.106) <i>Substance to be treated as List 1</i>
TPH aromatic C10-12	LOGTRIANGULAR(0.091,0.108,0.124) <i>Substance to be treated as List 1</i>
TPH aromatic C12-16	LOGTRIANGULAR(0.039,0.046,0.121) <i>Substance to be treated as List 1</i>
TPH aromatic C16-C21	LOGTRIANGULAR(0.05,0.065,0.127) <i>Substance to be treated as List 1</i>
TPH aromatic C21-35	LOGTRIANGULAR(0.05,0.065,0.183) <i>Substance to be treated as List 1</i>
Phenols group 1-phenol+	LOGTRIANGULAR(0.001,0.26,0.97) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols+	LOGTRIANGULAR(0.008,2.58,9.12) <i>Substance to be treated as List 1</i>
Phenols group 3 - xylenols +	LOGTRIANGULAR(0.001,0.073,0.29) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols+	LOGTRIANGULAR(0.001,0.002,0.0095) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols +	SINGLE(0.001) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

2010 HRA and 2008-2019 leachate data [CHANGED] [CHANGED]

Drainage Information

Fixed Head.

Head on EBS is given as (m):

TRIANGULAR(0.25,1,3)

Justification for Specified Head

2010 HRA and Permit

Barrier Information

There is a composite barrier

Justification for Engineered Barrier Type

2010 HRA

Liner installed under CQA

Design thickness of clay (m):

UNIFORM(0.3,0.35)

Density of clay (kg/l):

UNDEFINED

Pathway moisture content (fraction):

UNIFORM(0.18,0.22)

Onset of FML degradation (years since filling commenced)

150

Pathway longitudinal dispersivity (m):

UNIFORM(0.03,0.035)

Time for area of defects to double (years)

100

Membrane defects (number per hectare):

Pin holes:

Minimum 0, Maximum 5

Holes:

Minimum 0, Maximum 2

Tears:

Minimum 0, Most Likely 0.0001, Maximum 0.0001

The most likely value for the PDFs representing the density of pinholes and holes will move from the minimum value selected above to the maximum value selected above over the time period before FML degradation commences

Justification for Composite: Flexible Membrane Liner

2010 HRA

Hydraulic conductivity of mineral lower liner (m/s):

LOGUNIFORM(4e-011,1e-010)

Justification for Composite: Clay or BES Substrate Properties

2010 HRA

Retardation parameters for clay liner

No retardation values used in this simulation.

Check 'Unretarded Contaminant Transport' setting under simulation preferences.

Sands pathway parameters*Modelled as unsaturated pathway*

Pathway length (m):	SINGLE(2)
Flow Model:	porous medium
Pathway moisture content (fraction):	TRIANGULAR(0.05,0.1,0.15)
Pathway Density (kg/l):	UNIFORM(1.7,2.1)

Justification for Unsat Zone Geometry

2010 HRA

Pathway hydraulic conductivity values (m/s):	LOGTRIANGULAR(1e-007,5e-005,0.0001)
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Justification for Unsat Zone Hydraulics Properties

2010 HRA

Pathway longitudinal dispersivity (m):	SINGLE(0.2)
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Justification for Unsat Zone Dispersion Properties

2010 HRA

Retardation parameters for Sands pathway

Modelled as unsaturated pathway

Uncertainty in Kd (l/kg):

Ammoniacal_N	LOGUNIFORM(0.5,2)
Chloride	SINGLE(0)
Mercury	LOGUNIFORM(450,3835)
Pesticides (total): Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(5.3,200,1164)
TPH aliphatic C5-6: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(812)
TPH aliphatic C6-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(3802)
TPH aliphatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(30200)
TPH aliphatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(239883)
TPH aliphatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.37e+006)
TPH aliphatic C16-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.75e+008)
TPH aromatic C5-7 (benzene): Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(67.6)
TPH aromatic C7-8 (toluene): Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(204)
TPH aromatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(1585)
TPH aromatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(2512)
TPH aromatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5012)
TPH aromatic C16-C21: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(14125)
TPH aromatic C21-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(125892)
Phenols group 1-phenol+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,28.8,117)
Phenols group 2 - cresols+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(22,158,316)
Phenols group 3 - xylenols +: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(170,430,800)
Phenols group 4 - chlorophenols+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(140,500,3000)
Phenols group 5 - nitrophenols +: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,60,500)
Fraction of Organic Carbon (fraction)	UNIFORM(0.0005,0.001)

Justification for Kd Values by Species

Am N, Hg, Chloride - Landsim. Phenols, fuel oils, pesticides - literature, HRA 2010. [CHANGED] [CHANGED]

Aquifer Pathway Dimensions for Phase

Pathway length (m):	UNIFORM(810,930)
	SINGLE(175)

Sands pathway parameters*Modelled as aquifer pathway.*

Mixing zone (m):

UNIFORM(1,6)

Justification for Aquifer Geometry

2010 HRA and new measured distance to receptor point.

Pathway regional gradient (-):

TRIANGULAR(0.002,0.004,0.01)

Pathway hydraulic conductivity values (m/s):

LOGTRIANGULAR(1e-007,5e-005,0.0001)

Pathway porosity (fraction):

UNIFORM(0.2,0.3)

Justification for Aquifer Hydraulics Properties

2010 HRA

Pathway longitudinal dispersivity (m):

UNIFORM(50,90)

Pathway transverse dispersivity (m):

UNIFORM(15,25)

Justification for Aquifer Dispersion Details

Estimate based on 10% pathway length longitudinal and 3% for transverse dispersivity

Retardation parameters for Sands pathway

Modelled as aquifer pathway.

Uncertainty in Kd (l/kg):

Ammoniacal_N	LOGUNIFORM(0.5,2)
Chloride	SINGLE(0)
Mercury	LOGUNIFORM(450,3835)
Pesticides (total): Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(5.3,200,1164)
TPH aliphatic C5-6: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(812)
TPH aliphatic C6-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(3802)
TPH aliphatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(30200)
TPH aliphatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(239883)
TPH aliphatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.37e+006)
TPH aliphatic C16-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.75e+008)
TPH aromatic C5-7 (benzene): Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(67.6)
TPH aromatic C7-8 (toluene): Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(204)
TPH aromatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(1585)
TPH aromatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(2512)
TPH aromatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5012)
TPH aromatic C16-C21: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(14125)
TPH aromatic C21-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(125892)
Phenols group 1-phenol+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,28,117)
Phenols group 2 - cresols+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(22,158,316)
Phenols group 3 - xylenols +: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(170,430,800)
Phenols group 4 - chlorophenols+: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(140,500,3000)
Phenols group 5 - nitrophenols +: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,60,500)
Fraction of Organic Carbon (fraction)	UNIFORM(0.0005,0.001)

Justification for Aquifer Kd Values by Species

Am N, Hg, Chloride - Landsim. Phenols, fuel oils, pesticides - literature, HRA 2010. [CHANGED] [CHANGED]

Pathway Density (kg/l): UNIFORM(1.6,1.8)

Concentration of Ammoniacal_N in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 4.50983E-013

90% of values less than 8.12982E-007

95% of values less than 0.000199624

Minimum 0

Maximum 4.44567

Mean 0.037258

Std. Dev. 0.353196

Variance 0.124747

At 100 years

05% of values less than 0

10% of values less than 5.51478E-014

50% of values less than 0.00141839

90% of values less than 11.8843

95% of values less than 28.5014

Minimum 0

Maximum 260.894

Mean 5.72139

Std. Dev. 22.5793

Variance 509.827

At 300 years

05% of values less than 6.0841E-010

10% of values less than 0.000399445

50% of values less than 34.497

90% of values less than 343.281

95% of values less than 664.62

Minimum 9.91107E-014

Maximum 2609.01

Mean 151.274

Std. Dev. 354.605

Variance 125745

At 1000 years

05% of values less than 1.52677

10% of values less than 4.94436

50% of values less than 161.512

90% of values less than 1322.72

95% of values less than 2997.46

Minimum 7.23433E-007

Maximum 20342.1

Mean 782.899

Std. Dev. 2487.21

Variance 6.18623E+006

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.48876E-012

95% of values less than 4.18453E-011

Minimum 0

Maximum 0.0197996

Mean 0.000124016

Std. Dev. 0.00141968

Variance 2.0155E-006

Concentration of Chloride in groundwater [mg/l]

At 30 years

05% of values less than 1.78317E-014

10% of values less than 6.82841E-013

50% of values less than 0.0183251

90% of values less than 4.44868

95% of values less than 11.4213

Minimum 0

Maximum 54.4185

Mean 1.97051

Std. Dev. 6.27778

Variance 39.4105

At 100 years

05% of values less than 0.117986

10% of values less than 0.779293

50% of values less than 18.611

90% of values less than 163.247

95% of values less than 365.563

Minimum 7.63213E-012

Maximum 3718.57

Mean 90.2528

Std. Dev. 314.793

Variance 99094.6

At 300 years

05% of values less than 2.07699

10% of values less than 3.93218

50% of values less than 37.3672

90% of values less than 295.516

95% of values less than 659.617

Minimum 0.633799

Maximum 4295.39

Mean 166.987

Std. Dev. 464.336

Variance 215608

At 1000 years

05% of values less than 0.421863

10% of values less than 1.83126

50% of values less than 22.0916

90% of values less than 202.346

95% of values less than 385.6

Minimum 0.0947625

Maximum 2869.44

Mean 119.095

Std. Dev. 360.315

Variance 129827

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.23551E-013

95% of values less than 2.92795E-013

Minimum 0

Maximum 1.34372E-011

Mean 1.46042E-013

Std. Dev. 1.0369E-012

Variance 1.07516E-024

Concentration of Mercury in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.36804E-009

95% of values less than 9.0864E-008

Minimum 0

Maximum 3.04205E-006

Mean 4.57837E-008

Std. Dev. 2.83617E-007

Variance 8.04384E-014

Concentration of Pesticides (total) in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 2.04641E-017

90% of values less than 7.84145E-009

95% of values less than 9.54845E-008

Minimum 0

Maximum 6.56705E-007

Mean 1.78196E-008

Std. Dev. 8.08622E-008

Variance 6.5387E-015

At 100 years

05% of values less than 8.05731E-017

10% of values less than 3.50875E-012

50% of values less than 3.56398E-007

90% of values less than 7.12964E-006

95% of values less than 1.30749E-005

Minimum 0

Maximum 0.000115244

Mean 3.37944E-006

Std. Dev. 1.08414E-005

Variance 1.17537E-010

At 300 years

05% of values less than 2.79366E-008

10% of values less than 3.46555E-007

50% of values less than 4.52759E-006

90% of values less than 6.14257E-005

95% of values less than 0.000117568

Minimum 2.17521E-013

Maximum 0.000549005

Mean 2.40217E-005

Std. Dev. 5.81516E-005

Variance 3.38161E-009

At 1000 years

05% of values less than 1.49279E-006

10% of values less than 2.33646E-006

50% of values less than 1.67409E-005

90% of values less than 0.000204801

95% of values less than 0.000390887

Minimum 2.57815E-007

Maximum 0.00439821

Mean 0.00012104

Std. Dev. 0.00042776

Variance 1.82978E-007

At infinity

05% of values less than 8.18296E-006

10% of values less than 1.10927E-005

50% of values less than 8.6706E-005

90% of values less than 0.000909074

95% of values less than 0.00185263

Minimum 1.23847E-006

Maximum 0.0117931

Mean 0.000451997

Std. Dev. 0.00139868

Variance 1.95631E-006

Concentration of TPH aliphatic C5-6 in groundwater [mg/l]

At 30 years

05% of values less than 0
10% of values less than 0
50% of values less than 0

90% of values less than 1.53705E-009
95% of values less than 5.45004E-008

Minimum 0

Maximum 0.000113139

Mean 6.39097E-007

Std. Dev. 8.00491E-006

Variance 6.40786E-011

At 100 years

05% of values less than 0
10% of values less than 0

50% of values less than 4.64031E-015
90% of values less than 3.87976E-008
95% of values less than 4.31593E-007

Minimum 0

Maximum 4.26284E-006

Mean 9.30745E-008

Std. Dev. 4.56974E-007

Variance 2.08825E-013

At 300 years

05% of values less than 0
10% of values less than 0
50% of values less than 0

90% of values less than 2.60701E-012
95% of values less than 2.46416E-011

Minimum 0

Maximum 9.89345E-009

Mean 7.50267E-011

Std. Dev. 7.35014E-010

Variance 5.40246E-019

At 1000 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 1.04661E-008

Mean 5.20869E-011

Std. Dev. 7.38217E-010

Variance 5.44965E-019

At infinity

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 1.04661E-008

Mean 5.20869E-011

Std. Dev. 7.38217E-010

Variance 5.44965E-019

Concentration of TPH aliphatic C6-8 in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 2.38492E-011

Mean 1.18735E-013

Std. Dev. 1.68219E-012

Variance 2.82975E-024

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.90914E-016

95% of values less than 2.41517E-013

Minimum 0

Maximum 1.80461E-009

Mean 9.88566E-012

Std. Dev. 1.27419E-010

Variance 1.62355E-020

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 3.203E-013

Mean 1.98104E-015

Std. Dev. 2.30949E-014

Variance 5.33374E-028

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 3.38533E-013

Mean 1.68481E-015

Std. Dev. 2.38783E-014

Variance 5.70171E-028

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 3.38533E-013

Mean 1.68481E-015

Std. Dev. 2.38783E-014

Variance 5.70171E-028

Concentration of TPH aliphatic C8-10 in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Concentration of TPH aliphatic C10-12 in groundwater [mg/l]

At 30 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Concentration of TPH aliphatic C12-16 in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Concentration of TPH aliphatic C16-35 in groundwater [mg/l]

At 30 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Concentration of TPH aromatic C5-7 (benzene) in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 5.48421E-016

90% of values less than 3.50952E-009

95% of values less than 1.98795E-008

Minimum 0

Maximum 4.7729E-007

Mean 9.63886E-009

Std. Dev. 5.18756E-008

Variance 2.69108E-015

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.84065E-011

95% of values less than 1.35768E-009

Minimum 0

Maximum 3.21687E-008

Mean 5.93281E-010

Std. Dev. 3.51064E-009

Variance 1.23246E-017

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.15484E-014

95% of values less than 9.21239E-014

Minimum 0

Maximum 1.87026E-011

Mean 2.31304E-013

Std. Dev. 1.61676E-012

Variance 2.61391E-024

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 6.75337E-012

Mean 3.39273E-014

Std. Dev. 4.76345E-013

Variance 2.26905E-025

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 6.75336E-012

Mean 3.39273E-014

Std. Dev. 4.76345E-013

Variance 2.26904E-025

Concentration of TPH aromatic C7-8 (toluene) in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.64114E-012

95% of values less than 5.4508E-011

Minimum 0

Maximum 7.09672E-008

Mean 5.82862E-010

Std. Dev. 5.3766E-009

Variance 2.89078E-017

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.61152E-015

95% of values less than 3.16858E-013

Minimum 0

Maximum 1.80117E-009

Mean 9.97425E-012

Std. Dev. 1.27241E-010

Variance 1.61902E-020

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 5.57271E-016

Minimum 0

Maximum 1.48736E-011

Mean 7.43223E-014

Std. Dev. 1.04909E-012

Variance 1.10058E-024

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.57348E-011

Mean 7.82888E-014

Std. Dev. 1.10985E-012

Variance 1.23176E-024

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.57348E-011

Mean 7.82888E-014

Std. Dev. 1.10985E-012

Variance 1.23176E-024

Concentration of TPH aromatic C8-10 in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.11442E-016

Minimum 0

Maximum 3.64346E-009

Mean 1.86825E-011

Std. Dev. 2.57031E-010

Variance 6.60648E-020

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.95199E-016

Minimum 0

Maximum 3.73989E-013

Mean 3.68301E-015

Std. Dev. 3.50442E-014

Variance 1.2281E-027

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 7.1726E-016

Mean 4.7698E-018

Std. Dev. 5.27652E-017

Variance 2.78416E-033

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 7.57602E-016

Mean 3.76916E-018

Std. Dev. 5.34371E-017

Variance 2.85553E-033

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 7.57602E-016

Mean 3.76916E-018

Std. Dev. 5.34371E-017

Variance 2.85553E-033

Concentration of TPH aromatic C10-12 in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 4.19929E-017

Minimum 0

Maximum 4.04474E-008

Mean 2.01233E-010

Std. Dev. 2.85294E-009

Variance 8.13927E-018

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.61004E-016

95% of values less than 1.06027E-014

Minimum 0

Maximum 7.33342E-012

Mean 7.75615E-014

Std. Dev. 6.50457E-013

Variance 4.23094E-025

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 3.71949E-015

Mean 1.97561E-017

Std. Dev. 2.62587E-016

Variance 6.89522E-032

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Concentration of TPH aromatic C12-16 in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.43332E-010

Mean 7.13093E-013

Std. Dev. 1.01098E-011

Variance 1.02209E-022

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.70855E-012

Mean 8.51488E-015

Std. Dev. 1.20511E-013

Variance 1.45229E-026

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Concentration of TPH aromatic C16-C21 in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 3.4844E-011

Mean 1.73837E-013

Std. Dev. 2.45768E-012

Variance 6.04022E-024

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.09473E-015

Minimum 0

Maximum 9.19433E-012

Mean 4.6194E-014

Std. Dev. 6.48495E-013

Variance 4.20545E-025

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.02082E-015

95% of values less than 2.78433E-014

Minimum 0

Maximum 2.9232E-010

Mean 2.39099E-012

Std. Dev. 2.24614E-011

Variance 5.04515E-022

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.17099E-015

95% of values less than 2.84643E-014

Minimum 0

Maximum 6.79743E-010

Mean 5.4468E-012

Std. Dev. 5.32662E-011

Variance 2.83729E-021

Concentration of TPH aromatic C21-35 in groundwater [mg/l]

At 30 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Concentration of Phenols group 1-phenol+ in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 4.78279E-013

90% of values less than 1.6764E-007

95% of values less than 5.89534E-007

Minimum 0

Maximum 7.86687E-006

Mean 1.48573E-007

Std. Dev. 7.38348E-007

Variance 5.45158E-013

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 6.20524E-015

90% of values less than 1.2001E-008

95% of values less than 1.40315E-007

Minimum 0

Maximum 1.49804E-006

Mean 2.03899E-008

Std. Dev. 1.14997E-007

Variance 1.32243E-014

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.88745E-011

95% of values less than 4.13941E-011

Minimum 0

Maximum 1.55827E-006

Mean 7.76207E-009

Std. Dev. 1.09911E-007

Variance 1.20805E-014

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.649E-006

Mean 8.20446E-009

Std. Dev. 1.16311E-007

Variance 1.35284E-014

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.649E-006

Mean 8.20446E-009

Std. Dev. 1.16311E-007

Variance 1.35284E-014

Concentration of Phenols group 2 - cresols+ in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.32189E-015

90% of values less than 9.10775E-009

95% of values less than 8.60082E-008

Minimum 0

Maximum 3.2657E-006

Mean 2.81447E-008

Std. Dev. 2.37726E-007

Variance 5.65136E-014

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.45988E-016

90% of values less than 5.06244E-010

95% of values less than 5.32149E-009

Minimum 0

Maximum 3.19082E-007

Mean 3.87213E-009

Std. Dev. 2.81141E-008

Variance 7.90403E-016

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.51227E-012

95% of values less than 8.19201E-012

Minimum 0

Maximum 4.59835E-009

Mean 2.49475E-011

Std. Dev. 3.24408E-010

Variance 1.05241E-019

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 4.86511E-009

Mean 2.42082E-011

Std. Dev. 3.43158E-010

Variance 1.17758E-019

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 4.86511E-009

Mean 2.42082E-011

Std. Dev. 3.43158E-010

Variance 1.17758E-019

Concentration of Phenols group 3 - xlenols + in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.0005E-011

95% of values less than 7.67488E-011

Minimum 0

Maximum 5.96265E-008

Mean 4.57906E-010

Std. Dev. 4.52647E-009

Variance 2.04889E-017

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.19691E-013

95% of values less than 3.06507E-012

Minimum 0

Maximum 1.1807E-010

Mean 1.75194E-012

Std. Dev. 1.24517E-011

Variance 1.55044E-022

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.26123E-016

95% of values less than 1.66601E-015

Minimum 0

Maximum 8.37531E-013

Mean 7.48775E-015

Std. Dev. 6.85728E-014

Variance 4.70224E-027

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 5.18976E-013

Mean 2.58262E-015

Std. Dev. 3.66057E-014

Variance 1.33998E-027

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 5.18976E-013

Mean 2.58262E-015

Std. Dev. 3.66057E-014

Variance 1.33998E-027

Concentration of Phenols group 4 - chlorophenols+ in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.31482E-009

95% of values less than 3.00409E-007

Minimum 0

Maximum 0.000337335

Mean 2.87062E-006

Std. Dev. 2.61641E-005

Variance 6.84561E-010

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 5.44391E-008

90% of values less than 0.0002034

95% of values less than 0.000436463

Minimum 0

Maximum 0.00513493

Mean 9.07174E-005

Std. Dev. 0.000401389

Variance 1.61113E-007

At 300 years

05% of values less than 0

10% of values less than 1.72368E-014

50% of values less than 4.00015E-006

90% of values less than 0.000149018

95% of values less than 0.000346206

Minimum 0

Maximum 0.00380302

Mean 8.76157E-005

Std. Dev. 0.000356481

Variance 1.27079E-007

At 1000 years

05% of values less than 0

10% of values less than 3.35119E-014

50% of values less than 6.81468E-008

90% of values less than 1.40656E-005

95% of values less than 6.56155E-005

Minimum 0

Maximum 0.0283373

Mean 0.000164697

Std. Dev. 0.00200867

Variance 4.03475E-006

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.09255E-012

95% of values less than 4.21418E-009

Minimum 0

Maximum 5.57588E-007

Mean 6.41731E-009

Std. Dev. 5.3461E-008

Variance 2.85807E-015

Concentration of Phenols group 5 - nitrophenols + in groundwater [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.23081E-010

95% of values less than 7.60693E-010

Minimum 0

Maximum 1.40165E-008

Mean 2.30414E-010

Std. Dev. 1.17244E-009

Variance 1.37461E-018

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.83999E-012

95% of values less than 5.05725E-011

Minimum 0

Maximum 1.68957E-009

Mean 1.60007E-011

Std. Dev. 1.23034E-010

Variance 1.51375E-020

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.4906E-015

95% of values less than 2.75566E-014

Minimum 0

Maximum 1.76419E-009

Mean 8.78802E-012

Std. Dev. 1.24436E-010

Variance 1.54842E-020

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.86681E-009

Mean 9.29659E-012

Std. Dev. 1.31674E-010

Variance 1.73381E-020

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.86681E-009

Mean 9.29659E-012

Std. Dev. 1.31674E-010

Variance 1.73381E-020

Phase: Cell 3b*Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 173.977

95% of values less than 525.768

Minimum 0

Maximum 1254.92

Mean 64.7454

Std. Dev. 198.875

Variance 39551.2

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 49.5478

90% of values less than 1087.2

95% of values less than 1125.89

Minimum 0

Maximum 1179.22

Mean 386.778

Std. Dev. 452.136

Variance 204427

At 300 years

05% of values less than 225.29

10% of values less than 321.774

50% of values less than 816.868

90% of values less than 1026.42

95% of values less than 1065.74

Minimum 0

Maximum 1189.75

Mean 741.813

Std. Dev. 278.119

Variance 77350.4

At 1000 years

05% of values less than 11.894

10% of values less than 23.1058

50% of values less than 270.583

90% of values less than 518.472

95% of values less than 576.311

Minimum 0

Maximum 858.513

Mean 277.15

Std. Dev. 193.37

Variance 37391.8

At infinity

05% of values less than 0

10% of values less than 1.41066E-014

50% of values less than 1.05202E-012

90% of values less than 2.3223E-010

95% of values less than 5.56944E-010

Minimum 0

Maximum 8.00091E-009

Mean 1.51414E-010

Std. Dev. 8.07419E-010

Variance 6.51925E-019

Phase: Cell 3b*Concentration of Chloride at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 287.333

95% of values less than 494.698

Minimum 0

Maximum 678.162

Mean 72.0726

Std. Dev. 160.604

Variance 25793.7

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 37.7321

90% of values less than 338.317

95% of values less than 426.83

Minimum 0

Maximum 740.733

Mean 119.189

Std. Dev. 155.483

Variance 24175.1

At 300 years

05% of values less than 37.5619

10% of values less than 59.0517

50% of values less than 185.144

90% of values less than 376.291

95% of values less than 457.488

Minimum 0

Maximum 672.255

Mean 209.457

Std. Dev. 132.912

Variance 17665.6

At 1000 years

05% of values less than 1.18105

10% of values less than 3.26065

50% of values less than 53.1884

90% of values less than 146.36

95% of values less than 195.515

Minimum 0

Maximum 297.071

Mean 68.7839

Std. Dev. 63.8916

Variance 4082.13

At infinity

05% of values less than 0

10% of values less than 1.35642E-015

50% of values less than 1.82223E-013

90% of values less than 2.15151E-011

95% of values less than 7.51488E-011

Minimum 0

Maximum 7.61341E-010

Mean 1.53373E-011

Std. Dev. 6.89854E-011

Variance 4.75899E-021

Phase: Cell 3b

Concentration of Mercury at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 8.36345E-013	
Mean 5.5647E-015	Std. Dev. 5.97746E-014	Variance 3.57301E-027

At infinity

05% of values less than 1.10285E-011		
10% of values less than 5.95252E-010		
50% of values less than 1.24873E-006		
90% of values less than 1.9734E-005		
95% of values less than 3.12032E-005		
Minimum 0	Maximum 6.81361E-005	
Mean 6.028E-006	Std. Dev. 1.17711E-005	Variance 1.38558E-010

Phase: Cell 3b*Concentration of Pesticides (total) at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.43191E-005

95% of values less than 2.24753E-005

Minimum 0

Maximum 9.28765E-005

Mean 4.05957E-006

Std. Dev. 1.2104E-005

Variance 1.46507E-010

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.0143E-005

90% of values less than 8.26608E-005

95% of values less than 0.000152791

Minimum 0

Maximum 0.000619837

Mean 3.18192E-005

Std. Dev. 7.32432E-005

Variance 5.36457E-009

At 300 years

05% of values less than 1.07342E-005

10% of values less than 1.18061E-005

50% of values less than 2.93262E-005

90% of values less than 0.00015484

95% of values less than 0.000318302

Minimum 0

Maximum 0.00068643

Mean 7.21116E-005

Std. Dev. 0.000116912

Variance 1.36685E-008

At 1000 years

05% of values less than 1.07341E-005

10% of values less than 1.1862E-005

50% of values less than 2.93257E-005

90% of values less than 0.00015484

95% of values less than 0.000318845

Minimum 0

Maximum 0.000686432

Mean 7.21522E-005

Std. Dev. 0.000116918

Variance 1.36698E-008

At infinity

05% of values less than 1.07342E-005

10% of values less than 1.18621E-005

50% of values less than 2.93263E-005

90% of values less than 0.000154841

95% of values less than 0.000318847

Minimum 0

Maximum 0.000686432

Mean 7.2153E-005

Std. Dev. 0.000116919

Variance 1.367E-008

Phase: Cell 3b*Concentration of TPH aliphatic C5-6 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00763434

95% of values less than 0.0307027

Minimum 0

Maximum 0.0982028

Mean 0.00376679

Std. Dev. 0.0129925

Variance 0.000168804

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.04205E-008

90% of values less than 0.00119742

95% of values less than 0.00163472

Minimum 0

Maximum 0.00362514

Mean 0.00036062

Std. Dev. 0.000653362

Variance 4.26882E-007

At 300 years

05% of values less than 5.45691E-011

10% of values less than 4.8542E-010

50% of values less than 1.16059E-007

90% of values less than 6.02412E-007

95% of values less than 7.45938E-007

Minimum 0

Maximum 1.23644E-006

Mean 2.2324E-007

Std. Dev. 2.62524E-007

Variance 6.89188E-014

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.1367E-014

95% of values less than 7.66853E-014

Minimum 0

Maximum 2.59976E-013

Mean 1.53535E-014

Std. Dev. 4.27783E-014

Variance 1.82998E-027

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3b*Concentration of TPH aliphatic C6-8 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.64759E-007

95% of values less than 1.51958E-005

Minimum 0

Maximum 0.00392224

Mean 3.36191E-005

Std. Dev. 0.000298468

Variance 8.90834E-008

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.03086E-006

95% of values less than 2.51384E-005

Minimum 0

Maximum 0.000266983

Mean 5.81302E-006

Std. Dev. 2.67821E-005

Variance 7.17278E-010

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 6.95816E-011

90% of values less than 5.11465E-009

95% of values less than 1.1255E-008

Minimum 0

Maximum 7.14022E-008

Mean 2.36198E-009

Std. Dev. 7.84075E-009

Variance 6.14774E-017

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.57932E-014

Mean 2.56467E-016

Std. Dev. 1.69516E-015

Variance 2.87357E-030

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3b*Concentration of TPH aliphatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.75665E-015

95% of values less than 1.29547E-012

Minimum 0

Maximum 5.55527E-010

Mean 3.49591E-012

Std. Dev. 3.94033E-011

Variance 1.55262E-021

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.2062E-014

95% of values less than 9.3171E-014

Minimum 0

Maximum 1.74471E-012

Mean 2.35119E-014

Std. Dev. 1.34726E-013

Variance 1.81511E-026

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3b

Concentration of TPH aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

At infinity

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

Phase: Cell 3b*Concentration of TPH aliphatic C12-16 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3b

Concentration of TPH aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 3b

Concentration of TPH aromatic C5-7 (benzene) at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0.000686713		
95% of values less than 0.00140603		
Minimum 0	Maximum 0.00288749	
Mean 0.000191056	Std. Dev. 0.000493765	Variance 2.43804E-007

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 1.05718E-007		
90% of values less than 6.23783E-005		
95% of values less than 7.2384E-005		
Minimum 0	Maximum 0.000107777	
Mean 1.77967E-005	Std. Dev. 2.59167E-005	Variance 6.71674E-010

At 300 years

05% of values less than 2.11279E-010		
10% of values less than 7.85679E-010		
50% of values less than 9.02841E-009		
90% of values less than 2.47752E-008		
95% of values less than 2.82584E-008		
Minimum 0	Maximum 4.23717E-008	
Mean 1.11438E-008	Std. Dev. 9.32926E-009	Variance 8.7035E-017

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 2.23927E-015		
95% of values less than 3.45026E-015		
Minimum 0	Maximum 9.01354E-015	
Mean 5.52948E-016	Std. Dev. 1.44087E-015	Variance 2.07611E-030

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 3b*Concentration of TPH aromatic C7-8 (toluene) at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.40021E-005

95% of values less than 0.000254937

Minimum 0

Maximum 0.00071291

Mean 2.95501E-005

Std. Dev. 0.000101002

Variance 1.02015E-008

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 4.54789E-013

90% of values less than 9.48456E-006

95% of values less than 1.34198E-005

Minimum 0

Maximum 2.605E-005

Mean 2.43959E-006

Std. Dev. 5.03899E-006

Variance 2.53914E-011

At 300 years

05% of values less than 3.41126E-014

10% of values less than 5.54364E-013

50% of values less than 3.91772E-010

90% of values less than 4.61314E-009

95% of values less than 7.29813E-009

Minimum 0

Maximum 9.8373E-009

Mean 1.55571E-009

Std. Dev. 2.28302E-009

Variance 5.21216E-018

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.65092E-015

Mean 3.37665E-017

Std. Dev. 1.73215E-016

Variance 3.00033E-032

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3b*Concentration of TPH aromatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.09406E-006

95% of values less than 3.97816E-005

Minimum 0

Maximum 0.000963324

Mean 1.83114E-005

Std. Dev. 0.000104901

Variance 1.10042E-008

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 9.62019E-016

90% of values less than 1.52993E-006

95% of values less than 8.06519E-006

Minimum 0

Maximum 3.65204E-005

Mean 1.18087E-006

Std. Dev. 4.54988E-006

Variance 2.07014E-011

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.58877E-011

90% of values less than 1.74826E-009

95% of values less than 5.10728E-009

Minimum 0

Maximum 1.42996E-008

Mean 7.47863E-010

Std. Dev. 2.16129E-009

Variance 4.67119E-018

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 5.02667E-015

Mean 7.32072E-017

Std. Dev. 4.84158E-016

Variance 2.34409E-031

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3b*Concentration of TPH aromatic C10-12 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.04465E-006

95% of values less than 1.21669E-005

Minimum 0

Maximum 0.00137936

Mean 1.12745E-005

Std. Dev. 0.000100111

Variance 1.00221E-008

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.52175E-006

95% of values less than 5.42134E-006

Minimum 0

Maximum 5.75047E-005

Mean 1.32894E-006

Std. Dev. 6.14637E-006

Variance 3.77778E-011

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.52429E-011

90% of values less than 1.65024E-009

95% of values less than 3.17418E-009

Minimum 0

Maximum 1.8415E-008

Mean 6.83498E-010

Std. Dev. 2.203E-009

Variance 4.85319E-018

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 2.66262E-015

Mean 1.87241E-017

Std. Dev. 2.02868E-016

Variance 4.11555E-032

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3b*Concentration of TPH aromatic C12-16 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.70165E-009

95% of values less than 4.48299E-007

Minimum 0

Maximum 5.35783E-005

Mean 8.28014E-007

Std. Dev. 5.75832E-006

Variance 3.31583E-011

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.72052E-007

95% of values less than 9.67333E-007

Minimum 0

Maximum 9.20015E-006

Mean 1.92419E-007

Std. Dev. 8.65811E-007

Variance 7.4963E-013

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.01468E-012

90% of values less than 1.41082E-010

95% of values less than 5.02187E-010

Minimum 0

Maximum 2.55896E-009

Mean 7.43919E-011

Std. Dev. 2.58695E-010

Variance 6.69231E-020

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 3.44372E-016

Mean 1.7133E-018

Std. Dev. 2.42902E-017

Variance 5.90012E-034

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3b*Concentration of TPH aromatic C16-C21 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.55541E-012

Minimum 0

Maximum 7.42524E-008

Mean 7.50339E-010

Std. Dev. 6.22731E-009

Variance 3.87794E-017

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.09372E-007

95% of values less than 6.98098E-006

Minimum 0

Maximum 0.000149229

Mean 2.34437E-006

Std. Dev. 1.44648E-005

Variance 2.0923E-010

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 5.2665E-008

90% of values less than 1.48989E-005

95% of values less than 4.14841E-005

Minimum 0

Maximum 0.000339138

Mean 8.18876E-006

Std. Dev. 3.16669E-005

Variance 1.00279E-009

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 5.30197E-008

90% of values less than 1.49281E-005

95% of values less than 4.18064E-005

Minimum 0

Maximum 0.000340723

Mean 8.24138E-006

Std. Dev. 3.18043E-005

Variance 1.01152E-009

At infinity

05% of values less than 0

10% of values less than 1.27751E-015

50% of values less than 5.30206E-008

90% of values less than 1.49281E-005

95% of values less than 4.18119E-005

Minimum 0

Maximum 0.000340739

Mean 8.24182E-006

Std. Dev. 3.18056E-005

Variance 1.01159E-009

Phase: Cell 3b

Concentration of TPH aromatic C21-35 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 2.98975E-014

Minimum 0

Maximum 2.22376E-011

Mean 1.30102E-013

Std. Dev. 1.57433E-012

Variance 2.4785E-024

At 1000 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 2.47116E-015
95% of values less than 4.93476E-014

Minimum 0

Maximum 2.39012E-011

Mean 1.43143E-013

Std. Dev. 1.69514E-012

Variance 2.87351E-024

At infinity

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 2.48438E-015
95% of values less than 4.94101E-014

Minimum 0

Maximum 2.40343E-011

Mean 1.43957E-013

Std. Dev. 1.70461E-012

Variance 2.90569E-024

Phase: Cell 3b*Concentration of Phenols group 1-phenol+ at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.319063

95% of values less than 0.436947

Minimum 0

Maximum 0.810715

Mean 0.069529

Std. Dev. 0.151519

Variance 0.0229579

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0.00160627

90% of values less than 0.0179642

95% of values less than 0.0198117

Minimum 0

Maximum 0.0369942

Mean 0.00606376

Std. Dev. 0.00772681

Variance 5.97035E-005

At 300 years

05% of values less than 7.20461E-007

10% of values less than 1.13694E-006

50% of values less than 3.94842E-006

90% of values less than 6.93685E-006

95% of values less than 8.18794E-006

Minimum 0

Maximum 1.29298E-005

Mean 4.06138E-006

Std. Dev. 2.50803E-006

Variance 6.29019E-012

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.13671E-013

95% of values less than 1.2123E-012

Minimum 0

Maximum 2.89112E-012

Mean 2.2781E-013

Std. Dev. 4.27026E-013

Variance 1.82352E-025

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.87887E-017

95% of values less than 1.07418E-016

Minimum 0

Maximum 4.43262E-016

Mean 1.57675E-017

Std. Dev. 6.10997E-017

Variance 3.73317E-033

Phase: Cell 3b*Concentration of Phenols group 2 - cresols+ at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.423253

95% of values less than 0.755288

Minimum 0

Maximum 2.47111

Mean 0.11299

Std. Dev. 0.322334

Variance 0.103899

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0.000320967

90% of values less than 0.0277984

95% of values less than 0.0410458

Minimum 0

Maximum 0.0910876

Mean 0.00936905

Std. Dev. 0.0156626

Variance 0.000245318

At 300 years

05% of values less than 2.20785E-007

10% of values less than 5.98998E-007

50% of values less than 4.29674E-006

90% of values less than 1.49002E-005

95% of values less than 1.70286E-005

Minimum 0

Maximum 3.11854E-005

Mean 6.2035E-006

Std. Dev. 5.82268E-006

Variance 3.39036E-011

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.24806E-012

95% of values less than 2.04394E-012

Minimum 0

Maximum 4.82911E-012

Mean 3.70911E-013

Std. Dev. 7.70139E-013

Variance 5.93113E-025

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.32408E-017

95% of values less than 1.16735E-016

Minimum 0

Maximum 4.3608E-016

Mean 1.75403E-017

Std. Dev. 6.04549E-017

Variance 3.65479E-033

Phase: Cell 3b*Concentration of Phenols group 3 - xylenols + at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000616009

95% of values less than 0.00168297

Minimum 0

Maximum 0.0629298

Mean 0.00067333

Std. Dev. 0.00465493

Variance 2.16684E-005

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.93766E-007

90% of values less than 0.000150175

95% of values less than 0.000276221

Minimum 0

Maximum 0.00258261

Mean 5.34764E-005

Std. Dev. 0.000215253

Variance 4.63339E-008

At 300 years

05% of values less than 9.09514E-011

10% of values less than 2.36819E-010

50% of values less than 7.39171E-009

90% of values less than 7.69504E-008

95% of values less than 1.20879E-007

Minimum 0

Maximum 8.85605E-007

Mean 3.02899E-008

Std. Dev. 7.84733E-008

Variance 6.15805E-015

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.74529E-015

95% of values less than 1.11149E-014

Minimum 0

Maximum 1.99589E-013

Mean 2.45932E-015

Std. Dev. 1.47423E-014

Variance 2.17334E-028

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3b

Concentration of Phenols group 4 - chlorophenols+ at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0.00742403		
95% of values less than 0.0264544		
Minimum 0	Maximum 0.178599	
Mean 0.00492494	Std. Dev. 0.0208058	Variance 0.00043288

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 2.49128E-005		
90% of values less than 0.00441411		
95% of values less than 0.0064363		
Minimum 0	Maximum 0.0141094	
Mean 0.00129995	Std. Dev. 0.00237943	Variance 5.6617E-006

At 300 years

05% of values less than 3.06145E-008		
10% of values less than 4.73238E-008		
50% of values less than 5.24062E-007		
90% of values less than 2.55914E-006		
95% of values less than 5.76385E-006		
Minimum 0	Maximum 0.000430732	
Mean 5.04709E-006	Std. Dev. 3.40102E-005	Variance 1.15669E-009

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 1.79579E-013		
95% of values less than 5.13448E-013		
Minimum 0	Maximum 2.57973E-010	
Mean 1.48416E-012	Std. Dev. 1.82329E-011	Variance 3.32437E-022

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 8.15125E-017	
Mean 5.6475E-019	Std. Dev. 6.16617E-018	Variance 3.80216E-035

Phase: Cell 3b*Concentration of Phenols group 5 - nitrophenols + at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.16627E-005

95% of values less than 0.000136942

Minimum 0

Maximum 0.000205963

Mean 1.50009E-005

Std. Dev. 4.21974E-005

Variance 1.78062E-009

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 5.37567E-009

90% of values less than 4.62383E-006

95% of values less than 6.09532E-006

Minimum 0

Maximum 1.04929E-005

Mean 1.26831E-006

Std. Dev. 2.14755E-006

Variance 4.61196E-012

At 300 years

05% of values less than 1.33664E-011

10% of values less than 5.34804E-011

50% of values less than 5.93637E-010

90% of values less than 1.95422E-009

95% of values less than 2.54186E-009

Minimum 0

Maximum 3.62693E-009

Mean 8.28385E-010

Std. Dev. 8.02626E-010

Variance 6.44208E-019

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 4.31044E-016

Mean 2.1445E-018

Std. Dev. 3.04035E-017

Variance 9.24373E-034

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3a*Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0.0214648

10% of values less than 2.01775

50% of values less than 1435.72

90% of values less than 1996.3

95% of values less than 2060.03

Minimum 1.05616E-006

Maximum 2261.25

Mean 1148.77

Std. Dev. 751.358

Variance 564538

At 100 years

05% of values less than 387.112

10% of values less than 483.504

50% of values less than 1249.37

90% of values less than 1644.15

95% of values less than 1708.8

Minimum 87.878

Maximum 1908.51

Mean 1160.69

Std. Dev. 437.774

Variance 191646

At 300 years

05% of values less than 258.64

10% of values less than 388.125

50% of values less than 1012.32

90% of values less than 1443.08

95% of values less than 1556.63

Minimum 185.772

Maximum 1796.88

Mean 969.405

Std. Dev. 402.062

Variance 161653

At 1000 years

05% of values less than 7.41631

10% of values less than 14.784

50% of values less than 219.77

90% of values less than 564.186

95% of values less than 630.887

Minimum 2.62084

Maximum 961.599

Mean 266.95

Std. Dev. 219.313

Variance 48098.1

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 1.32488E-011

90% of values less than 6.41827E-011

95% of values less than 1.00753E-010

Minimum 0

Maximum 6.9494E-009

Mean 8.40901E-011

Std. Dev. 5.92447E-010

Variance 3.50993E-019

Phase: Cell 3a*Concentration of Chloride at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 30.022

10% of values less than 62.8444

50% of values less than 241.876

90% of values less than 527.6

95% of values less than 570.432

Minimum 0.359713

Maximum 1053.12

Mean 264.49

Std. Dev. 169.674

Variance 28789.2

At 100 years

05% of values less than 52.1345

10% of values less than 68.0936

50% of values less than 181.758

90% of values less than 461.518

95% of values less than 567.279

Minimum 23.4145

Maximum 1594.26

Mean 238.866

Std. Dev. 212.774

Variance 45272.8

At 300 years

05% of values less than 29.4113

10% of values less than 40.0581

50% of values less than 137.314

90% of values less than 321.574

95% of values less than 371.656

Minimum 15.7901

Maximum 465.189

Mean 159.41

Std. Dev. 107.501

Variance 11556.5

At 1000 years

05% of values less than 0.473457

10% of values less than 0.995176

50% of values less than 21.4788

90% of values less than 94.1697

95% of values less than 109.877

Minimum 0.167157

Maximum 171.084

Mean 35.988

Std. Dev. 37.2951

Variance 1390.92

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 2.22323E-012

90% of values less than 1.01823E-011

95% of values less than 1.70768E-011

Minimum 0

Maximum 8.25912E-011

Mean 5.24657E-012

Std. Dev. 1.06882E-011

Variance 1.14237E-022

Phase: Cell 3a

Concentration of Mercury at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 3.56942E-010	
Mean 3.35752E-012	Std. Dev. 3.32186E-011	Variance 1.10348E-021

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 5.75778E-013		
95% of values less than 1.90879E-009		
Minimum 0	Maximum 0.00010294	
Mean 8.45666E-007	Std. Dev. 8.33512E-006	Variance 6.94742E-011

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 1.50194E-006		
95% of values less than 1.52248E-005		
Minimum 0	Maximum 0.0125678	
Mean 8.02766E-005	Std. Dev. 0.00089314	Variance 7.97699E-007

At infinity

05% of values less than 3.54097E-013		
10% of values less than 1.88916E-011		
50% of values less than 1.23374E-005		
90% of values less than 6.82362E-005		
95% of values less than 9.76419E-005		
Minimum 0	Maximum 0.000466488	
Mean 2.5715E-005	Std. Dev. 4.54999E-005	Variance 2.07024E-009

Phase: Cell 3a*Concentration of Pesticides (total) at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 2.17264E-007

10% of values less than 2.98674E-006

50% of values less than 2.5511E-005

90% of values less than 0.000136966

95% of values less than 0.000198831

Minimum 7.94734E-011

Maximum 0.000510618

Mean 5.27251E-005

Std. Dev. 7.56756E-005

Variance 5.7268E-009

At 100 years

05% of values less than 1.17057E-005

10% of values less than 1.27694E-005

50% of values less than 3.47943E-005

90% of values less than 0.000184065

95% of values less than 0.000270275

Minimum 1.04289E-005

Maximum 0.000524544

Mean 7.19671E-005

Std. Dev. 8.93573E-005

Variance 7.98472E-009

At 300 years

05% of values less than 1.14898E-005

10% of values less than 1.27802E-005

50% of values less than 3.43775E-005

90% of values less than 0.000184065

95% of values less than 0.000260379

Minimum 1.04289E-005

Maximum 0.000524546

Mean 7.06525E-005

Std. Dev. 8.83101E-005

Variance 7.79867E-009

At 1000 years

05% of values less than 1.14898E-005

10% of values less than 1.27802E-005

50% of values less than 3.45297E-005

90% of values less than 0.000184133

95% of values less than 0.000274008

Minimum 1.04521E-005

Maximum 0.000524545

Mean 7.15568E-005

Std. Dev. 9.0072E-005

Variance 8.11296E-009

At infinity

05% of values less than 1.14898E-005

10% of values less than 1.27802E-005

50% of values less than 3.43775E-005

90% of values less than 0.000184065

95% of values less than 0.000260379

Minimum 1.04289E-005

Maximum 0.000524546

Mean 7.06527E-005

Std. Dev. 8.831E-005

Variance 7.79866E-009

Phase: Cell 3a*Concentration of TPH aliphatic C5-6 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 1.11111E-006

10% of values less than 4.15714E-005

50% of values less than 0.0317854

90% of values less than 0.0728977

95% of values less than 0.0777392

Minimum 1.9566E-015

Maximum 0.0968235

Mean 0.033892

Std. Dev. 0.028023

Variance 0.000785288

At 100 years

05% of values less than 9.81295E-007

10% of values less than 7.11105E-005

50% of values less than 0.00140814

90% of values less than 0.00396994

95% of values less than 0.00453714

Minimum 4.94137E-016

Maximum 0.0061004

Mean 0.00177656

Std. Dev. 0.00151018

Variance 2.28064E-006

At 300 years

05% of values less than 3.35277E-010

10% of values less than 1.54107E-008

50% of values less than 4.83519E-007

90% of values less than 1.34043E-006

95% of values less than 1.47472E-006

Minimum 0

Maximum 1.7532E-006

Mean 5.91283E-007

Std. Dev. 4.93908E-007

Variance 2.43945E-013

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 3.3343E-014

90% of values less than 3.00555E-013

95% of values less than 4.23504E-013

Minimum 0

Maximum 1.35626E-011

Mean 2.11629E-013

Std. Dev. 1.15417E-012

Variance 1.33212E-024

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.3136E-016

95% of values less than 6.18059E-016

Minimum 0

Maximum 2.58503E-015

Mean 1.17648E-016

Std. Dev. 3.03488E-016

Variance 9.21048E-032

Phase: Cell 3a

Concentration of TPH aliphatic C6-8 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 1.08814E-012		
50% of values less than 0.000214813		
90% of values less than 0.00723021		
95% of values less than 0.00941863		
Minimum 0	Maximum 0.0177279	
Mean 0.00193292	Std. Dev. 0.00323405	Variance 1.04591E-005

At 100 years

05% of values less than 6.38296E-013		
10% of values less than 1.31173E-009		
50% of values less than 2.63635E-005		
90% of values less than 0.00031435		
95% of values less than 0.000448234		
Minimum 0	Maximum 0.00106176	
Mean 0.000101707	Std. Dev. 0.000168135	Variance 2.82692E-008

At 300 years

05% of values less than 0		
10% of values less than 6.06975E-013		
50% of values less than 6.64631E-009		
90% of values less than 1.04219E-007		
95% of values less than 1.51598E-007		
Minimum 0	Maximum 3.71474E-007	
Mean 3.30117E-008	Std. Dev. 5.7153E-008	Variance 3.26647E-015

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 1.00067E-014		
95% of values less than 2.56934E-014		
Minimum 0	Maximum 6.4043E-013	
Mean 8.25425E-015	Std. Dev. 5.02643E-014	Variance 2.5265E-027

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 3.03009E-017		
Minimum 0	Maximum 1.7853E-016	
Mean 3.96622E-018	Std. Dev. 1.70757E-017	Variance 2.91578E-034

Phase: Cell 3a*Concentration of TPH aliphatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 2.98517E-015

90% of values less than 7.934E-006

95% of values less than 3.73007E-005

Minimum 0

Maximum 0.000990189

Mean 2.35252E-005

Std. Dev. 0.000117709

Variance 1.38554E-008

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 5.94704E-011

90% of values less than 2.04778E-006

95% of values less than 9.02769E-006

Minimum 0

Maximum 0.000134379

Mean 2.59098E-006

Std. Dev. 1.30511E-005

Variance 1.70332E-010

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.02799E-014

90% of values less than 3.78459E-010

95% of values less than 1.14672E-009

Minimum 0

Maximum 1.38217E-008

Mean 3.85562E-010

Std. Dev. 1.72538E-009

Variance 2.97695E-018

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.33756E-015

Mean 1.36914E-017

Std. Dev. 1.08898E-016

Variance 1.18589E-032

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3a*Concentration of TPH aliphatic C10-12 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.05702E-016

Minimum 0

Maximum 3.9319E-009

Mean 2.41889E-011

Std. Dev. 2.80512E-010

Variance 7.86869E-020

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.40229E-013

95% of values less than 3.11548E-011

Minimum 0

Maximum 9.12115E-007

Mean 5.48488E-009

Std. Dev. 6.55721E-008

Variance 4.2997E-015

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.28152E-016

95% of values less than 6.32866E-015

Minimum 0

Maximum 3.53052E-011

Mean 2.07893E-013

Std. Dev. 2.52235E-012

Variance 6.36225E-024

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3a

Concentration of TPH aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 3a

Concentration of TPH aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 3a

Concentration of TPH aromatic C5-7 (benzene) at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 5.3081E-006
10% of values less than 7.02166E-005
50% of values less than 0.00164667
90% of values less than 0.00242481
95% of values less than 0.00265599

Minimum 2.14606E-008
Mean 0.00143587

Maximum 0.00327293
Std. Dev. 0.000878194

Variance 7.71225E-007

At 100 years

05% of values less than 6.15768E-006
10% of values less than 8.67274E-006
50% of values less than 7.61451E-005
90% of values less than 0.00013121
95% of values less than 0.000177042

Minimum 3.84605E-009
Mean 8.06264E-005

Maximum 0.000510134
Std. Dev. 7.15088E-005

Variance 5.11351E-009

At 300 years

05% of values less than 2.11867E-009
10% of values less than 3.08846E-009
50% of values less than 2.60337E-008
90% of values less than 4.16468E-008
95% of values less than 4.38286E-008

Minimum 9.88051E-013
Mean 2.36187E-008

Maximum 4.82801E-008
Std. Dev. 1.40981E-008

Variance 1.98758E-016

At 1000 years

05% of values less than 0
10% of values less than 0
50% of values less than 1.91134E-015
90% of values less than 1.05137E-014
95% of values less than 1.33586E-014

Minimum 0
Mean 4.43833E-015

Maximum 1.80915E-013
Std. Dev. 1.34086E-014

Variance 1.7979E-028

At infinity

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0
Mean 3.48942E-018

Maximum 5.15558E-016
Std. Dev. 3.70472E-017

Variance 1.3725E-033

Phase: Cell 3a*Concentration of TPH aromatic C7-8 (toluene) at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 1.30202E-008

10% of values less than 2.51988E-007

50% of values less than 0.000318677

90% of values less than 0.00141074

95% of values less than 0.00170464

Minimum 6.09625E-014

Maximum 0.00216554

Mean 0.000527435

Std. Dev. 0.000566936

Variance 3.21416E-007

At 100 years

05% of values less than 7.59886E-009

10% of values less than 9.27481E-008

50% of values less than 1.49891E-005

90% of values less than 7.65137E-005

95% of values less than 0.000120702

Minimum 3.78658E-014

Maximum 0.000296619

Mean 3.17545E-005

Std. Dev. 4.5567E-005

Variance 2.07635E-009

At 300 years

05% of values less than 2.57547E-012

10% of values less than 3.73827E-011

50% of values less than 5.14909E-009

90% of values less than 2.54655E-008

95% of values less than 3.19241E-008

Minimum 0

Maximum 4.33222E-008

Mean 9.21782E-009

Std. Dev. 1.06363E-008

Variance 1.13131E-016

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 9.90816E-017

90% of values less than 4.3288E-015

95% of values less than 7.75199E-015

Minimum 0

Maximum 3.1958E-013

Mean 4.10405E-015

Std. Dev. 2.4391E-014

Variance 5.94919E-028

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 2.67632E-017

Mean 2.29445E-019

Std. Dev. 2.32412E-018

Variance 5.40154E-036

Phase: Cell 3a*Concentration of TPH aromatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 7.17089E-013

10% of values less than 5.76313E-010

50% of values less than 9.8283E-005

90% of values less than 0.00267017

95% of values less than 0.00382276

Minimum 0

Maximum 0.00672407

Mean 0.000846289

Std. Dev. 0.00142674

Variance 2.03557E-006

At 100 years

05% of values less than 9.63426E-012

10% of values less than 3.90736E-010

50% of values less than 4.65381E-006

90% of values less than 0.00015371

95% of values less than 0.000218748

Minimum 0

Maximum 0.000436103

Mean 4.62913E-005

Std. Dev. 8.41673E-005

Variance 7.08414E-009

At 300 years

05% of values less than 3.32581E-015

10% of values less than 1.6335E-013

50% of values less than 1.55744E-009

90% of values less than 5.17914E-008

95% of values less than 7.52396E-008

Minimum 0

Maximum 1.36627E-007

Mean 1.57009E-008

Std. Dev. 2.82061E-008

Variance 7.95583E-016

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.36623E-015

95% of values less than 1.54817E-014

Minimum 0

Maximum 1.50329E-013

Mean 3.44056E-015

Std. Dev. 1.33743E-014

Variance 1.78872E-028

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.19493E-017

Minimum 0

Maximum 1.44928E-016

Mean 2.80469E-018

Std. Dev. 1.2696E-017

Variance 1.61188E-034

Phase: Cell 3a*Concentration of TPH aromatic C10-12 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 7.519E-015

10% of values less than 1.09429E-011

50% of values less than 8.8148E-005

90% of values less than 0.00418756

95% of values less than 0.00569847

Minimum 0

Maximum 0.00911476

Mean 0.00114408

Std. Dev. 0.0020139

Variance 4.05579E-006

At 100 years

05% of values less than 6.23597E-012

10% of values less than 1.0769E-010

50% of values less than 5.90569E-006

90% of values less than 0.000238803

95% of values less than 0.000339643

Minimum 0

Maximum 0.00054837

Mean 6.26934E-005

Std. Dev. 0.000118123

Variance 1.3953E-008

At 300 years

05% of values less than 6.53574E-016

10% of values less than 3.65516E-014

50% of values less than 1.82965E-009

90% of values less than 8.24919E-008

95% of values less than 1.1647E-007

Minimum 0

Maximum 1.88458E-007

Mean 2.12881E-008

Std. Dev. 4.04225E-008

Variance 1.63398E-015

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.03381E-014

95% of values less than 1.92615E-014

Minimum 0

Maximum 6.2486E-013

Mean 7.40503E-015

Std. Dev. 4.63821E-014

Variance 2.1513E-027

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.74559E-017

Minimum 0

Maximum 6.96133E-017

Mean 2.03129E-018

Std. Dev. 8.59145E-018

Variance 7.3813E-035

Phase: Cell 3a*Concentration of TPH aromatic C12-16 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 9.71837E-014

50% of values less than 1.81544E-005

90% of values less than 0.00281568

95% of values less than 0.0051986

Minimum 0

Maximum 0.0161243

Mean 0.000901229

Std. Dev. 0.00226224

Variance 5.11772E-006

At 100 years

05% of values less than 2.59356E-013

10% of values less than 8.18781E-011

50% of values less than 1.11634E-006

90% of values less than 0.000136135

95% of values less than 0.000304912

Minimum 0

Maximum 0.00115483

Mean 5.01926E-005

Std. Dev. 0.000140134

Variance 1.96375E-008

At 300 years

05% of values less than 0

10% of values less than 1.19288E-014

50% of values less than 3.42901E-010

90% of values less than 4.67304E-008

95% of values less than 9.8076E-008

Minimum 0

Maximum 3.16273E-007

Mean 1.65113E-008

Std. Dev. 4.51809E-008

Variance 2.04131E-015

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 6.69182E-015

95% of values less than 1.9937E-014

Minimum 0

Maximum 1.02806E-012

Mean 1.04905E-014

Std. Dev. 7.76767E-014

Variance 6.03367E-027

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 6.85332E-016

Mean 5.32362E-018

Std. Dev. 5.02459E-017

Variance 2.52465E-033

Phase: Cell 3a

Concentration of TPH aromatic C16-C21 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 7.89338E-008

90% of values less than 0.00148491

95% of values less than 0.00527118

Minimum 0

Maximum 0.0151215

Mean 0.000717082

Std. Dev. 0.00224361

Variance 5.03377E-006

At 100 years

05% of values less than 6.33546E-015

10% of values less than 1.4771E-012

50% of values less than 1.42256E-005

90% of values less than 0.00317181

95% of values less than 0.00670259

Minimum 0

Maximum 0.0305991

Mean 0.00123101

Std. Dev. 0.00372852

Variance 1.39019E-005

At 300 years

05% of values less than 9.38151E-013

10% of values less than 1.14878E-011

50% of values less than 1.8407E-005

90% of values less than 0.00257377

95% of values less than 0.00571056

Minimum 1.58069E-015

Maximum 0.0152935

Mean 0.000952873

Std. Dev. 0.00237809

Variance 5.65531E-006

At 1000 years

05% of values less than 9.48593E-013

10% of values less than 1.14878E-011

50% of values less than 1.8407E-005

90% of values less than 0.00257376

95% of values less than 0.00570994

Minimum 1.5807E-015

Maximum 0.0152926

Mean 0.000951425

Std. Dev. 0.00237131

Variance 5.62313E-006

At infinity

05% of values less than 9.48593E-013

10% of values less than 1.14878E-011

50% of values less than 1.8407E-005

90% of values less than 0.00257377

95% of values less than 0.00571055

Minimum 1.5807E-015

Maximum 0.0152934

Mean 0.000952902

Std. Dev. 0.00237811

Variance 5.65542E-006

Phase: Cell 3a*Concentration of TPH aromatic C21-35 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.00939E-012

95% of values less than 2.7961E-008

Minimum 0

Maximum 1.29441E-005

Mean 1.86806E-007

Std. Dev. 1.35238E-006

Variance 1.82894E-012

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 4.42113E-016

90% of values less than 3.12197E-007

95% of values less than 3.62124E-005

Minimum 0

Maximum 0.000200843

Mean 5.93136E-006

Std. Dev. 2.55566E-005

Variance 6.5314E-010

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.31259E-012

90% of values less than 4.50328E-007

95% of values less than 1.583E-005

Minimum 0

Maximum 0.000104752

Mean 3.31328E-006

Std. Dev. 1.41852E-005

Variance 2.0122E-010

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.3224E-012

90% of values less than 4.50329E-007

95% of values less than 1.61153E-005

Minimum 0

Maximum 0.000104738

Mean 3.39497E-006

Std. Dev. 1.44124E-005

Variance 2.07717E-010

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 1.32241E-012

90% of values less than 4.50331E-007

95% of values less than 1.61173E-005

Minimum 0

Maximum 0.000104752

Mean 3.40306E-006

Std. Dev. 1.44532E-005

Variance 2.08895E-010

Phase: Cell 3a*Concentration of Phenols group 1-phenol+ at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0.000191689

10% of values less than 0.000610767

50% of values less than 0.0079012

90% of values less than 0.0462227

95% of values less than 0.056819

Minimum 8.19411E-006

Maximum 0.0896732

Mean 0.016193

Std. Dev. 0.0196926

Variance 0.000387798

At 100 years

05% of values less than 3.37162E-005

10% of values less than 5.32475E-005

50% of values less than 0.00043099

90% of values less than 0.00256087

95% of values less than 0.00394789

Minimum 5.96447E-006

Maximum 0.0101139

Mean 0.000972106

Std. Dev. 0.00141788

Variance 2.01038E-006

At 300 years

05% of values less than 1.11388E-008

10% of values less than 1.75922E-008

50% of values less than 1.46899E-007

90% of values less than 7.46044E-007

95% of values less than 9.20072E-007

Minimum 1.8106E-009

Maximum 1.49042E-006

Mean 2.69933E-007

Std. Dev. 3.22255E-007

Variance 1.03849E-013

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.11363E-014

90% of values less than 1.20705E-013

95% of values less than 2.16824E-013

Minimum 0

Maximum 1.83639E-012

Mean 5.70174E-014

Std. Dev. 1.64455E-013

Variance 2.70454E-026

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.68276E-016

95% of values less than 3.93349E-016

Minimum 0

Maximum 1.27292E-015

Mean 6.20324E-017

Std. Dev. 1.86156E-016

Variance 3.4654E-032

Phase: Cell 3a*Concentration of Phenols group 2 - cresols+ at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 3.68592E-005

10% of values less than 0.000149138

50% of values less than 0.00362737

90% of values less than 0.0212029

95% of values less than 0.0257067

Minimum 1.39358E-008

Maximum 0.0579756

Mean 0.0075797

Std. Dev. 0.00946812

Variance 8.96454E-005

At 100 years

05% of values less than 6.17597E-006

10% of values less than 1.37164E-005

50% of values less than 0.00018996

90% of values less than 0.00113724

95% of values less than 0.00163684

Minimum 2.90964E-007

Maximum 0.0055812

Mean 0.000430432

Std. Dev. 0.000659273

Variance 4.34641E-007

At 300 years

05% of values less than 1.87238E-009

10% of values less than 4.57735E-009

50% of values less than 6.33056E-008

90% of values less than 3.52815E-007

95% of values less than 4.28417E-007

Minimum 1.98713E-010

Maximum 7.35415E-007

Mean 1.26285E-007

Std. Dev. 1.55141E-007

Variance 2.40689E-014

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 3.31295E-015

90% of values less than 5.48453E-014

95% of values less than 1.04312E-013

Minimum 0

Maximum 6.80172E-013

Mean 2.79258E-014

Std. Dev. 7.98494E-014

Variance 6.37593E-027

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.48143E-017

95% of values less than 1.65216E-016

Minimum 0

Maximum 7.34384E-016

Mean 2.46651E-017

Std. Dev. 7.95372E-017

Variance 6.32616E-033

Phase: Cell 3a*Concentration of Phenols group 3 - xylenols + at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 9.45535E-008

10% of values less than 1.1994E-006

50% of values less than 0.000537208

90% of values less than 0.00220834

95% of values less than 0.00294549

Minimum 3.07791E-012

Maximum 0.00652344

Mean 0.000867804

Std. Dev. 0.00107943

Variance 1.16516E-006

At 100 years

05% of values less than 3.15687E-008

10% of values less than 3.72981E-007

50% of values less than 2.43944E-005

90% of values less than 0.000110361

95% of values less than 0.000168917

Minimum 3.48265E-011

Maximum 0.000620688

Mean 4.6965E-005

Std. Dev. 7.01833E-005

Variance 4.92569E-009

At 300 years

05% of values less than 9.14657E-012

10% of values less than 1.33033E-010

50% of values less than 8.21954E-009

90% of values less than 3.69214E-008

95% of values less than 5.3575E-008

Minimum 8.55309E-015

Maximum 1.37067E-007

Mean 1.50524E-008

Std. Dev. 2.02296E-008

Variance 4.09235E-016

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 2.56944E-016

90% of values less than 5.73889E-015

95% of values less than 1.42641E-014

Minimum 0

Maximum 1.43641E-013

Mean 3.56287E-015

Std. Dev. 1.33377E-014

Variance 1.77895E-028

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.00769E-016

Mean 1.37616E-018

Std. Dev. 9.30148E-018

Variance 8.65175E-035

Phase: Cell 3a

Concentration of Phenols group 4 - chlorophenols+ at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 1.15959E-006
10% of values less than 5.43027E-005
50% of values less than 0.00802188
90% of values less than 0.0440309
95% of values less than 0.0654555

Minimum 0	Maximum 0.152987	
Mean 0.0173929	Std. Dev. 0.0244789	Variance 0.000599215

At 100 years

05% of values less than 7.06251E-005
10% of values less than 0.000136265
50% of values less than 0.000994782
90% of values less than 0.00408157
95% of values less than 0.00526506

Minimum 2.59037E-005	Maximum 0.00998755	
Mean 0.00157053	Std. Dev. 0.00177769	Variance 3.16018E-006

At 300 years

05% of values less than 2.42695E-008
10% of values less than 4.66652E-008
50% of values less than 3.16768E-007
90% of values less than 1.65994E-006
95% of values less than 4.88757E-006

Minimum 1.43971E-008	Maximum 0.000246355	
Mean 4.57694E-006	Std. Dev. 2.64986E-005	Variance 7.02175E-010

At 1000 years

05% of values less than 0
10% of values less than 0
50% of values less than 1.84876E-014
90% of values less than 2.60081E-013
95% of values less than 6.45268E-013

Minimum 0	Maximum 4.29512E-009	
Mean 2.23317E-011	Std. Dev. 3.03071E-010	Variance 9.18522E-020

At infinity

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 2.02733E-016
95% of values less than 4.27662E-016

Minimum 0	Maximum 2.89564E-015	
Mean 8.06251E-017	Std. Dev. 2.67753E-016	Variance 7.16915E-032

Phase: Cell 3a*Concentration of Phenols group 5 - nitrophenols + at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 7.62461E-007

10% of values less than 3.96524E-006

50% of values less than 0.000172379

90% of values less than 0.000266858

95% of values less than 0.0002825

Minimum 2.2067E-010

Maximum 0.000336978

Mean 0.000145779

Std. Dev. 0.000100316

Variance 1.00633E-008

At 100 years

05% of values less than 2.14138E-007

10% of values less than 4.81785E-007

50% of values less than 7.59418E-006

90% of values less than 1.36644E-005

95% of values less than 1.96319E-005

Minimum 9.13123E-010

Maximum 4.5797E-005

Mean 8.0522E-006

Std. Dev. 7.2795E-006

Variance 5.29911E-011

At 300 years

05% of values less than 7.38887E-011

10% of values less than 1.57118E-010

50% of values less than 2.60714E-009

90% of values less than 4.62148E-009

95% of values less than 4.68291E-009

Minimum 2.29697E-013

Maximum 4.72575E-009

Mean 2.44002E-009

Std. Dev. 1.71169E-009

Variance 2.92988E-018

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 8.10189E-017

90% of values less than 1.18476E-015

95% of values less than 1.5949E-015

Minimum 0

Maximum 1.53172E-014

Mean 4.91629E-016

Std. Dev. 1.37412E-015

Variance 1.8882E-030

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3c*Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 303.577

Mean 3.73588

Std. Dev. 26.5279

Variance 703.729

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1869.81

Mean 62.4437

Std. Dev. 310.64

Variance 96497.2

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1344.45

95% of values less than 1459.28

Minimum 0

Maximum 1803.87

Mean 406.053

Std. Dev. 570.737

Variance 325741

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 468.49

95% of values less than 559.311

Minimum 0

Maximum 861.337

Mean 119.883

Std. Dev. 201.874

Variance 40753.1

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.09854E-012

95% of values less than 1.16075E-011

Minimum 0

Maximum 2.5894E-009

Mean 1.45701E-011

Std. Dev. 1.826E-010

Variance 3.33427E-020

Phase: Cell 3c

Concentration of Chloride at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 335.858	
Mean 5.4106	Std. Dev. 36.1731	Variance 1308.49

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 633.398	
Mean 12.2531	Std. Dev. 69.3985	Variance 4816.15

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 292.749		
95% of values less than 357.811		
Minimum 0	Maximum 591.087	
Mean 81.0966	Std. Dev. 130.394	Variance 17002.5

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 73.9559		
95% of values less than 98.3424		
Minimum 0	Maximum 241.626	
Mean 19.6255	Std. Dev. 39.2805	Variance 1542.96

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 4.1908E-013		
95% of values less than 9.50568E-013		
Minimum 0	Maximum 2.24648E-010	
Mean 1.27081E-012	Std. Dev. 1.58422E-011	Variance 2.50975E-022

Phase: Cell 3c*Concentration of Mercury at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 7.44282E-010

Mean 3.70291E-012

Std. Dev. 5.24976E-011

Variance 2.756E-021

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.37217E-006

95% of values less than 9.43163E-006

Minimum 0

Maximum 4.13544E-005

Mean 2.09793E-006

Std. Dev. 6.41174E-006

Variance 4.11104E-011

Phase: Cell 3c

Concentration of Pesticides (total) at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 5.05766E-005	
Mean 5.46954E-007	Std. Dev. 4.22471E-006	Variance 1.78482E-011

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 7.51254E-005	
Mean 1.33171E-006	Std. Dev. 7.61118E-006	Variance 5.793E-011

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0.000135169		
95% of values less than 0.000195905		
Minimum 0	Maximum 0.000642327	
Mean 3.92048E-005	Std. Dev. 9.30922E-005	Variance 8.66615E-009

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0.000135168		
95% of values less than 0.000195906		
Minimum 0	Maximum 0.000642521	
Mean 3.92572E-005	Std. Dev. 9.31839E-005	Variance 8.68325E-009

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0.000135169		
95% of values less than 0.000195906		
Minimum 0	Maximum 0.000642522	
Mean 3.92581E-005	Std. Dev. 9.31868E-005	Variance 8.68378E-009

Phase: Cell 3c*Concentration of TPH aliphatic C5-6 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.0492701

Mean 0.000486659

Std. Dev. 0.00398263

Variance 1.58613E-005

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.00247482

Mean 4.63936E-005

Std. Dev. 0.000276954

Variance 7.67037E-008

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.92652E-007

95% of values less than 5.50321E-007

Minimum 0

Maximum 1.18876E-006

Mean 9.13683E-008

Std. Dev. 1.98067E-007

Variance 3.92307E-014

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.24538E-015

Minimum 0

Maximum 1.104E-013

Mean 2.25718E-015

Std. Dev. 1.34414E-014

Variance 1.80671E-028

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3c

Concentration of TPH aliphatic C6-8 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 4.32886E-005

Mean 2.34648E-007

Std. Dev. 3.05839E-006

Variance 9.35375E-012

At 100 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 2.52154E-005

Mean 3.41145E-007

Std. Dev. 2.44541E-006

Variance 5.98001E-012

At 300 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 1.44605E-009
95% of values less than 3.84271E-009

Minimum 0

Maximum 1.31267E-008

Mean 5.93426E-010

Std. Dev. 1.90132E-009

Variance 3.61503E-018

At 1000 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3c

Concentration of TPH aliphatic C8-10 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 4.45793E-012	
Mean 2.44418E-014	Std. Dev. 3.15676E-013	Variance 9.96513E-026

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 4.7328E-015		
Minimum 0	Maximum 1.01144E-011	
Mean 6.65629E-014	Std. Dev. 7.28714E-013	Variance 5.31024E-025

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 3c

Concentration of TPH aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 3c

Concentration of TPH aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 3c

Concentration of TPH aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 3c*Concentration of TPH aromatic C5-7 (benzene) at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.00161856

Mean 1.92254E-005

Std. Dev. 0.000156391

Variance 2.44582E-008

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 6.28389E-005

Mean 1.25986E-006

Std. Dev. 7.57728E-006

Variance 5.74152E-011

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.50965E-008

95% of values less than 2.07117E-008

Minimum 0

Maximum 3.01165E-008

Mean 4.18703E-009

Std. Dev. 7.2265E-009

Variance 5.22223E-017

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 5.16321E-015

Mean 8.53984E-017

Std. Dev. 5.61342E-016

Variance 3.15105E-031

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3c

Concentration of TPH aromatic C7-8 (toluene) at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0.000120518

Mean 1.58579E-006

Std. Dev. 1.22721E-005

Variance 1.50604E-010

At 100 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 4.23295E-005

Mean 3.08532E-007

Std. Dev. 3.05334E-006

Variance 9.32287E-012

At 300 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 1.86565E-009
95% of values less than 3.61895E-009

Minimum 0

Maximum 1.4562E-008

Mean 5.69492E-010

Std. Dev. 1.63596E-009

Variance 2.67637E-018

At 1000 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 1.58116E-015

Mean 7.86648E-018

Std. Dev. 1.11527E-016

Variance 1.24382E-032

At infinity

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3c*Concentration of TPH aromatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 6.20913E-005

Mean 3.38075E-007

Std. Dev. 4.39049E-006

Variance 1.92764E-011

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 2.48921E-006

Mean 2.80577E-008

Std. Dev. 2.45821E-007

Variance 6.04279E-014

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.10366E-010

95% of values less than 8.58232E-010

Minimum 0

Maximum 8.28983E-009

Mean 1.77039E-010

Std. Dev. 7.84358E-010

Variance 6.15217E-019

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3c*Concentration of TPH aromatic C10-12 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.12432E-005

Mean 5.83287E-008

Std. Dev. 7.93133E-007

Variance 6.2906E-013

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 3.1046E-006

Mean 3.68421E-008

Std. Dev. 2.99603E-007

Variance 8.9762E-014

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.27041E-010

95% of values less than 7.90039E-010

Minimum 0

Maximum 8.11327E-009

Mean 1.69227E-010

Std. Dev. 8.38162E-010

Variance 7.02515E-019

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3c*Concentration of TPH aromatic C12-16 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 5.77849E-007

Mean 4.64868E-009

Std. Dev. 4.52617E-008

Variance 2.04862E-015

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 7.85922E-006

Mean 4.75464E-008

Std. Dev. 5.57015E-007

Variance 3.10266E-013

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.7197E-012

95% of values less than 3.24841E-011

Minimum 0

Maximum 1.05386E-008

Mean 7.1534E-011

Std. Dev. 7.5922E-010

Variance 5.76414E-019

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3c

Concentration of TPH aromatic C16-C21 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 3.62274E-012

Mean 1.80236E-014

Std. Dev. 2.55528E-013

Variance 6.52947E-026

At 100 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0

Minimum 0

Maximum 3.69331E-006

Mean 2.15152E-008

Std. Dev. 2.61721E-007

Variance 6.84979E-014

At 300 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 4.69054E-007
95% of values less than 4.226E-006

Minimum 0

Maximum 0.000137425

Mean 1.84986E-006

Std. Dev. 1.21362E-005

Variance 1.47288E-010

At 1000 years

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 4.72989E-007
95% of values less than 4.70779E-006

Minimum 0

Maximum 0.000165526

Mean 2.16115E-006

Std. Dev. 1.41446E-005

Variance 2.00069E-010

At infinity

05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 4.73013E-007
95% of values less than 4.70782E-006

Minimum 0

Maximum 0.000165537

Mean 2.16128E-006

Std. Dev. 1.41453E-005

Variance 2.00089E-010

Phase: Cell 3c*Concentration of TPH aromatic C21-35 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 8.32875E-011

Mean 4.23814E-013

Std. Dev. 5.87549E-012

Variance 3.45214E-023

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 2.47809E-010

Mean 1.30996E-012

Std. Dev. 1.74982E-011

Variance 3.06188E-022

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 3.14834E-016

Minimum 0

Maximum 2.48216E-010

Mean 1.31242E-012

Std. Dev. 1.75272E-011

Variance 3.07201E-022

Phase: Cell 3c*Concentration of Phenols group 1-phenol+ at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.584271

Mean 0.00537532

Std. Dev. 0.0451264

Variance 0.00203639

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.0216376

Mean 0.000420571

Std. Dev. 0.0023916

Variance 5.71976E-006

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.23745E-006

95% of values less than 7.42465E-006

Minimum 0

Maximum 1.72426E-005

Mean 1.56953E-006

Std. Dev. 2.74903E-006

Variance 7.55717E-012

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.74864E-015

Minimum 0

Maximum 1.87852E-012

Mean 2.52756E-014

Std. Dev. 1.57386E-013

Variance 2.47704E-026

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.01553E-016

Mean 5.05238E-019

Std. Dev. 7.16299E-018

Variance 5.13084E-035

Phase: Cell 3c*Concentration of Phenols group 2 - cresols+ at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.503243

Mean 0.00500287

Std. Dev. 0.0401836

Variance 0.00161472

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.0289941

Mean 0.000490761

Std. Dev. 0.00292733

Variance 8.56928E-006

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.18555E-006

95% of values less than 7.81383E-006

Minimum 0

Maximum 2.84976E-005

Mean 1.62758E-006

Std. Dev. 3.62402E-006

Variance 1.31335E-011

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.92686E-015

Minimum 0

Maximum 1.48141E-012

Mean 2.27288E-014

Std. Dev. 1.40351E-013

Variance 1.96983E-026

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 6.4181E-017

Mean 3.19309E-019

Std. Dev. 4.52698E-018

Variance 2.04935E-035

Phase: Cell 3c*Concentration of Phenols group 3 - xylenols + at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.00986642

Mean 7.42494E-005

Std. Dev. 0.000731225

Variance 5.3469E-007

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.000831205

Mean 8.27249E-006

Std. Dev. 6.61459E-005

Variance 4.37528E-009

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.21321E-008

95% of values less than 9.26428E-008

Minimum 0

Maximum 4.14151E-007

Mean 1.54024E-008

Std. Dev. 4.67688E-008

Variance 2.18732E-015

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 4.19035E-014

Mean 4.69095E-016

Std. Dev. 3.87413E-015

Variance 1.50089E-029

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3c*Concentration of Phenols group 4 - chlorophenols+ at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.0313133

Mean 0.000279263

Std. Dev. 0.00270008

Variance 7.29042E-006

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.00594006

Mean 6.57683E-005

Std. Dev. 0.000479182

Variance 2.29616E-007

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 6.63854E-007

95% of values less than 1.6662E-006

Minimum 0

Maximum 8.42726E-006

Mean 2.57558E-007

Std. Dev. 7.67944E-007

Variance 5.89739E-013

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 3.81349E-015

Minimum 0

Maximum 1.98204E-012

Mean 1.16966E-014

Std. Dev. 1.40131E-013

Variance 1.96366E-026

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 3c*Concentration of Phenols group 5 - nitrophenols + at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.00405746

Mean 3.11599E-005

Std. Dev. 0.000300865

Variance 9.05199E-008

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0.000159699

Mean 2.21134E-006

Std. Dev. 1.62917E-005

Variance 2.65418E-010

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.14843E-009

95% of values less than 1.46539E-008

Minimum 0

Maximum 5.49244E-008

Mean 2.92755E-009

Std. Dev. 7.36197E-009

Variance 5.41986E-017

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 7.91075E-015

Mean 9.52813E-017

Std. Dev. 7.20833E-016

Variance 5.19601E-031

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 4*Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0.0024623

90% of values less than 133.512

95% of values less than 374.67

Minimum 0

Maximum 1446.42

Mean 57.1317

Std. Dev. 180.188

Variance 32467.6

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 707.957

90% of values less than 1180.76

95% of values less than 1269.92

Minimum 0

Maximum 1430.28

Mean 612.568

Std. Dev. 443.764

Variance 196927

At 300 years

05% of values less than 325.348

10% of values less than 459.596

50% of values less than 913.323

90% of values less than 1228.3

95% of values less than 1298.99

Minimum 148.633

Maximum 1453.92

Mean 874.941

Std. Dev. 291.396

Variance 84911.4

At 1000 years

05% of values less than 14.651

10% of values less than 39.6254

50% of values less than 237.775

90% of values less than 554.718

95% of values less than 610.211

Minimum 1.59244

Maximum 873.428

Mean 268.749

Std. Dev. 192.511

Variance 37060.5

At infinity

05% of values less than 0

10% of values less than 2.85737E-014

50% of values less than 9.24142E-013

90% of values less than 1.25619E-011

95% of values less than 3.02761E-011

Minimum 0

Maximum 6.6893E-010

Mean 1.15726E-011

Std. Dev. 5.6083E-011

Variance 3.14531E-021

Phase: Cell 4*Concentration of Chloride at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 63.4217

90% of values less than 400.469

95% of values less than 455.194

Minimum 0

Maximum 739.414

Mean 140.974

Std. Dev. 175.347

Variance 30746.7

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 194.346

90% of values less than 396.137

95% of values less than 473.992

Minimum 0

Maximum 762.169

Mean 210.988

Std. Dev. 159.852

Variance 25552.7

At 300 years

05% of values less than 47.7593

10% of values less than 62.5987

50% of values less than 178.121

90% of values less than 331.357

95% of values less than 441.701

Minimum 14.4752

Maximum 636.152

Mean 197.63

Std. Dev. 122.404

Variance 14982.7

At 1000 years

05% of values less than 1.57072

10% of values less than 4.38838

50% of values less than 30.6151

90% of values less than 121.33

95% of values less than 135.777

Minimum 0.0932908

Maximum 243.718

Mean 50.2145

Std. Dev. 50.0845

Variance 2508.45

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 1.10803E-013

90% of values less than 1.20221E-012

95% of values less than 1.97528E-012

Minimum 0

Maximum 7.78138E-011

Mean 1.08038E-012

Std. Dev. 6.65457E-012

Variance 4.42833E-023

Phase: Cell 4

Concentration of Mercury at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At infinity

05% of values less than 3.19976E-013		
10% of values less than 9.68836E-012		
50% of values less than 1.10571E-007		
90% of values less than 7.80209E-006		
95% of values less than 1.12615E-005		
Minimum 0	Maximum 3.65003E-005	
Mean 2.34035E-006	Std. Dev. 5.68781E-006	Variance 3.23512E-011

Phase: Cell 4

Concentration of Pesticides (total) at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 3.91391E-008

90% of values less than 5.5292E-005

95% of values less than 0.000109686

Minimum 0

Maximum 0.000342863

Mean 1.58231E-005

Std. Dev. 4.044E-005

Variance 1.63539E-009

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 3.16659E-005

90% of values less than 0.000199745

95% of values less than 0.000377768

Minimum 0

Maximum 0.000701124

Mean 7.89265E-005

Std. Dev. 0.000122865

Variance 1.50958E-008

At 300 years

05% of values less than 1.20209E-005

10% of values less than 1.34558E-005

50% of values less than 4.4566E-005

90% of values less than 0.000242508

95% of values less than 0.000386661

Minimum 9.88936E-006

Maximum 0.000715141

Mean 9.79667E-005

Std. Dev. 0.000126138

Variance 1.59108E-008

At 1000 years

05% of values less than 1.20219E-005

10% of values less than 1.36548E-005

50% of values less than 4.4774E-005

90% of values less than 0.000242505

95% of values less than 0.000386668

Minimum 1.00005E-005

Maximum 0.00071599

Mean 9.80885E-005

Std. Dev. 0.000126215

Variance 1.59301E-008

At infinity

05% of values less than 1.20219E-005

10% of values less than 1.36548E-005

50% of values less than 4.47745E-005

90% of values less than 0.000242509

95% of values less than 0.000386669

Minimum 1.00007E-005

Maximum 0.000715998

Mean 9.80899E-005

Std. Dev. 0.000126215

Variance 1.59303E-008

Phase: Cell 4*Concentration of TPH aliphatic C5-6 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 2.58561E-008

90% of values less than 0.00228544

95% of values less than 0.00639254

Minimum 0

Maximum 0.0292907

Mean 0.000999704

Std. Dev. 0.00335738

Variance 1.1272E-005

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.91452E-005

90% of values less than 0.000364544

95% of values less than 0.000542104

Minimum 0

Maximum 0.00127561

Mean 0.000119321

Std. Dev. 0.000216044

Variance 4.66749E-008

At 300 years

05% of values less than 1.93458E-012

10% of values less than 1.40113E-011

50% of values less than 1.12939E-008

90% of values less than 1.11245E-007

95% of values less than 1.65215E-007

Minimum 0

Maximum 4.19869E-007

Mean 3.85111E-008

Std. Dev. 6.70541E-008

Variance 4.49625E-015

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.04197E-015

95% of values less than 1.37704E-014

Minimum 0

Maximum 5.14006E-014

Mean 1.87356E-015

Std. Dev. 5.67869E-015

Variance 3.22475E-029

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 4*Concentration of TPH aliphatic C6-8 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.62434E-008

95% of values less than 4.64517E-007

Minimum 0

Maximum 0.000245212

Mean 1.45132E-006

Std. Dev. 1.73317E-005

Variance 3.00389E-010

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 2.84125E-009

90% of values less than 2.90683E-006

95% of values less than 7.02271E-006

Minimum 0

Maximum 6.27218E-005

Mean 1.27072E-006

Std. Dev. 5.18466E-006

Variance 2.68807E-011

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 3.7774E-012

90% of values less than 8.44899E-010

95% of values less than 1.32566E-009

Minimum 0

Maximum 1.3299E-008

Mean 2.79093E-010

Std. Dev. 1.06621E-009

Variance 1.13681E-018

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 1.50096E-015

Mean 8.5456E-018

Std. Dev. 1.06892E-016

Variance 1.14258E-032

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 4*Concentration of TPH aliphatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 2.28419E-013

Mean 1.45433E-015

Std. Dev. 1.62629E-014

Variance 2.64483E-028

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 4.5842E-015

Mean 8.38201E-017

Std. Dev. 5.07129E-016

Variance 2.5718E-031

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 4

Concentration of TPH aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At 30 years		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0
At 100 years		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0
At 300 years		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0
At 1000 years		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0
At infinity		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 4

Concentration of TPH aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 4

Concentration of TPH aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 4

Concentration of TPH aromatic C5-7 (benzene) at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 3.51435E-006		
90% of values less than 0.000497997		
95% of values less than 0.000713935		
Minimum 0	Maximum 0.00149821	
Mean 0.000147703	Std. Dev. 0.000257228	Variance 6.61663E-008

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 8.13146E-006		
90% of values less than 2.75774E-005		
95% of values less than 3.80747E-005		
Minimum 0	Maximum 5.76967E-005	
Mean 1.12968E-005	Std. Dev. 1.22384E-005	Variance 1.4978E-010

At 300 years

05% of values less than 5.46191E-011		
10% of values less than 1.36711E-010		
50% of values less than 3.87759E-009		
90% of values less than 1.03409E-008		
95% of values less than 1.32434E-008		
Minimum 2.96007E-013	Maximum 1.98606E-008	
Mean 4.60132E-009	Std. Dev. 4.26282E-009	Variance 1.81716E-017

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 7.39923E-016		
Minimum 0	Maximum 3.31721E-015	
Mean 9.13993E-017	Std. Dev. 3.85787E-016	Variance 1.48832E-031

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 4

Concentration of TPH aromatic C7-8 (toluene) at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 3.35732E-011		
90% of values less than 4.74241E-005		
95% of values less than 8.91772E-005		
Minimum 0	Maximum 0.000316281	
Mean 1.41665E-005	Std. Dev. 3.91298E-005	Variance 1.53114E-009

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 6.12001E-008		
90% of values less than 3.01754E-006		
95% of values less than 4.37738E-006		
Minimum 0	Maximum 1.26823E-005	
Mean 8.16908E-007	Std. Dev. 1.69996E-006	Variance 2.88988E-012

At 300 years

05% of values less than 3.10343E-015		
10% of values less than 3.16105E-014		
50% of values less than 5.00073E-011		
90% of values less than 1.02715E-009		
95% of values less than 1.49097E-009		
Minimum 0	Maximum 4.3585E-009	
Mean 3.11529E-010	Std. Dev. 5.79821E-010	Variance 3.36193E-019

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 3.81433E-016	
Mean 3.33986E-018	Std. Dev. 3.37105E-017	Variance 1.1364E-033

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell 4*Concentration of TPH aromatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.14391E-006

95% of values less than 6.40625E-006

Minimum 0

Maximum 0.000122312

Mean 1.93633E-006

Std. Dev. 1.07998E-005

Variance 1.16636E-010

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 2.82623E-010

90% of values less than 2.11129E-007

95% of values less than 5.25143E-007

Minimum 0

Maximum 6.39698E-006

Mean 1.50001E-007

Std. Dev. 6.05495E-007

Variance 3.66624E-013

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 7.57269E-013

90% of values less than 7.96754E-011

95% of values less than 3.47431E-010

Minimum 0

Maximum 2.08816E-009

Mean 6.43707E-011

Std. Dev. 2.4082E-010

Variance 5.79944E-020

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 4*Concentration of TPH aromatic C10-12 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.1377E-007

95% of values less than 9.80161E-007

Minimum 0

Maximum 1.80791E-005

Mean 4.1324E-007

Std. Dev. 2.15765E-006

Variance 4.65546E-012

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.91982E-010

90% of values less than 5.11073E-007

95% of values less than 8.70586E-007

Minimum 0

Maximum 4.02797E-006

Mean 1.6988E-007

Std. Dev. 5.06694E-007

Variance 2.56738E-013

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 6.19269E-013

90% of values less than 1.54294E-010

95% of values less than 2.92187E-010

Minimum 0

Maximum 4.76675E-009

Mean 7.3728E-011

Std. Dev. 3.59882E-010

Variance 1.29515E-019

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 4*Concentration of TPH aromatic C12-16 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.49395E-010

95% of values less than 3.92743E-009

Minimum 0

Maximum 6.96853E-007

Mean 4.98565E-009

Std. Dev. 5.01341E-008

Variance 2.51343E-015

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 5.46814E-012

90% of values less than 7.48923E-009

95% of values less than 2.65245E-008

Minimum 0

Maximum 2.12721E-007

Mean 4.87934E-009

Std. Dev. 2.04881E-008

Variance 4.19762E-016

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 3.56121E-015

90% of values less than 2.05434E-012

95% of values less than 5.37572E-012

Minimum 0

Maximum 5.5304E-011

Mean 1.37455E-012

Std. Dev. 5.98639E-012

Variance 3.58369E-023

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 4*Concentration of TPH aromatic C16-C21 at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 2.9049E-011

Mean 1.47662E-013

Std. Dev. 2.04915E-012

Variance 4.19901E-024

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 2.29077E-014

90% of values less than 8.31031E-009

95% of values less than 4.2766E-008

Minimum 0

Maximum 5.01471E-007

Mean 1.30215E-008

Std. Dev. 6.01856E-008

Variance 3.62231E-015

At 300 years

05% of values less than 0

10% of values less than 0

50% of values less than 3.12526E-010

90% of values less than 2.87083E-007

95% of values less than 6.59993E-007

Minimum 0

Maximum 5.63477E-006

Mean 1.51106E-007

Std. Dev. 5.86322E-007

Variance 3.43774E-013

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 3.75146E-010

90% of values less than 3.71603E-007

95% of values less than 6.66876E-007

Minimum 0

Maximum 5.69408E-006

Mean 1.67032E-007

Std. Dev. 6.45941E-007

Variance 4.1724E-013

At infinity

05% of values less than 0

10% of values less than 4.59446E-017

50% of values less than 3.75165E-010

90% of values less than 3.71709E-007

95% of values less than 6.66988E-007

Minimum 0

Maximum 5.69516E-006

Mean 1.67071E-007

Std. Dev. 6.4608E-007

Variance 4.17419E-013

Phase: Cell 4

Concentration of TPH aromatic C21-35 at base of Unsaturated Zone [mg/l]

At 30 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At infinity

05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
Minimum 0	Maximum 2.2618E-016	
Mean 2.73595E-018	Std. Dev. 1.93239E-017	Variance 3.73414E-034

Phase: Cell 4*Concentration of Phenols group 1-phenol+ at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 9.54747E-005

90% of values less than 0.0133553

95% of values less than 0.0237237

Minimum 0

Maximum 0.0618223

Mean 0.00440518

Std. Dev. 0.0106999

Variance 0.000114488

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0.000100768

90% of values less than 0.000928447

95% of values less than 0.00126395

Minimum 0

Maximum 0.00251987

Mean 0.000319622

Std. Dev. 0.000506509

Variance 2.56551E-007

At 300 years

05% of values less than 2.7617E-009

10% of values less than 4.21728E-009

50% of values less than 5.43127E-008

90% of values less than 3.4388E-007

95% of values less than 5.97378E-007

Minimum 8.12337E-010

Maximum 8.47626E-007

Mean 1.31413E-007

Std. Dev. 1.86709E-007

Variance 3.48602E-014

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.71472E-014

95% of values less than 3.82329E-014

Minimum 0

Maximum 3.37299E-013

Mean 8.48014E-015

Std. Dev. 2.97556E-014

Variance 8.85398E-028

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 4*Concentration of Phenols group 2 - cresols+ at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 0.00013568

90% of values less than 0.036385

95% of values less than 0.0671034

Minimum 0

Maximum 0.331343

Mean 0.014832

Std. Dev. 0.0466521

Variance 0.00217642

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 0.000166022

90% of values less than 0.00249998

95% of values less than 0.00549375

Minimum 0

Maximum 0.0212272

Mean 0.00113554

Std. Dev. 0.0028461

Variance 8.10028E-006

At 300 years

05% of values less than 3.45176E-009

10% of values less than 8.94641E-009

50% of values less than 1.03054E-007

90% of values less than 1.22558E-006

95% of values less than 2.3816E-006

Minimum 6.18697E-010

Maximum 8.81112E-006

Mean 5.13157E-007

Std. Dev. 1.1724E-006

Variance 1.37453E-012

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.09403E-014

95% of values less than 9.84076E-014

Minimum 0

Maximum 2.95423E-012

Mean 3.51544E-014

Std. Dev. 2.2265E-013

Variance 4.95731E-026

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 5.74429E-017

Mean 2.85786E-019

Std. Dev. 4.05171E-018

Variance 1.64164E-035

Phase: Cell 4*Concentration of Phenols group 3 - xylenols + at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 2.32655E-008

90% of values less than 0.00015086

95% of values less than 0.000336129

Minimum 0

Maximum 0.00171041

Mean 6.05218E-005

Std. Dev. 0.000195024

Variance 3.80343E-008

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 3.79686E-007

90% of values less than 9.51973E-006

95% of values less than 1.71001E-005

Minimum 0

Maximum 6.45064E-005

Mean 3.68859E-006

Std. Dev. 9.07995E-006

Variance 8.24455E-011

At 300 years

05% of values less than 2.11554E-012

10% of values less than 7.78978E-012

50% of values less than 2.84867E-010

90% of values less than 4.50555E-009

95% of values less than 7.68116E-009

Minimum 1.86524E-013

Maximum 2.21872E-008

Mean 1.61909E-009

Std. Dev. 3.4096E-009

Variance 1.16254E-017

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 2.00101E-015

Mean 3.02269E-017

Std. Dev. 1.87671E-016

Variance 3.52205E-032

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 4*Concentration of Phenols group 4 - chlorophenols+ at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 2.71282E-009

90% of values less than 0.000350178

95% of values less than 0.000502153

Minimum 0

Maximum 0.000930284

Mean 9.13659E-005

Std. Dev. 0.000196904

Variance 3.87713E-008

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 6.00015E-005

90% of values less than 0.000167143

95% of values less than 0.000220226

Minimum 0

Maximum 0.000385661

Mean 7.46095E-005

Std. Dev. 7.15624E-005

Variance 5.12118E-009

At 300 years

05% of values less than 1.0398E-008

10% of values less than 1.17971E-008

50% of values less than 3.09893E-008

90% of values less than 7.75147E-007

95% of values less than 1.70274E-006

Minimum 7.10119E-009

Maximum 1.16546E-005

Mean 3.64193E-007

Std. Dev. 1.24865E-006

Variance 1.55914E-012

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.73923E-014

95% of values less than 3.91968E-013

Minimum 0

Maximum 1.94311E-011

Mean 2.40552E-013

Std. Dev. 1.65619E-012

Variance 2.74295E-024

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell 4*Concentration of Phenols group 5 - nitrophenols + at base of Unsaturated Zone [mg/l]*

At 30 years

05% of values less than 0

10% of values less than 0

50% of values less than 1.907E-007

90% of values less than 4.01376E-005

95% of values less than 7.88822E-005

Minimum 0

Maximum 0.000122936

Mean 1.24934E-005

Std. Dev. 2.36929E-005

Variance 5.61352E-010

At 100 years

05% of values less than 0

10% of values less than 0

50% of values less than 4.83516E-007

90% of values less than 2.7968E-006

95% of values less than 3.28537E-006

Minimum 0

Maximum 7.19715E-006

Mean 8.80765E-007

Std. Dev. 1.18253E-006

Variance 1.39837E-012

At 300 years

05% of values less than 9.49694E-012

10% of values less than 1.83632E-011

50% of values less than 2.08491E-010

90% of values less than 9.94962E-010

95% of values less than 1.13914E-009

Minimum 5.48447E-013

Maximum 2.47248E-009

Mean 3.50598E-010

Std. Dev. 4.04877E-010

Variance 1.63925E-019

At 1000 years

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At infinity

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

APPENDIX 5

EMISSION LIMITS AND MONITORING REQUIREMENTS EXTRACTED FROM THE ENVIRONMENTAL PERMIT

Schedule 3 – Emissions and monitoring

Table S3.1 Leachate level limits and monitoring requirements			
Monitoring point reference/Description	Limit	Monitoring frequency	Monitoring standard and method
Operational Cells or Phases (Any cells or phases that do not have a final engineered cap agreed in accordance with the landfill engineering condition, 2.4)			
L3B, L3C, L4 As shown on drawing reference 08469/14	3 m above cell base	Monthly	As specified in Environment Agency Guidance TGN02 (February 2003) or such other subsequent guidance as may be agreed in writing with the Environment Agency. Or as otherwise agreed with the Agency as part of a leachate monitoring plan.
Non Operational Cells or Phases (Any cells or phases that have a final engineered cap agreed in accordance with the landfill engineering condition, 2.4)			
L3A As shown on drawing reference 08469/14	3 m above cell base	Quarterly	As specified in Environment Agency Guidance TGN02 (February 2003) or such other subsequent guidance as may be agreed in writing with the Environment Agency. Or as otherwise agreed with the Agency as part of a leachate monitoring plan.

Table S3.2 Point source emissions to air – emission limits and monitoring requirements						
Emission point Ref. & Location	Parameter	Source	Limit (including unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
E1, E2 (As shown on Drawing 08469/20C)	Oxides of Nitrogen	Landfill Gas	500 mg/m ³	Hourly Mean	Annually	As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency
	Carbon Monoxide	Utilisation Engine	1,400 mg/m ³	Hourly Mean	Annually	

Table S3.2 Point source emissions to air – emission limits and monitoring requirements						
Emission point Ref. & Location	Parameter	Source	Limit (including unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
	Total Volatile Organic Compounds		1,000 mg/m ³	Hourly Mean	Annually	
F1 (As shown on Drawing 08469/20C)	Oxides of Nitrogen	Landfill Gas Flare	150 mg/m ³	Hourly Mean	Annually	As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency. Monitoring is unnecessary where the flare is active for <10% of the year.
	Carbon Monoxide		50 mg/m ³	Hourly Mean	Annually	
	Total Volatile Organic Compounds		10 mg/m ³	Hourly Mean	Annually	

Table S3.3 Point source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point Ref. & Location	Parameter	Source	Limit (incl unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
SD1 (As shown on drawing number 08469/16)	Suspended solids	Site drainage	50 mg/l	Spot sample	Monthly	In accordance with the application or as otherwise agreed with the Agency

Table S3.4 Groundwater – emission limits and monitoring requirements					
Monitoring point reference	Parameter	Limit (including unit)	Reference Period	Monitoring frequency	Monitoring standard or method
BH3, 111, 113, 118A and 124 (As shown on Drawing number 08469/45)	Ammoniacal Nitrogen	9 mg/l	Spot Sample	Monthly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, Annex J3, version 2.1, Dec 2011) or such other subsequent guidance as may be agreed in writing with the Environment Agency.
	Chloride	250 mg/l			
BH3 111, 113, 118A, and 124 (As shown on Drawing number 08469/45)	Mercury	0.01 µg/l	Spot sample	Quarterly	
	Total Phenol	0.1 mg/l			
	Total Petroleum Hydrocarbons	1 mg/l			

Table S3.5 Landfill gas in external monitoring boreholes – limits and monitoring requirements				
Monitoring point Ref. /description	Parameter	Limit (including units)	Monitoring frequency	Monitoring standard or method
GS1 – 13 (As shown on Drawing number 08469/17A)	Methane	1 %v/v	Monthly	As per LFTGN03 (issued 24 June 2014) or such other subsequent guidance as may be agreed in writing with the Environment Agency. Record whether the ground is: waterlogged frozen snow covered
	Carbon Dioxide	1.5 %v/v		
	Oxygen	No limit		
	Atmospheric Pressure	No limit		
	Differential Pressure	No limit		

Table S3.6 Landfill gas emissions from capped surfaces for cells that have accepted non hazardous biodegradable waste – monitoring requirements			
Monitoring point Ref. /description	Parameter	Monitoring frequency	Monitoring Standard or method
Permanently capped zone	Methane concentration	Every 12 months	As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.
Temporarily capped zone	Methane concentration	Every 12 months	As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.
Whole site	Total methane emission	As agreed with the Environment Agency	As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.
Uncapped areas	Methane concentration	Every 12 months	As agreed with the Environment Agency based on the wording of revised LFTGN 07 or landfill sector guidance or such other subsequent guidance as may be agreed in writing with the Environment Agency.

Table S3.7 Groundwater – other monitoring requirements			
Monitoring Point Ref./Description	Parameter	Monitoring frequency	Monitoring standard or method
Up gradient MEPP	Water level, electrical conductivity, chloride, ammoniacal nitrogen, pH,	Quarterly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, Annex J3, version 2.1, Dec 2011), or such other subsequent guidance as may be agreed in writing with the Environment Agency.
	total alkalinity, magnesium, potassium, total sulphates, calcium, sodium, chromium, copper, iron, lead, nickel, zinc, manganese	Annually	
	Hazardous substances	Annually for first six years of operation	

Down or cross gradient MEPP	Water level, electrical conductivity, chloride, ammoniacal nitrogen, pH,	Quarterly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, Annex J3, version 2.1, Dec 2011), or such other subsequent guidance as may be agreed in writing with the Environment Agency. After the initial 6 year monitoring period for hazardous substances, if the results of quarterly or annual monitoring suggest an increase in contamination, the operator shall also undertake a full leachate hazardous substances screen.
	total alkalinity, magnesium, potassium, total sulphates, calcium, sodium, chromium, copper, iron, lead, nickel, zinc, manganese	Annually	
	Hazardous substances detected in leachate	Annually for first six years of operation then every two years	
MEPP	Base of monitoring point (mAoD)	Annually	

Table S3.8 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
In waste gas monitoring boreholes or sealed leachate wells or sacrificial gas extraction system in cells for non-hazardous waste	Methane Carbon Dioxide Oxygen Carbon Monoxide Differential pressure Atmospheric pressure	Monthly until gas extraction commences	Calibrated handheld monitoring instrument	For cells or phases which have no active gas extraction. Gas extraction system shall be installed and extraction commenced once monitoring shows onset of methane production in waste at a rate that can be sustainably extracted. Once gas extraction has commenced in a particular cell or phase, there is no longer a requirement to carry out this monitoring.

Table S3.8 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
	Hydrogen sulphide	Quarterly	Calibrated handheld monitoring instrument or Tedlar Bag sample in accordance with LFTGN04 (v3 2010) or other such subsequent guidance as may be agreed in writing with the Environment Agency or a method agreed with the Environment Agency.	For cells or phases which have no active gas extraction. Once gas extraction has commenced in a particular cell or phase, there is no longer a requirement to carry out this monitoring. Concentrations of hydrogen sulphide shall be assessed in accordance with the gas and odour management plans
Gas collection system at well control valve, manifolds (if applicable) and strategic points on gas system	Methane Carbon Dioxide Oxygen Carbon Monoxide Atmospheric pressure Gas flow rate or suction % Balance Gas (calculated as the difference between the sum of measured gases and 100%)	Monthly or at such other frequency as may be agreed in writing with the Environment Agency.	Calibrated handheld monitoring instrument	Where the oxygen concentration exceeds 5% or the % balance gas is greater than 20% an assessment of air ingress into the system shall be undertaken. Where the concentration of carbon monoxide exceeds 100ppm then further investigation shall be undertake Record the ambient air temperature and whether the ground is: waterlogged frozen snow covered
Gas collection system at well control valve	Hydrogen sulphide	Six monthly	Calibrated handheld monitoring instrument or Tedlar Bag sample in accordance with LFTGN04 (v3 2010) or other such subsequent guidance as may be agreed in writing with the Environment Agency or a method agreed with the Environment Agency.	Concentrations of hydrogen sulphide shall be assessed in accordance with the gas and odour management plans

Table S3.8 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Input to flare or LFG Utilisation Compound	Trace gas	Annually	Trace gas analysis in accordance with LFTGN04 (v3 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency [or a trace gas characterisation method agreed with the Environment Agency].	The concentration of trace gas components shall be assessed against the assumptions made in the Landfill gas risk assessment and dispersion modelling.
Input to flare or LFG Utilisation Compound	Methane Carbon Dioxide Oxygen Gas flow rate Suction % Balance Gas (calculated as the difference between the sum of measured gases and 100%)	Weekly		Where the oxygen concentration exceeds 5% or the % balance gas is greater than 20% an assessment of air ingress into the system shall be undertaken.
Flares F1 (As shown on Drawing 08469/20C)	Temperature	As per LFTGN05 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.	As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency.	

Table S3.8 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
E1 and E2 (As shown on Drawing number 08469/20C)	NOx and CO	Quarterly	In accordance with Appendix C of LFTGN08, version 2: 2010 or such other subsequent guidance as may be agreed in writing with the Environment Agency.	Where monitoring using hand-held, electrochemical equipment indicates an exceedance of the emissions standards specified in Table S3.2, these shall be used as action levels and the operator shall investigate the cause and take appropriate measures to reduce emissions.

Table S3.9 Leachate – other monitoring requirements				
Monitoring point reference or description	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Operational Cells or Phases (Any cell or phases that do not have a final engineered cap agreed in accordance with condition 2.4)			At leachate compliance point as listed in table S3.1. As specified in Environment Agency Guidance TGN02 (February 2003) and Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, Annex J3, version 2.1, Dec 2011) with one sampling point per cell / phase or such other subsequent guidance as may be agreed in writing with the Environment Agency.	
MEPP	pH, EC, total alkalinity, ammoniacal nitrogen, Chloride, COD, BOD, cadmium, chromium, copper, lead, nickel, iron, arsenic, magnesium, potassium, total sulphates, calcium, sodium, zinc, manganese	Quarterly		None
MEPP	Hazardous substances	Annually		None
MEPP	Depth to base (mAoD)	Annually		None
Non Operational Cells or Phases (Any cell or phases that have a final engineered cap agreed in accordance with condition 2.4)				

Table S3.9 Leachate – other monitoring requirements				
Monitoring point reference or description	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
MEPP	pH, EC, total alkalinity, ammoniacal nitrogen, Chloride, COD, BOD, cadmium, chromium, copper, lead, nickel, iron, arsenic, magnesium, potassium, total sulphates, calcium, sodium, zinc, manganese,	Annually		
MEPP	Hazardous substances	Once every four years		None
MEPP	Depth to base (mAoD)	Annually		

Table S3.10 Surface water – other monitoring requirements				
Monitoring Point Ref. /Description	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
MEPP	Ammoniacal nitrogen Chloride Suspended Solids Visual Oil and Grease pH electrical conductivity	Monthly	Spot sample	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003) and Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, (Annex J3, version 2.1, Dec 2011) or such other subsequent guidance as may be agreed in writing with the Environment Agency.

Table S3.11 Ambient air – other monitoring requirements				
Monitoring Point Ref. /Description	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
N1 – N6 As shown on Drawing number 08469/48	Methane	Annually	In accordance with the application or as otherwise agreed with the Agency	Spot sample reference period with a limit of 1% v/v
	Carbon dioxide			Spot sample reference period with a limit of 1.5 % v/v
	Hydrogen sulphide			Spot sample reference period with a limit of 140 µg/m ³
	Oxides of nitrogen			Spot sample reference period with a limit of 30 µg/m ³
	Oxides of sulphur			Spot sample reference period with a limit of 25 µg/m ³
	VOC			Spot sample reference period

APPENDIX 6

LABORATORY CERTIFICATES



Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Graham Roberts

CERTIFICATE OF ANALYSIS

Date: 24 May 2017
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 170512-150
Your Reference:
Location:
Report No: 409705

We received 4 samples on Friday May 12, 2017 and 4 of these samples were scheduled for analysis which was completed on Wednesday May 24, 2017. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 170512-150
Location:

Client Reference:
Order Number: 5038

Report Number: 409705
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
15499544	LT4			11/05/2017
15499539	LT3A			11/05/2017
15499541	LT3B			11/05/2017
15499542	LT3C			11/05/2017

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 170512-150
Location:

Client Reference:
Order Number: 5038

Report Number: 409705
Superseded Report:

Results Legend



Test


No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Results Legend	Lab Sample No(s)		15499544	15499539	15499541	15499542
	Customer Sample Reference		LT4	LT3A	LT3B	LT3C
	AGS Reference					
	Depth (m)					
	Container		1000ml glass bottle (ALE220)	1000ml glass bottle (ALE220)	1000ml glass bottle (ALE220)	Vial (ALE297)
	Sample Type		INV VIAL	INV VIAL	Vial (ALE297)	Vial (ALE297)
			LE	LE	LE	LE
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 4	X	X	X	X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 4	X	X	X	X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 4		X	X	X
OC, OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 4	X	X	X	X
Phenols by ms (w)	All	NDPs: 0 Tests: 4	X	X	X	X
TPH CWG (W)	All	NDPs: 0 Tests: 4	X	X	X	X



CERTIFICATE OF ANALYSIS

Validated

SDG: 170512-150
Location:

Client Reference:
Order Number: 5038

Report Number: 409705
Superseded Report:

OC, OP Pesticides and Triazine Herb

Results Legend		Customer Sample Ref.	LT4	LT3A	LT3B	LT3C		
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&+@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Dichlorvos	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Mevinphos	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
alpha-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Diazinon	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
gamma-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Heptachlor	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Aldrin	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
beta-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Methyl parathion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Malathion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Fenitrothion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Heptachlor epoxide	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Parathion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
o,p-DDE	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Endosulphan I	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
p,p-DDE	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Dieldrin	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
o,p-TDE (DDD)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Endrin	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
o,p-DDT	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
p,p-TDE (DDD)	<0.01 µg/l	TM231	<0.1	<0.1	0.18	<0.1		
Ethion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Endosulphan II	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
p,p-DDT	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
o,p-Methoxychlor	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
p,p-Methoxychlor	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Endosulphan sulphate	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Azinphos-methyl	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		



CERTIFICATE OF ANALYSIS

Validated

SDG: 170512-150
Location:

Client Reference:
Order Number: 5038

Report Number: 409705
Superseded Report:

TPH CWG (W)

Results Legend		Customer Sample Ref.	LT4	LT3A	LT3B	LT3C		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&\$\$@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM245	68 2	72 2	62 1	68		
GRO >C5-C12	<50 µg/l	TM245	744 2	665 2	688 1	734		
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 2	<3 2	<3 1	<3		
Benzene	<7 µg/l	TM245	<7 2	<7 2	<7 1	<7		
Toluene	<4 µg/l	TM245	<4 2	<4 2	4 1	4		
Ethylbenzene	<5 µg/l	TM245	<5 2	<5 2	20 1	16		
m,p-Xylene	<8 µg/l	TM245	18 2	11 2	23 1	<8		
o-Xylene	<3 µg/l	TM245	10 2	<3 2	6 1	5		
Sum of detected Xylenes	<11 µg/l	TM245	28 2	11 2	29 1	<11		
Sum of detected BTEX	<28 µg/l	TM245	28 2	<28 2	53 1	<28		
Aliphatics >C5-C6	<10 µg/l	TM245	273 2	308 2	245 1	266		
Aliphatics >C6-C8	<10 µg/l	TM245	77 2	75 2	76 1	82		
Aliphatics >C8-C10	<10 µg/l	TM245	55 2	50 2	66 1	67		
Aliphatics >C10-C12	<10 µg/l	TM245	158 2	117 2	136 1	147		
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<50	<50	<50	<50		
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<50	<50	<50	<50		
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<50	60	<50	<50		
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	51	76	<50	<50		
Aromatics >EC5-EC7	<10 µg/l	TM245	<10 2	<10 2	<10 1	<10		
Aromatics >EC7-EC8	<10 µg/l	TM245	<10 2	<10 2	<10 1	<10		
Aromatics >EC8-EC10	<10 µg/l	TM245	68 2	35 2	64 1	65		
Aromatics >EC10-EC12	<10 µg/l	TM245	106 2	78 2	91 1	98		
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<50	<50	<50	61		
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<50	<50	<50	<50		
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<50	<50	<50	<50		
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<50	<50	<50	61		
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	844	741	722	795		



CERTIFICATE OF ANALYSIS

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Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection		
TM231	Agilent 6890 Gas Chromatograph system using an Agilent 5973 Mass Selective Detector (MSD)	Determination of Organochlorine and Organophosphorus Pesticides and Triazine Herbicides by GCMS		
TM245	By GC-FID	Determination of GRO by Headspace in waters		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

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Location:

Client Reference:
Order Number: 5038

Report Number: 409705
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Test Completion Dates

Lab Sample No(s)	15499544	15499539	15499541	15499542
Customer Sample Ref.	LT4	LT3A	LT3B	LT3C
AGS Ref.				
Depth				
Type	Land Leachate	Land Leachate	Land Leachate	Land Leachate
EPH CWG (Aliphatic) Aqueous GC (W)	22-May-2017	22-May-2017	22-May-2017	22-May-2017
EPH CWG (Aromatic) Aqueous GC (W)	22-May-2017	22-May-2017	22-May-2017	22-May-2017
GRO by GC-FID (W)	22-May-2017	22-May-2017	22-May-2017	22-May-2017
OC, OP Pesticides and Triazine Herb	23-May-2017	23-May-2017	23-May-2017	23-May-2017
Phenols by ms (w)	19-May-2017	19-May-2017	19-May-2017	19-May-2017
TPH CWG (W)	24-May-2017	24-May-2017	24-May-2017	24-May-2017



CERTIFICATE OF ANALYSIS

SDG: 170512-150
Location:

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Order Number: 5038

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Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

General

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Graham Roberts

CERTIFICATE OF ANALYSIS

Date: 12 July 2017
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 170629-24
Your Reference:
Location:
Report No: 415935

We received 4 samples on Thursday June 29, 2017 and 4 of these samples were scheduled for analysis which was completed on Wednesday July 12, 2017. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 170629-24
Location:

Client Reference:
Order Number: 5038

Report Number: 415935
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
15758863	LT4			27/06/2017
15758862	LT3A			27/06/2017
15758861	LT3B			27/06/2017
15758864	LT3C			27/06/2017

Maximum Sample/Coolbox Temperature (°C) :

13.3

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 170629-24
Location:

Client Reference:
Order Number: 5038

Report Number: 415935
Superseded Report:

Results Legend



Test



No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Results Legend	Lab Sample No(s)		15758863	15758862	15758861	15758864
	Customer Sample Reference		LT4	LT3A	LT3B	LT3C
	AGS Reference					
	Depth (m)					
	Container		1000ml glass bottle (ALE220)	1000ml glass bottle (ALE220) Vial (ALE297)	1000ml glass bottle (ALE220) INV VIAL	1000ml glass bottle (ALE220) INV VIAL
	Sample Type		PL	PL	PL	PL
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 4	X	X	X	X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 4	X	X	X	X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 4		X	X	X
OC, OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 4	X	X	X	X
Phenols by ms (w)	All	NDPs: 0 Tests: 4	X	X	X	X
TPH CWG (W)	All	NDPs: 0 Tests: 4	X	X	X	X



CERTIFICATE OF ANALYSIS

Validated

SDG: 170629-24
Location:

Client Reference:
Order Number: 5038

Report Number: 415935
Superseded Report:

OC, OP Pesticides and Triazine Herb

Results Legend		Customer Sample Ref.	LT4	LT3A	LT3B	LT3C		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&+@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Dichlorvos	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Mevinphos	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
alpha-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Diazinon	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
gamma-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Heptachlor	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Aldrin	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
beta-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Methyl parathion	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Malathion	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Fenitrothion	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Heptachlor epoxide	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Parathion	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
o,p-DDE	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Endosulphan I	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
p,p-DDE	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Dieldrin	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
o,p-TDE (DDD)	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Endrin	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
o,p-DDT	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
p,p-TDE (DDD)	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Ethion	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Endosulphan II	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
p,p-DDT	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
o,p-Methoxychlor	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
p,p-Methoxychlor	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Endosulphan sulphate	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		
Azinphos-methyl	<0.01 µg/l	TM231	<0.01	<0.01	<0.01	<0.01		



CERTIFICATE OF ANALYSIS

Validated

SDG: 170629-24
Location:

Client Reference:
Order Number: 5038

Report Number: 415935
Superseded Report:

TPH CWG (W)

Results Legend		Customer Sample Ref.	LT4	LT3A	LT3B	LT3C		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&*\$@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM245	72	70	58	58		
				1	1	1		
GRO >C5-C12	<50 µg/l	TM245	836	704	942	873		
				1	1	1		
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3		
				1	1	1		
Benzene	<7 µg/l	TM245	7	<7	<7	<7		
				1	1	1		
Toluene	<4 µg/l	TM245	7	<4	<4	<4		
				1	1	1		
Ethylbenzene	<5 µg/l	TM245	16	5	<5	<5		
				1	1	1		
m,p-Xylene	<8 µg/l	TM245	33	20	<8	<8		
				1	1	1		
o-Xylene	<3 µg/l	TM245	12	8	<3	<3		
				1	1	1		
Sum of detected Xylenes	<11 µg/l	TM245	45	28	<11	<11		
				1	1	1		
Sum of detected BTEX	<28 µg/l	TM245	75	33	<28	<28		
				1	1	1		
Aliphatics >C5-C6	<10 µg/l	TM245	268	288	455	435		
				1	1	1		
Aliphatics >C6-C8	<10 µg/l	TM245	82	79	134	125		
				1	1	1		
Aliphatics >C8-C10	<10 µg/l	TM245	61	52	77	66		
				1	1	1		
Aliphatics >C10-C12	<10 µg/l	TM245	186	126	132	120		
				1	1	1		
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	13	<10	<10		
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10		
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	80	15	11		
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10	93	15	11		
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10		
				1	1	1		
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10		
				1	1	1		
Aromatics >EC8-EC10	<10 µg/l	TM245	101	68	54	47		
				1	1	1		
Aromatics >EC10-EC12	<10 µg/l	TM245	124	84	88	80		
				1	1	1		
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	121	235	458	456		
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	127	183	207	200		
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	81	100	116	111		
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	329	518	781	767		
Total Aliphatics & Aromatics >C5-C35 (aq)	<10 µg/l	TM174	1170	1320	1740	1650		



CERTIFICATE OF ANALYSIS

Validated

SDG: 170629-24
Location:

Client Reference:
Order Number: 5038

Report Number: 415935
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection		
TM231	Agilent 6890 Gas Chromatograph system using an Agilent 5973 Mass Selective Detector (MSD)	Determination of Organochlorine and Organophosphorus Pesticides and Triazine Herbicides by GCMS		
TM245	By GC-FID	Determination of GRO by Headspace in waters		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 170629-24
Location:

Client Reference:
Order Number: 5038

Report Number: 415935
Superseded Report:

Test Completion Dates

Lab Sample No(s)	15758863	15758862	15758861	15758864
Customer Sample Ref.	LT4	LT3A	LT3B	LT3C
AGS Ref.				
Depth				
Type	Prepared Leac	Prepared Leac	Prepared Leac	Prepared Leac
EPH CWG (Aliphatic) Aqueous GC (W)	05-Jul-2017	05-Jul-2017	05-Jul-2017	05-Jul-2017
EPH CWG (Aromatic) Aqueous GC (W)	05-Jul-2017	05-Jul-2017	05-Jul-2017	05-Jul-2017
GRO by GC-FID (W)	04-Jul-2017	05-Jul-2017	05-Jul-2017	05-Jul-2017
OC, OP Pesticides and Triazine Herb	07-Jul-2017	07-Jul-2017	07-Jul-2017	07-Jul-2017
Phenols by ms (w)	12-Jul-2017	12-Jul-2017	12-Jul-2017	12-Jul-2017
TPH CWG (W)	05-Jul-2017	05-Jul-2017	05-Jul-2017	05-Jul-2017



CERTIFICATE OF ANALYSIS

SDG: 170629-24
Location:

Client Reference:
Order Number: 5038

Report Number: 415935
Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asteststos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Website: www.alsenvironmental.co.uk

Neales Waste Management
Aspinall House
Walker Industrial Estate
Walker Road, Walker Office Park
Guide
Blackburn
Lancashire
BB1 2QE

Attention: Graham Roberts

CERTIFICATE OF ANALYSIS

Date: 08 August 2017
Customer: H_NEALES_BKB
Sample Delivery Group (SDG): 170729-8
Your Reference:
Location:
Report No: 419197

We received 4 samples on Saturday July 29, 2017 and 4 of these samples were scheduled for analysis which was completed on Monday August 07, 2017. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 170729-8
Location:

Client Reference:
Order Number:

Report Number: 419197
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
15925403	LT4			27/07/2017
15925400	LT3A			27/07/2017
15925401	LT3B			27/07/2017
15925402	LT3C			27/07/2017

Maximum Sample/Coolbox Temperature (°C) :

18

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 170729-8
Location:

Client Reference:
Order Number:

Report Number: 419197
Superseded Report:

Results Legend



Test



No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

<div>Results Legend</div> <div><div>X</div> Test</div> <div><div>N</div> No Determination Possible</div> <div>Sample Types -</div> <div>S - Soil/Solid</div> <div>UNS - Unspecified Solid</div> <div>GW - Ground Water</div> <div>SW - Surface Water</div> <div>LE - Land Leachate</div> <div>PL - Prepared Leachate</div> <div>PR - Process Water</div> <div>SA - Saline Water</div> <div>TE - Trade Effluent</div> <div>TS - Treated Sewage</div> <div>US - Untreated Sewage</div> <div>RE - Recreational Water</div> <div>DW - Drinking Water Non-regulatory</div> <div>UNL - Unspecified Liquid</div> <div>SL - Sludge</div> <div>G - Gas</div> <div>OTH - Other</div>	Lab Sample No(s)		15925403		15925400		15925401		15925402		
	Customer Sample Reference		LT4		LT3A		LT3B		LT3C		
	AGS Reference										
	Depth (m)										
	Container		1000ml glass bottle (ALE220)	H2SO4 (ALE244)	INV VIAL	1000ml glass bottle (ALE220)	H2SO4 (ALE244)	INV VIAL	1000ml glass bottle (ALE220)	H2SO4 (ALE244)	INV VIAL
	Sample Type		LE	LE	LE	LE	LE	LE	LE	LE	LE
	EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 4	X		X		X		X	
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 4	X		X		X		X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 4		X		X		X		X	
OC, OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 4	X		X		X		X		
Phenols by HPLC (W)	All	NDPs: 0 Tests: 4		X		X		X		X	
TPH CWG (W)	All	NDPs: 0 Tests: 4	X		X		X		X		



CERTIFICATE OF ANALYSIS

Validated

SDG: 170729-8
Location:

Client Reference:
Order Number:

Report Number: 419197
Superseded Report:

OC, OP Pesticides and Triazine Herb

Results Legend		Customer Sample Ref.	LT4	LT3A	LT3B	LT3C		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&+5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Dichlorvos	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Mevinphos	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
alpha-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Diazinon	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
gamma-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Heptachlor	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Aldrin	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
beta-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Methyl parathion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Malathion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Fenitrothion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Heptachlor epoxide	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Parathion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
o,p-DDE	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Endosulphan I	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
p,p-DDE	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Dieldrin	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
o,p-TDE (DDD)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Endrin	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
o,p-DDT	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
p,p-TDE (DDD)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Ethion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Endosulphan II	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
p,p-DDT	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
o,p-Methoxychlor	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
p,p-Methoxychlor	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Endosulphan sulphate	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		
Azinphos-methyl	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.01		



CERTIFICATE OF ANALYSIS

Validated

SDG: 170729-8
Location:

Client Reference:
Order Number:

Report Number: 419197
Superseded Report:

TPH CWG (W)

Results Legend		Customer Sample Ref.	LT4	LT3A	LT3B	LT3C		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&*\$@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM245	71 1	83 1	71 1	76 1		
GRO >C5-C12	<50 µg/l	TM245	797 1	368 1	916 1	894 1		
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 1	<3 1	<3 1	<3 1		
Benzene	<7 µg/l	TM245	<7 1	<7 1	11 1	9 1		
Toluene	<4 µg/l	TM245	4 1	<4 1	7 1	6 1		
Ethylbenzene	<5 µg/l	TM245	9 1	<5 1	33 1	33 1		
m,p-Xylene	<8 µg/l	TM245	30 1	<8 1	43 1	42 1		
o-Xylene	<3 µg/l	TM245	13 1	<3 1	11 1	11 1		
Sum of detected Xylenes	<11 µg/l	TM245	43 1	<11 1	54 1	53 1		
Sum of detected BTEX	<28 µg/l	TM245	56 1	<28 1	105 1	101 1		
Aliphatics >C5-C6	<10 µg/l	TM245	257 1	178 1	286 1	280 1		
Aliphatics >C6-C8	<10 µg/l	TM245	78 1	45 1	90 1	84 1		
Aliphatics >C8-C10	<10 µg/l	TM245	60 1	24 1	95 1	88 1		
Aliphatics >C10-C12	<10 µg/l	TM245	180 1	61 1	166 1	168 1		
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10		
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	10	10		
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	39	74	41	40		
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	39	74	51	50		
Aromatics >EC5-EC7	<10 µg/l	TM245	<10 1	<10 1	11 1	<10 1		
Aromatics >EC7-EC8	<10 µg/l	TM245	<10 1	<10 1	<10 1	<10 1		
Aromatics >EC8-EC10	<10 µg/l	TM245	92 1	19 1	151 1	146 1		
Aromatics >EC10-EC12	<10 µg/l	TM245	120 1	41 1	111 1	112 1		
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	59	141	94	95		
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	71	122	38	39		
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	70	104	50	58		
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	200	367	182	192		
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	1040	810	1150	1140		



CERTIFICATE OF ANALYSIS

Validated

SDG: 170729-8
Location:

Client Reference:
Order Number:

Report Number: 419197
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM231	Agilent 6890 Gas Chromatograph system using an Agilent 5973 Mass Selective Detector (MSD)	Determination of Organochlorine and Organophosphorus Pesticides and Triazine Herbicides by GCMS		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 170729-8
Location:

Client Reference:
Order Number:

Report Number: 419197
Superseded Report:

Test Completion Dates

Lab Sample No(s)	15925403	15925400	15925401	15925402
Customer Sample Ref.	LT4	LT3A	LT3B	LT3C
AGS Ref.				
Depth				
Type	Land Leachate	Land Leachate	Land Leachate	Land Leachate
EPH CWG (Aliphatic) Aqueous GC (W)	04-Aug-2017	04-Aug-2017	04-Aug-2017	04-Aug-2017
EPH CWG (Aromatic) Aqueous GC (W)	04-Aug-2017	04-Aug-2017	04-Aug-2017	04-Aug-2017
GRO by GC-FID (W)	07-Aug-2017	04-Aug-2017	04-Aug-2017	07-Aug-2017
OC, OP Pesticides and Triazine Herb	07-Aug-2017	07-Aug-2017	07-Aug-2017	07-Aug-2017
Phenols by HPLC (W)	01-Aug-2017	01-Aug-2017	01-Aug-2017	01-Aug-2017
TPH CWG (W)	07-Aug-2017	04-Aug-2017	04-Aug-2017	07-Aug-2017



CERTIFICATE OF ANALYSIS

SDG: 170729-8
Location:

Client Reference:
Order Number:

Report Number:
Superseded Report:

419197

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Deeside
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Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Graham Roberts

CERTIFICATE OF ANALYSIS

Date:	03 October 2017
Customer:	H_QUERCIA_CHO
Sample Delivery Group (SDG):	170921-79
Your Reference:	
Location:	
Report No:	426697

We received 16 samples on Thursday September 21, 2017 and 16 of these samples were scheduled for analysis which was completed on Tuesday October 03, 2017. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 170921-79
Location:

Client Reference:
Order Number: 5488

Report Number: 426697
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
16224500	103			19/09/2017
16224498	118			19/09/2017
16224497	124			19/09/2017
16224501	106A			19/09/2017
16224504	111A			19/09/2017
16224496	BH3			19/09/2017
16224489	LT 4			19/09/2017
16224490	LT 3A			19/09/2017
16224505	LT3B			19/09/2017
16224491	LT 3C			19/09/2017
16224492	S1			19/09/2017
16224493	S2			19/09/2017
16224494	S3			19/09/2017
16224495	S4			19/09/2017
16224499	102S			19/09/2017
16224503	106S			19/09/2017

Maximum Sample/Coolbox Temperature (°C) :

15.2

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 170921-79
Location:

Client Reference:
Order Number: 5488

Report Number: 426697
Superseded Report:

Results Legend



Test


No Determination
Possible

Sample Types -

S - Soil/Solid
 UNS - Unspecified Solid
 GW - Ground Water
 SW - Surface Water
 LE - Land Leachate
 PL - Prepared Leachate
 PR - Process Water
 SA - Saline Water
 TE - Trade Effluent
 TS - Treated Sewage
 US - Untreated Sewage
 RE - Recreational Water
 DW - Drinking Water
 Non-regulatory
 UNL - Unspecified Liquid
 SL - Sludge
 G - Gas
 OTH - Other

Lab Sample No(s)

16224505

Customer
Sample Reference

LT38

AGS Reference

Depth (m)

Container

Sample Type

UNL

Alkalinity as CaCO₃

All

NDPs: 1
Tests: 3

N

Anions by Kone (w)

All

NDPs: 1
Tests: 12

N

BOD True Total

All

NDPs: 1
Tests: 3

N

COD Unfiltered

All

NDPs: 1
Tests: 3

N

Conductivity (at 20 deg.C)

All

NDPs: 1
Tests: 15

N

Dissolved Metals by ICP-MS

All

NDPs: 1
Tests: 3

N

Metals by iCap-OES Dissolved (W)

All

NDPs: 1
Tests: 3

N

pH Value

All

NDPs: 1
Tests: 15

N



CERTIFICATE OF ANALYSIS

Validated

SDG: 170921-79
Location:

Client Reference:
Order Number: 5488

Report Number: 426697
Superseded Report:

Results Legend

X Test
N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container		Sample Type	
	16224491	LT 3C							H2SO4 (ALE244)	UNL		
	16224505	LT3B							1000ml glass bottle (ALE220)	UNL		
	16224490	LT 3A							H2SO4 (ALE244)	UNL		
	16224489	LT 4							H2SO4 (ALE244)	UNL		
	16224496	BH3							1000ml glass bottle (ALE220)	UNL		
	16224504	111A							H2SO4 (ALE244)	UNL		
	16224501	106A							1000ml glass bottle (ALE220)	UNL		
	16224497	124							H2SO4 (ALE244)	UNL		
	16224498	118							1000ml glass bottle (ALE220)	UNL		
	16224500	103							H2SO4 (ALE244)	UNL		
									1000ml glass bottle (ALE220)	UNL		
Alkalinity as CaCO3	All	NDPs: 1 Tests: 3										
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 16										
Anions by ion Chromatography	All	NDPs: 0 Tests: 3										
Anions by Kone (w)	All	NDPs: 1 Tests: 12										
BOD True Total	All	NDPs: 1 Tests: 3										
COD Unfiltered	All	NDPs: 1 Tests: 3										
Conductivity (at 20 deg.C)	All	NDPs: 1 Tests: 15										
Dissolved Metals by ICP-MS	All	NDPs: 1 Tests: 3										
Mercury Dissolved	All	NDPs: 0 Tests: 4										
Metals by iCap-OES Dissolved (W)	All	NDPs: 1 Tests: 3										
Oil and Grease Visible	All	NDPs: 0 Tests: 4										
pH Value	All	NDPs: 1 Tests: 15										
Phenols by HPLC (W)	All	NDPs: 0 Tests: 4										
Sulphide	All	NDPs: 0 Tests: 4										
Suspended Solids	All	NDPs: 0 Tests: 4										



CERTIFICATE OF ANALYSIS

Validated

SDG: 170921-79
Location:

Client Reference:
Order Number: 5488

Report Number: 426697
Superseded Report:

Results Legend



Test


No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

TPH by IR Oils and Greases

All

NDPs: 0
Tests: 4

X

X

X

X

16224503	1065			H2SO4 (ALE244)	UNL		
				1000ml glass bottle (ALE220)	UNL		
16224499	1025			H2SO4 (ALE244)	UNL		
				1000ml glass bottle (ALE220)	UNL		
16224495	S4			H2SO4 (ALE244)	UNL		
				1000ml glass bottle (ALE220)	UNL		
16224494	S3			H2SO4 (ALE244)	UNL		
				1000ml glass bottle (ALE220)	UNL		
16224493	S2			H2SO4 (ALE244)	UNL		
				1000ml glass bottle (ALE220)	UNL		
16224492	S1			H2SO4 (ALE244)	UNL		
				1000ml glass bottle (ALE220)	UNL		



CERTIFICATE OF ANALYSIS

Validated

SDG: 170921-79
Location:

Client Reference:
Order Number: 5488

Report Number: 426697
Superseded Report:

Notification of NDPs (No determination possible)

Date Received : 21/09/2017 13:06:38

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
16224505	LT3B		Conductivity (at 20 deg.C)	Sample container broken
16224505	LT3B		pH Value	Sample container broken
16224505	LT3B		BOD True Total	Sample container broken
16224505	LT3B		COD Unfiltered	Sample container broken
16224505	LT3B		Dissolved Metals by ICP-MS	Sample container broken
16224505	LT3B		Anions by Kone (w)	Sample container broken
16224505	LT3B		Metals by iCap-OES Dissolved (W)	Sample container broken
16224505	LT3B		Alkalinity as CaCO3	Sample container broken



CERTIFICATE OF ANALYSIS

Validated

SDG: 170921-79
Location:

Client Reference:
Order Number: 5488

Report Number: 426697
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
PM095	Standard Methods for the examination of waters and wastewaters 16th Edition, APHA, Washington DC, USA. ISBN 0-87553-131-8.	Preparation of Water Samples for Analysis		
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters		
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 170921-79
Location:

Client Reference:
Order Number: 5488

Report Number: 426697
Superseded Report:

Test Completion Dates

Lab Sample No(s)	16224500	16224498	16224497	16224501	16224504	16224496	16224489	16224490	16224491	16224505
Customer Sample Ref.	103	118	124	106A	111A	BH3	LT 4	LT 3A	LT 3C	LT3B
AGS Ref.										
Depth										
Type	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified
Alkalinity as CaCO ₃							27-Sep-2017	27-Sep-2017	27-Sep-2017	
Ammoniacal Nitrogen	27-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017	29-Sep-2017
Anions by ion Chromatography							03-Oct-2017	03-Oct-2017	03-Oct-2017	
Anions by Kone (w)	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017				
BOD True Total							28-Sep-2017	28-Sep-2017	28-Sep-2017	
COD Unfiltered							27-Sep-2017	27-Sep-2017	27-Sep-2017	
Conductivity (at 20 deg.C)	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	
Dissolved Metals by ICP-MS							29-Sep-2017	29-Sep-2017	29-Sep-2017	
Mercury Dissolved		26-Sep-2017	26-Sep-2017		26-Sep-2017	26-Sep-2017				
Metals by iCap-OES Dissolved (W)							29-Sep-2017	29-Sep-2017	29-Sep-2017	
pH Value	25-Sep-2017	24-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017	24-Sep-2017	24-Sep-2017	24-Sep-2017	24-Sep-2017	
Phenols by HPLC (W)		25-Sep-2017	25-Sep-2017		26-Sep-2017	25-Sep-2017				
TPH by IR Oils and Greases		28-Sep-2017	28-Sep-2017		28-Sep-2017	28-Sep-2017				

Lab Sample No(s)	16224492	16224493	16224494	16224495	16224499	16224503
Customer Sample Ref.	S1	S2	S3	S4	102S	106S
AGS Ref.						
Depth						
Type	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified
Ammoniacal Nitrogen	27-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017	27-Sep-2017
Anions by Kone (w)	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017
Conductivity (at 20 deg.C)	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017
Oil and Grease Visible	22-Sep-2017	23-Sep-2017	22-Sep-2017	24-Sep-2017		
pH Value	24-Sep-2017	25-Sep-2017	24-Sep-2017	25-Sep-2017	25-Sep-2017	25-Sep-2017
Sulphide	28-Sep-2017	27-Sep-2017	29-Sep-2017	28-Sep-2017		
Suspended Solids	28-Sep-2017	28-Sep-2017	28-Sep-2017	26-Sep-2017		



CERTIFICATE OF ANALYSIS

SDG: 170921-79
Location:

Client Reference:
Order Number: 5488

Report Number: 426697
Superseded Report:

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Graham Roberts

CERTIFICATE OF ANALYSIS

Date:	03 October 2017
Customer:	H_QUERCIA_CHO
Sample Delivery Group (SDG):	170923-49
Your Reference:	
Location:	
Report No:	426694

We received 4 samples on Saturday September 23, 2017 and 4 of these samples were scheduled for analysis which was completed on Tuesday October 03, 2017. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 170923-49
Location:

Client Reference:
Order Number: 5038

Report Number: 426694
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
16238798	LT4			21/09/2017
16238797	LT3A			21/09/2017
16238796	LT3B			21/09/2017
16238795	LT3C			21/09/2017

Maximum Sample/Coolbox Temperature (°C) :

12

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 170923-49
Location:

Client Reference:
Order Number: 5038

Report Number: 426694
Superseded Report:

Results Legend



Test



No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

EPH CWG (Aliphatic) Aqueous GC (W)

All

NDPs: 0
Tests: 4

X

X

X

X

EPH CWG (Aromatic) Aqueous GC (W)

All

NDPs: 0
Tests: 4

X

X

X

X

GRO by GC-FID (W)

All

NDPs: 0
Tests: 4

X

X

X

X

OC, OP Pesticides and Triazine Herb

All

NDPs: 0
Tests: 4

X

X

X

X

Phenols by ms (w)

All

NDPs: 0
Tests: 4

X

X

X

X

TPH CWG (W)

All

NDPs: 0
Tests: 4

X

X

X

X



CERTIFICATE OF ANALYSIS

Validated

SDG: 170923-49
Location:

Client Reference:
Order Number: 5038

Report Number: 426694
Superseded Report:

OC, OP Pesticides and Triazine Herb

Results Legend			Customer Sample Ref.	LT4	LT3A	LT3B	LT3C		
#	ISO17025 accredited.								
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted test.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-5&*&@	Sample deviation (see appendix)								
Component	LOD/Units	Method	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Land Leachate (LE) 21/09/2017	Land Leachate (LE) 21/09/2017	Land Leachate (LE) 21/09/2017	Land Leachate (LE) 21/09/2017		
Dichlorvos	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Mevinphos	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
alpha-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Diazinon	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
gamma-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Heptachlor	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Aldrin	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
beta-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Methyl parathion	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Malathion	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Fenitrothion	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Heptachlor epoxide	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Parathion	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
o,p-DDE	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Endosulphan I	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
p,p-DDE	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Dieldrin	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
o,p-TDE (DDD)	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Endrin	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
o,p-DDT	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
p,p-TDE (DDD)	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Ethion	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Endosulphan II	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
p,p-DDT	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
o,p-Methoxychlor	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
p,p-Methoxychlor	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Endosulphan sulphate	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		
Azinphos-methyl	<0.01 µg/l	TM231		<0.1	<0.1	<0.1	<0.1		



CERTIFICATE OF ANALYSIS

Validated

SDG: 170923-49
Location:

Client Reference:
Order Number: 5038

Report Number: 426694
Superseded Report:

TPH CWG (W)

Results Legend		Customer Sample Ref.	LT4	LT3A	LT3B	LT3C		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&*&@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM245	77 1	89 1	70 1	71 1		
GRO >C5-C12	<50 µg/l	TM245	708 1	567 1	917 1	949 1		
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 1	<3 1	<3 1	<3 1		
Benzene	<7 µg/l	TM245	8 1	<7 1	15 1	14 1		
Toluene	<4 µg/l	TM245	<4 1	<4 1	7 1	8 1		
Ethylbenzene	<5 µg/l	TM245	5 1	<5 1	42 1	43 1		
m,p-Xylene	<8 µg/l	TM245	21 1	<8 1	51 1	52 1		
o-Xylene	<3 µg/l	TM245	10 1	3 1	12 1	12 1		
Sum of detected Xylenes	<11 µg/l	TM245	31 1	<11 1	63 1	64 1		
Sum of detected BTEX	<28 µg/l	TM245	44 1	<28 1	127 1	129 1		
Aliphatics >C5-C6	<10 µg/l	TM245	238 1	295 1	272 1	284 1		
Aliphatics >C6-C8	<10 µg/l	TM245	89 1	65 1	87 1	95 1		
Aliphatics >C8-C10	<10 µg/l	TM245	66 1	36 1	96 1	103 1		
Aliphatics >C10-C12	<10 µg/l	TM245	135 1	82 1	163 1	163 1		
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<100	<100	<100	<100		
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<100	<100	<100	<100		
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<100	161	<100	<100		
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<100	161	<100	<100		
Aromatics >EC5-EC7	<10 µg/l	TM245	<10 1	<10 1	15 1	14 1		
Aromatics >EC7-EC8	<10 µg/l	TM245	<10 1	<10 1	<10 1	<10 1		
Aromatics >EC8-EC10	<10 µg/l	TM245	80 1	33 1	168 1	175 1		
Aromatics >EC10-EC12	<10 µg/l	TM245	90 1	55 1	108 1	109 1		
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<100	<100	<100	<100		
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<100	<100	<100	<100		
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<100	<100	<100	<100		
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<100	<100	<100	<100		
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	708	729	917	949		
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	<100	161	<100	<100		



CERTIFICATE OF ANALYSIS

Validated

SDG: 170923-49
Location:

Client Reference:
Order Number: 5038

Report Number: 426694
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection		
TM231	Agilent 6890 Gas Chromatograph system using an Agilent 5973 Mass Selective Detector (MSD)	Determination of Organochlorine and Organophosphorus Pesticides and Triazine Herbicides by GCMS		
TM245	By GC-FID	Determination of GRO by Headspace in waters		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 170923-49
Location:

Client Reference:
Order Number: 5038

Report Number: 426694
Superseded Report:

Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

	16238798	16238797	16238796	16238795
	LT4	LT3A	LT3B	LT3C
	Land	Land	Land	Land
EPH CWG (Aliphatic) Aqueous GC (W)	29-Sep-2017	29-Sep-2017	29-Sep-2017	02-Oct-2017
EPH CWG (Aromatic) Aqueous GC (W)	29-Sep-2017	29-Sep-2017	29-Sep-2017	02-Oct-2017
GRO by GC-FID (W)	03-Oct-2017	02-Oct-2017	03-Oct-2017	03-Oct-2017
OC, OP Pesticides and Triazine Herb	28-Sep-2017	28-Sep-2017	28-Sep-2017	28-Sep-2017
Phenols by ms (w)	03-Oct-2017	03-Oct-2017	03-Oct-2017	03-Oct-2017
TPH CWG (W)	03-Oct-2017	02-Oct-2017	03-Oct-2017	03-Oct-2017



CERTIFICATE OF ANALYSIS

SDG: 170923-49
Location:

Client Reference:
Order Number: 5038

Report Number: 426694
Superseded Report:

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Graham Roberts

CERTIFICATE OF ANALYSIS

Date: 13 November 2017
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 171031-33
Your Reference:
Location:
Report No: 432339

This report has been revised and directly supersedes 432012 in its entirety.

We received 4 samples on Tuesday October 31, 2017 and 4 of these samples were scheduled for analysis which was completed on Thursday November 09, 2017. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 171031-33
Location:

Client Reference:
Order Number: 5038

Report Number: 432339
Superseded Report: 432012

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
16461615	LT4			30/10/2017
16461612	LT3A			30/10/2017
16461613	LT3B			30/10/2017
16461614	LT3C			30/10/2017

Maximum Sample/Coolbox Temperature (°C) :

12.2

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 171031-33
Location:

Client Reference:
Order Number: 5038

Report Number: 432339
Superseded Report: 432012

Results Legend



Test



No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

OC, OP Pesticides and Triazine Herb

All

NDPs: 0
Tests: 4

X X X X

Phenols by ms (w)

All

NDPs: 0
Tests: 4

X X X X

TPH by IR Oils and Greases

All

NDPs: 0
Tests: 4

X X X X



CERTIFICATE OF ANALYSIS

Validated

SDG: 171031-33
Location:

Client Reference:
Order Number: 5038

Report Number: 432339
Superseded Report: 432012

OC, OP Pesticides and Triazine Herb

Results Legend			Customer Sample Ref.	LT4	LT3A	LT3B	LT3C			
#	ISO17025 accredited.	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
M	mCERTS accredited.									
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted test.									
**										
(F)	Trigger breach confirmed									
1-5&\$@	Sample deviation (see appendix)									
		Depth (m)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)				
		Sample Type	30/10/2017	30/10/2017	30/10/2017	30/10/2017				
		Date Sampled								
		Sample Time	31/10/2017	31/10/2017	31/10/2017	31/10/2017				
		Date Received	171031-33	171031-33	171031-33	171031-33				
		SDG Ref	16461615	16461612	16461613	16461614				
		Lab Sample No.(s)								
		AGS Reference								
Component	LOD/Units	Method								
Dichlorvos	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Mevinphos	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
alpha-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Diazinon	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
gamma-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Heptachlor	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Aldrin	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
beta-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Methyl parathion	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Malathion	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Fenitrothion	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Heptachlor epoxide	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Parathion	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
o,p-DDE	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Endosulphan I	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
p,p-DDE	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Dieldrin	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
o,p-TDE (DDD)	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Endrin	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
o,p-DDT	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
p,p-TDE (DDD)	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Ethion	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Endosulphan II	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
p,p-DDT	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
o,p-Methoxychlor	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
p,p-Methoxychlor	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Endosulphan sulphate	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				
Azinphos-methyl	<0.01 µg/l	TM231	<0.04	<0.04	<0.04	<0.04				



CERTIFICATE OF ANALYSIS

Validated

SDG: 171031-33
Location:

Client Reference:
Order Number: 5038

Report Number: 432339
Superseded Report: 432012

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection		
TM231	Agilent 6890 Gas Chromatograph system using an Agilent 5973 Mass Selective Detector (MSD)	Determination of Organochlorine and Organophosphorus Pesticides and Triazine Herbicides by GCMS		
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

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SDG: 171031-33
Location:

Client Reference:
Order Number: 5038

Report Number: 432339
Superseded Report: 432012

Test Completion Dates

Lab Sample No(s)	16461615	16461612	16461613	16461614
Customer Sample Ref.	LT4	LT3A	LT3B	LT3C
AGS Ref.				
Depth				
Type	Land	Land	Land	Land
OC, OP Pesticides and Triazine Herb	03-Nov-2017	03-Nov-2017	03-Nov-2017	03-Nov-2017
Phenols by ms (w)	09-Nov-2017	09-Nov-2017	09-Nov-2017	09-Nov-2017
TPH by IR Oils and Greases	03-Nov-2017	03-Nov-2017	03-Nov-2017	03-Nov-2017



CERTIFICATE OF ANALYSIS

SDG: 171031-33
Location:

Client Reference:
Order Number: 5038

Report Number: 432339
Superseded Report: 432012

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Graham Roberts

CERTIFICATE OF ANALYSIS

Date: 28 December 2017
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 171208-63
Your Reference:
Location:
Report No: 438228

We received 16 samples on Friday December 08, 2017 and 16 of these samples were scheduled for analysis which was completed on Thursday December 28, 2017. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 171208-63
Location:

Client Reference:
Order Number: 5885

Report Number: 438228
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
16718218	103			06/12/2017
16718216	118			06/12/2017
16718215	124			06/12/2017
16718219	106A			06/12/2017
16718221	111A			06/12/2017
16718214	BH3			06/12/2017
16718199	LT4			06/12/2017
16718200	LT3A			06/12/2017
16718202	LT3B			06/12/2017
16718204	LT3C			06/12/2017
16718205	S1			06/12/2017
16718207	S2			06/12/2017
16718208	S3			06/12/2017
16718210	S4			06/12/2017
16718217	102S			06/12/2017
16718220	106S			06/12/2017

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

6.2

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 171208-63
Location:

Client Reference:
Order Number: 5885

Report Number: 438228
Superseded Report:

Results Legend



Test


No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
16718204	LT3C			1iplastic (ALE221)	UNL
16718202	LT3B			H2SO4 (ALE244)	UNL
16718200	LT3A			1iplastic (ALE221)	UNL
16718199	LT4			H2SO4 (ALE244)	UNL
16718214	BH3			1iplastic (ALE221)	UNL
16718221	111A			H2SO4 (ALE244)	UNL
16718219	106A			1iplastic (ALE221)	UNL
16718215	124			H2SO4 (ALE244)	UNL
16718216	118			1iplastic (ALE221)	UNL
16718218	103			H2SO4 (ALE244)	UNL
				1iplastic (ALE221)	UNL
Alkalinity as CaCO3	All	NDPs: 0 Tests: 4			
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 16			
Anions by ion Chromatography	All	NDPs: 0 Tests: 2			
Anions by Kone (w)	All	NDPs: 0 Tests: 14			
BOD True Total	All	NDPs: 0 Tests: 4			
COD Unfiltered	All	NDPs: 0 Tests: 4			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 16			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 6			
Mercury Dissolved	All	NDPs: 0 Tests: 3			
Mercury Unfiltered	All	NDPs: 0 Tests: 3			
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 4			
Oil and Grease Visible	All	NDPs: 0 Tests: 4			
pH Value	All	NDPs: 0 Tests: 16			
Phenols by HPLC (W)	All	NDPs: 0 Tests: 4			
Sulphide	All	NDPs: 0 Tests: 4			



CERTIFICATE OF ANALYSIS

Validated

SDG: 171208-63
Location:

Client Reference:
Order Number: 5885

Report Number: 438228
Superseded Report:

Results Legend



Test



No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Suspended Solids

All

NDPs: 0
Tests: 4

TPH by IR Oils and Greases

All

NDPs: 0
Tests: 4

16718204

LT3C

1plastic (ALE221)

UNL

16718202

LT3B

1plastic (ALE221)

UNL

16718200

LT3A

1plastic (ALE221)

UNL

16718219

106A

1plastic (ALE221)

UNL

16718221

111A

1plastic (ALE221)

UNL

16718214

BH3

1plastic (ALE221)

UNL

16718216

118

1plastic (ALE221)

UNL

16718218

103

1plastic (ALE221)

UNL

16718218

103

1plastic (ALE221)

UNL

16718218

103

1plastic (ALE221)

UNL

16718218

103

1plastic (ALE221)

UNL

16718218

103

1plastic (ALE221)

UNL

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16718220	106S			H2SO4 (ALE244)	UNL					
				1Iplastic (ALE221)	UNL					
				H2SO4 (ALE244)	UNL					
16718217	102S			1Iplastic (ALE221)	UNL					
				H2SO4 (ALE244)	UNL					
				1Iplastic (ALE221)	UNL					
16718210	S4			H2SO4 (ALE244)	UNL					
				1Iplastic (ALE221)	UNL	X				
				H2SO4 (ALE244)	UNL					
16718208	S3			1Iplastic (ALE221)	UNL					
				H2SO4 (ALE244)	UNL					
				1Iplastic (ALE221)	UNL	X				
16718207	S2			H2SO4 (ALE244)	UNL					
				1Iplastic (ALE221)	UNL					
				1Iplastic (ALE221)	UNL	X				
16718205	S1			H2SO4 (ALE244)	UNL					
				1Iplastic (ALE221)	UNL					
				1Iplastic (ALE221)	UNL	X				
16718204	LT3C			H2SO4 (ALE244)	UNL					



CERTIFICATE OF ANALYSIS

Validated

SDG: 171208-63
Location:

Client Reference:
Order Number: 5885

Report Number: 438228
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM095	Standard Methods for the examination of waters and wastewaters 16th Edition, APHA, Washington DC, USA. ISBN 0-87553-131-8.	Preparation of Water Samples for Analysis
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 171208-63
Location:

Client Reference:
Order Number: 5885

Report Number: 438228
Superseded Report:

Test Completion Dates

Lab Sample No(s)	16718218	16718216	16718215	16718219	16718221	16718214	16718199	16718200	16718202	16718204
Customer Sample Ref.	103	118	124	106A	111A	BH3	LT4	LT3A	LT3B	LT3C
AGS Ref.										
Depth										
Type	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Alkalinity as CaCO ₃							18-Dec-2017	18-Dec-2017	18-Dec-2017	18-Dec-2017
Ammoniacal Nitrogen	14-Dec-2017	14-Dec-2017	16-Dec-2017	16-Dec-2017	16-Dec-2017	16-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017
Anions by ion Chromatography									28-Dec-2017	28-Dec-2017
Anions by Kone (w)	18-Dec-2017	18-Dec-2017	18-Dec-2017	18-Dec-2017	18-Dec-2017	18-Dec-2017	19-Dec-2017	19-Dec-2017		
BOD True Total							14-Dec-2017	14-Dec-2017	14-Dec-2017	14-Dec-2017
COD Unfiltered							13-Dec-2017	17-Dec-2017	15-Dec-2017	17-Dec-2017
Conductivity (at 20 deg.C)	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017
Dissolved Metals by ICP-MS			19-Dec-2017			19-Dec-2017	20-Dec-2017	20-Dec-2017	20-Dec-2017	20-Dec-2017
Mercury Dissolved		19-Dec-2017	19-Dec-2017			19-Dec-2017				
Mercury Unfiltered		18-Dec-2017	18-Dec-2017			18-Dec-2017				
Metals by iCap-OES Dissolved (W)							22-Dec-2017	22-Dec-2017	22-Dec-2017	22-Dec-2017
pH Value	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	18-Dec-2017	18-Dec-2017	18-Dec-2017	18-Dec-2017
Phenols by HPLC (W)		15-Dec-2017	15-Dec-2017		15-Dec-2017	15-Dec-2017				
TPH by IR Oils and Greases		14-Dec-2017	14-Dec-2017		14-Dec-2017	14-Dec-2017				

Lab Sample No(s)	16718205	16718207	16718208	16718210	16718217	16718220
Customer Sample Ref.	S1	S2	S3	S4	102S	106S
AGS Ref.						
Depth						
Type	Water	Water	Water	Water	Water	Water
Ammoniacal Nitrogen	14-Dec-2017	15-Dec-2017	14-Dec-2017	16-Dec-2017	16-Dec-2017	16-Dec-2017
Anions by Kone (w)	18-Dec-2017	18-Dec-2017	18-Dec-2017	18-Dec-2017	18-Dec-2017	18-Dec-2017
Conductivity (at 20 deg.C)	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017	15-Dec-2017
Oil and Grease Visible	18-Dec-2017	18-Dec-2017	18-Dec-2017	18-Dec-2017		
pH Value	18-Dec-2017	18-Dec-2017	18-Dec-2017	18-Dec-2017	15-Dec-2017	15-Dec-2017
Sulphide	16-Dec-2017	16-Dec-2017	16-Dec-2017	16-Dec-2017		
Suspended Solids	14-Dec-2017	14-Dec-2017	14-Dec-2017	14-Dec-2017		



CERTIFICATE OF ANALYSIS

SDG: 171208-63
Location:

Client Reference:
Order Number: 5885

Report Number: 438228
Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asteststos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Hawarden
Deeside
CH5 3US

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Fax: (01244) 528701

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Matthew Barlow

CERTIFICATE OF ANALYSIS

Date: 05 March 2018
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 180223-7
Your Reference:
Location:
Report No: 446968

We received 8 samples on Friday February 23, 2018 and 8 of these samples were scheduled for analysis which was completed on Monday March 05, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17103995	124			22/02/2018
17103994	111A			22/02/2018
17103996	118A			22/02/2018
17103997	BH3			22/02/2018
17103998	S1			22/02/2018
17103999	S2			22/02/2018
17104000	S3			22/02/2018
17104002	S4			22/02/2018

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

4.6

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Results Legend



Test


No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Ammoniacal Nitrogen

All

NDPs: 0
Tests: 8

Anions by Kone (w)

All

NDPs: 0
Tests: 8

Oil and Grease Visible

All

NDPs: 0
Tests: 4

Suspended Solids

All

NDPs: 0
Tests: 4

TPH by IR Oils and Greases

All

NDPs: 0
Tests: 1

17103995

124

1plastic (ALE221)
H2SO4 (ALE244)

UNL

X

X

X

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CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM095	Standard Methods for the examination of waters and wastewaters 16th Edition, APHA, Washington DC, USA. ISBN 0-87553-131-8.	Preparation of Water Samples for Analysis
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Test Completion Dates

Lab Sample No(s)	17103995	17103994	17103996	17103997	17103998	17103999	17104000	17104002
Customer Sample Ref.	124	111A	118A	BH3	S1	S2	S3	S4
AGS Ref.								
Depth								
Type	Water	Water	Water	Water	Water	Water	Water	Water
Ammoniacal Nitrogen	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018
Anions by Kone (w)	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018
Oil and Grease Visible					02-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018
Suspended Solids					04-Mar-2018	04-Mar-2018	04-Mar-2018	04-Mar-2018
TPH by IR Oils and Greases				01-Mar-2018				



CERTIFICATE OF ANALYSIS

SDG:	180223-7	Client Reference:		Report Number:	446968
Location:		Order Number:	4778	Superseded Report:	

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asteststos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Matthew Barlow

CERTIFICATE OF ANALYSIS

Date: 05 March 2018
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 180223-7
Your Reference:
Location:
Report No: 446968

We received 8 samples on Friday February 23, 2018 and 8 of these samples were scheduled for analysis which was completed on Monday March 05, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17103995	124			22/02/2018
17103994	111A			22/02/2018
17103996	118A			22/02/2018
17103997	BH3			22/02/2018
17103998	S1			22/02/2018
17103999	S2			22/02/2018
17104000	S3			22/02/2018
17104002	S4			22/02/2018

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

4.6

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Results Legend



Test


No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Ammoniacal Nitrogen

All

NDPs: 0
Tests: 8

Anions by Kone (w)

All

NDPs: 0
Tests: 8

Oil and Grease Visible

All

NDPs: 0
Tests: 4

Suspended Solids

All

NDPs: 0
Tests: 4

TPH by IR Oils and Greases

All

NDPs: 0
Tests: 1

17104002

S4

H2SO4 (ALE244)

UNL

X

17104000

S3

H2SO4 (ALE244)

UNL

X

17103999

S2

H2SO4 (ALE244)

UNL

X

17103998

S1

H2SO4 (ALE244)

UNL

X

17103997

BH3

H2SO4 (ALE244)

UNL

X

17103996

118A

H2SO4 (ALE244)

UNL

X

17103994

111A

H2SO4 (ALE244)

UNL

X

17103995

124

H2SO4 (ALE244)

UNL

X



CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM095	Standard Methods for the examination of waters and wastewaters 16th Edition, APHA, Washington DC, USA. ISBN 0-87553-131-8.	Preparation of Water Samples for Analysis
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

	17103995	17103994	17103996	17103997	17103998	17103999	17104000	17104002
	124	111A	118A	BH3	S1	S2	S3	S4
	Water	Water	Water	Water	Water	Water	Water	Water
Ammoniacal Nitrogen	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018
Anions by Kone (w)	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018
Oil and Grease Visible					02-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018
Suspended Solids					04-Mar-2018	04-Mar-2018	04-Mar-2018	04-Mar-2018
TPH by IR Oils and Greases				01-Mar-2018				



CERTIFICATE OF ANALYSIS

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Matthew Barlow

CERTIFICATE OF ANALYSIS

Date: 05 March 2018
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 180223-7
Your Reference:
Location:
Report No: 446968

We received 8 samples on Friday February 23, 2018 and 8 of these samples were scheduled for analysis which was completed on Monday March 05, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17103995	124			22/02/2018
17103994	111A			22/02/2018
17103996	118A			22/02/2018
17103997	BH3			22/02/2018
17103998	S1			22/02/2018
17103999	S2			22/02/2018
17104000	S3			22/02/2018
17104002	S4			22/02/2018

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

4.6

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

<div>Results Legend</div> <div><div>X</div> Test</div> <div><div>N</div> No Determination Possible</div> <div>Sample Types -</div> <div>S - Soil/Solid</div> <div>UNS - Unspecified Solid</div> <div>GW - Ground Water</div> <div>SW - Surface Water</div> <div>LE - Land Leachate</div> <div>PL - Prepared Leachate</div> <div>PR - Process Water</div> <div>SA - Saline Water</div> <div>TE - Trade Effluent</div> <div>TS - Treated Sewage</div> <div>US - Untreated Sewage</div> <div>RE - Recreational Water</div> <div>DW - Drinking Water Non-regulatory</div> <div>UNL - Unspecified Liquid</div> <div>SL - Sludge</div> <div>G - Gas</div> <div>OTH - Other</div>	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container				Sample Type	
	17104002		S4						H2SO4 (ALE244)				UNL	
	17104000		S3						H2SO4 (ALE244)				UNL	
	17103999		S2						H2SO4 (ALE244)				UNL	
	17103998		S1						H2SO4 (ALE244)				UNL	
	17103997		BH3						H2SO4 (ALE244)				UNL	
	17103996		118A						H2SO4 (ALE244)				UNL	
17103995		124						H2SO4 (ALE244)				UNL		
								11plastic (ALE221)				UNL		
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CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM095	Standard Methods for the examination of waters and wastewaters 16th Edition, APHA, Washington DC, USA. ISBN 0-87553-131-8.	Preparation of Water Samples for Analysis
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 180223-7
Location:

Client Reference:
Order Number: 4778

Report Number: 446968
Superseded Report:

Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

	17103995	17103994	17103996	17103997	17103998	17103999	17104000	17104002
	124	111A	118A	BH3	S1	S2	S3	S4
	Water	Water	Water	Water	Water	Water	Water	Water
Ammoniacal Nitrogen	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018
Anions by Kone (w)	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018	05-Mar-2018
Oil and Grease Visible					02-Mar-2018	02-Mar-2018	02-Mar-2018	02-Mar-2018
Suspended Solids					04-Mar-2018	04-Mar-2018	04-Mar-2018	04-Mar-2018
TPH by IR Oils and Greases				01-Mar-2018				



CERTIFICATE OF ANALYSIS

SDG:	180223-7	Client Reference:		Report Number:	446968
Location:		Order Number:	4778	Superseded Report:	

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Astos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Matthew Barlow

CERTIFICATE OF ANALYSIS

Date: 05 May 2018
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 180426-10
Your Reference:
Location:
Report No: 455024

We received 8 samples on Thursday April 26, 2018 and 8 of these samples were scheduled for analysis which was completed on Saturday May 05, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 180426-10
Location:

Client Reference:
Order Number: 6381

Report Number: 455024
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17446047	118			23/04/2018
17446048	124			23/04/2018
17446046	111A			23/04/2018
17446044	BH3			23/04/2018
17446040	S1			23/04/2018
17446041	S2			23/04/2018
17446042	S3			23/04/2018
17446043	S4			23/04/2018

Maximum Sample/Coolbox Temperature (°C) :

12.6

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 180426-10
Location:

Client Reference:
Order Number: 6381

Report Number: 455024
Superseded Report:

Results Legend

- X** Test
- N** No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type								
						17446047	17446048	17446046	17446044	17446040	17446041	17446042	17446043
						500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)	500ml Plastic (ALE208)
						UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 8				X	X	X	X	X	X	X	X
Anions by Kone (w)	All	NDPs: 0 Tests: 8				X	X	X	X	X	X	X	X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 4							X	X	X	X	X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 1						X					
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 1						X					
GRO by GC-FID (W)	All	NDPs: 0 Tests: 1						X					
pH Value	All	NDPs: 0 Tests: 4							X	X	X	X	X
Suspended Solids	All	NDPs: 0 Tests: 4							X	X	X	X	X
TPH by IR Oils and Greases	All	NDPs: 0 Tests: 4							X	X	X	X	X
TPH CWG (W)	All	NDPs: 0 Tests: 1						X					



CERTIFICATE OF ANALYSIS

Validated

SDG: 180426-10
Location:

Client Reference:
Order Number: 6381

Report Number: 455024
Superseded Report:

TPH CWG (W)

Results Legend		Customer Sample Ref.	BH3					
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Unspecified Liquid (UNL) 23/04/2018 26/04/2018 180426-10 17446044					
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&+5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM245	105	1				
GRO >C5-C12	<50 µg/l	TM245	<50	1				
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	1				
Benzene	<7 µg/l	TM245	<7	1				
Toluene	<4 µg/l	TM245	<4	1				
Ethylbenzene	<5 µg/l	TM245	<5	1				
m,p-Xylene	<8 µg/l	TM245	<8	1				
o-Xylene	<3 µg/l	TM245	<3	1				
Sum of detected Xylenes	<11 µg/l	TM245	<11	1				
Sum of detected BTEX	<28 µg/l	TM245	<28	1				
Aliphatics >C5-C6	<10 µg/l	TM245	<10	1				
Aliphatics >C6-C8	<10 µg/l	TM245	<10	1				
Aliphatics >C8-C10	<10 µg/l	TM245	<10	1				
Aliphatics >C10-C12	<10 µg/l	TM245	<10	1				
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10					
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10					
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10					
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10					
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	1				
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	1				
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	1				
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	1				
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10					
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10					
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10					
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10					
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10					
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	<10					



CERTIFICATE OF ANALYSIS

Validated

SDG: 180426-10
Location:**Client Reference:**
Order Number: 6381**Report Number:** 455024
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 180426-10
Location:

Client Reference:
Order Number: 6381

Report Number: 455024
Superseded Report:

Test Completion Dates

Lab Sample No(s)	17446047	17446048	17446046	17446044	17446040	17446041	17446042	17446043
Customer Sample Ref.	118	124	111A	BH3	S1	S2	S3	S4
AGS Ref.								
Depth								
Type	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq
Ammoniacal Nitrogen	05-May-2018	05-May-2018	04-May-2018	05-May-2018	05-May-2018	05-May-2018	05-May-2018	03-May-2018
Anions by Kone (w)	04-May-2018	04-May-2018	04-May-2018	04-May-2018	04-May-2018	04-May-2018	04-May-2018	04-May-2018
Conductivity (at 20 deg.C)					27-Apr-2018	27-Apr-2018	27-Apr-2018	27-Apr-2018
EPH CWG (Aliphatic) Aqueous GC (W)				30-Apr-2018				
EPH CWG (Aromatic) Aqueous GC (W)				30-Apr-2018				
GRO by GC-FID (W)				01-May-2018				
pH Value					28-Apr-2018	28-Apr-2018	28-Apr-2018	30-Apr-2018
Suspended Solids					01-May-2018	01-May-2018	01-May-2018	01-May-2018
TPH by IR Oils and Greases					02-May-2018	02-May-2018	02-May-2018	02-May-2018
TPH CWG (W)				01-May-2018				



CERTIFICATE OF ANALYSIS

SDG: 180426-10
Location:

Client Reference:
Order Number: 6381

Report Number: 455024
Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Astos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Fax: (01244) 528701

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Matthew Barlow

CERTIFICATE OF ANALYSIS

Date: 05 May 2018
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 180426-10
Your Reference:
Location:
Report No: 455024

We received 8 samples on Thursday April 26, 2018 and 8 of these samples were scheduled for analysis which was completed on Saturday May 05, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 180426-10
Location:

Client Reference:
Order Number: 6381

Report Number: 455024
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17446047	118			23/04/2018
17446048	124			23/04/2018
17446046	111A			23/04/2018
17446044	BH3			23/04/2018
17446040	S1			23/04/2018
17446041	S2			23/04/2018
17446042	S3			23/04/2018
17446043	S4			23/04/2018

Maximum Sample/Coolbox Temperature (°C) :

12.6

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 180426-10
Location:Client Reference:
Order Number: 6381Report Number: 455024
Superseded Report:

TPH CWG (W)

Results Legend		Customer Sample Ref.	BH3					
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Unspecified Liquid (UNL) 23/04/2018 26/04/2018 180426-10 17446044					
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&+5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM245	105	1				
GRO >C5-C12	<50 µg/l	TM245	<50	1				
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	1				
Benzene	<7 µg/l	TM245	<7	1				
Toluene	<4 µg/l	TM245	<4	1				
Ethylbenzene	<5 µg/l	TM245	<5	1				
m,p-Xylene	<8 µg/l	TM245	<8	1				
o-Xylene	<3 µg/l	TM245	<3	1				
Sum of detected Xylenes	<11 µg/l	TM245	<11	1				
Sum of detected BTEX	<28 µg/l	TM245	<28	1				
Aliphatics >C5-C6	<10 µg/l	TM245	<10	1				
Aliphatics >C6-C8	<10 µg/l	TM245	<10	1				
Aliphatics >C8-C10	<10 µg/l	TM245	<10	1				
Aliphatics >C10-C12	<10 µg/l	TM245	<10	1				
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10					
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10					
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10					
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10					
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	1				
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	1				
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	1				
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	1				
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10					
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10					
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10					
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10					
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10					
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	<10					



CERTIFICATE OF ANALYSIS

Validated

SDG: 180426-10
Location:**Client Reference:**
Order Number: 6381**Report Number:** 455024
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 180426-10
Location:

Client Reference:
Order Number: 6381

Report Number: 455024
Superseded Report:

Test Completion Dates

Lab Sample No(s)	17446047	17446048	17446046	17446044	17446040	17446041	17446042	17446043
Customer Sample Ref.	118	124	111A	BH3	S1	S2	S3	S4
AGS Ref.								
Depth								
Type	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq
Ammoniacal Nitrogen	05-May-2018	05-May-2018	04-May-2018	05-May-2018	05-May-2018	05-May-2018	05-May-2018	03-May-2018
Anions by Kone (w)	04-May-2018	04-May-2018	04-May-2018	04-May-2018	04-May-2018	04-May-2018	04-May-2018	04-May-2018
Conductivity (at 20 deg.C)					27-Apr-2018	27-Apr-2018	27-Apr-2018	27-Apr-2018
EPH CWG (Aliphatic) Aqueous GC (W)				30-Apr-2018				
EPH CWG (Aromatic) Aqueous GC (W)				30-Apr-2018				
GRO by GC-FID (W)				01-May-2018				
pH Value					28-Apr-2018	28-Apr-2018	28-Apr-2018	30-Apr-2018
Suspended Solids					01-May-2018	01-May-2018	01-May-2018	01-May-2018
TPH by IR Oils and Greases					02-May-2018	02-May-2018	02-May-2018	02-May-2018
TPH CWG (W)				01-May-2018				



CERTIFICATE OF ANALYSIS

SDG: 180426-10
Location:

Client Reference:
Order Number: 6381

Report Number: 455024
Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Matthew Barlow

CERTIFICATE OF ANALYSIS

Date: 19 May 2018
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 180511-32
Your Reference:
Location:
Report No: 456793

We received 8 samples on Friday May 11, 2018 and 8 of these samples were scheduled for analysis which was completed on Saturday May 19, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 180511-32
Location:

Client Reference:
Order Number: 6529

Report Number: 456793
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17534096	118			08/05/2018
17534094	124			08/05/2018
17534097	111A			08/05/2018
17534093	BH3			08/05/2018
17534087	S1			08/05/2018
17534089	S2			08/05/2018
17534090	S3			08/05/2018
17534091	S4			08/05/2018

Maximum Sample/Coolbox Temperature (°C) :

13.4

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 180511-32
Location:**Client Reference:**
Order Number: 6529**Report Number:** 456793
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM095	Standard Methods for the examination of waters and wastewaters 16th Edition, APHA, Washington DC, USA. ISBN 0-87553-131-8.	Preparation of Water Samples for Analysis
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 180511-32
Location:

Client Reference:
Order Number: 6529

Report Number: 456793
Superseded Report:

Test Completion Dates

Lab Sample No(s)	17534096	17534094	17534097	17534093	17534087	17534089	17534090	17534091
Customer Sample Ref.	118	124	111A	BH3	S1	S2	S3	S4
AGS Ref.								
Depth								
Type	Water	Water	Water	Water	Water	Water	Water	Water
Ammoniacal Nitrogen	15-May-2018	16-May-2018	15-May-2018	16-May-2018	15-May-2018	15-May-2018	15-May-2018	15-May-2018
Anions by Kone (w)	16-May-2018	16-May-2018	16-May-2018	16-May-2018	16-May-2018	16-May-2018	16-May-2018	16-May-2018
Conductivity (at 20 deg.C)	16-May-2018	16-May-2018	16-May-2018	14-May-2018	16-May-2018	16-May-2018	14-May-2018	16-May-2018
Mercury Dissolved	18-May-2018	18-May-2018		18-May-2018				
Mercury Unfiltered	18-May-2018	18-May-2018		18-May-2018				
Oil and Grease Visible					11-May-2018	11-May-2018	11-May-2018	11-May-2018
pH Value	15-May-2018	15-May-2018	15-May-2018	15-May-2018	16-May-2018	16-May-2018	16-May-2018	16-May-2018
Phenols by HPLC (W)	18-May-2018	18-May-2018		18-May-2018				
Sulphide					19-May-2018	19-May-2018	19-May-2018	19-May-2018
Suspended Solids					14-May-2018	14-May-2018	14-May-2018	14-May-2018
TPH by IR Oils and Greases	14-May-2018	14-May-2018	14-May-2018	14-May-2018				



CERTIFICATE OF ANALYSIS

SDG: 180511-32
Location:

Client Reference:
Order Number: 6529

Report Number: 456793
Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Astefos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Matthew Barlow

CERTIFICATE OF ANALYSIS

Date: 24 August 2018
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 180817-62
Your Reference:
Location:
Report No: 469566

We received 7 samples on Friday August 17, 2018 and 7 of these samples were scheduled for analysis which was completed on Friday August 24, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 180817-62
Location:

Client Reference:
Order Number: 6980

Report Number: 469566
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
18139680	118			15/08/2018
18139679	124			15/08/2018
18139677	111A			15/08/2018
18139682	S1			15/08/2018
18139683	S2			15/08/2018
18139684	S3			15/08/2018
18139687	S4			15/08/2018

Maximum Sample/Coolbox Temperature (°C) :

17.2

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 180817-62
Location:

Client Reference:
Order Number: 6980

Report Number: 469566
Superseded Report:

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Results Legend	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container		Sample Type	
	18139687		S4						H2SO4 (ALE244)	UNL		
	18139684		S3						500ml Plastic (ALE208)	UNL		
	18139683		S2						H2SO4 (ALE244)	UNL		
	18139682		S1						500ml Plastic (ALE208)	UNL		
	18139677		111A						H2SO4 (ALE244)	UNL		
	18139680		118						500ml Plastic (ALE208)	UNL		
Ammoniacal Nitrogen	All		NDPs: 0 Tests: 7									
Anions by Kone (w)	All		NDPs: 0 Tests: 7									
Conductivity (at 20 deg.C)	All		NDPs: 0 Tests: 4									
pH Value	All		NDPs: 0 Tests: 4									
Suspended Solids	All		NDPs: 0 Tests: 4									
TPH by IR Oils and Greases	All		NDPs: 0 Tests: 4									



CERTIFICATE OF ANALYSIS

Validated

SDG: 180817-62
Location:

Client Reference:
Order Number: 6980

Report Number: 469566
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 180817-62
Location:

Client Reference:
Order Number: 6980

Report Number: 469566
Superseded Report:

Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

	18139680	18139679	18139677	18139682	18139683	18139684	18139687
	118	124	111A	S1	S2	S3	S4
	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq
Ammoniacal Nitrogen	24-Aug-2018	24-Aug-2018	24-Aug-2018	24-Aug-2018	24-Aug-2018	24-Aug-2018	24-Aug-2018
Anions by Kone (w)	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
Conductivity (at 20 deg.C)				22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
pH Value				22-Aug-2018	21-Aug-2018	21-Aug-2018	21-Aug-2018
Suspended Solids				23-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
TPH by IR Oils and Greases				23-Aug-2018	23-Aug-2018	23-Aug-2018	23-Aug-2018



CERTIFICATE OF ANALYSIS

SDG: 180817-62
Location:

Client Reference:
Order Number: 6980

Report Number: 469566
Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Matthew Barlow

CERTIFICATE OF ANALYSIS

Date: 02 October 2018
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 180919-43
Your Reference:
Location:
Report No: 474830

We received 15 samples on Wednesday September 19, 2018 and 15 of these samples were scheduled for analysis which was completed on Tuesday October 02, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 180919-43
Location:

Client Reference:
Order Number:

Report Number: 474830
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
18357713	103			17/09/2018
18357717	118			17/09/2018
18357714	124			17/09/2018
18357720	106A			17/09/2018
18357712	111A			17/09/2018
18357709	LT4			17/09/2018
18357708	LT3A			17/09/2018
18357707	LT3B			17/09/2018
18357706	LT3C			17/09/2018
18357716	S1			17/09/2018
18357719	S2			17/09/2018
18357710	S3			17/09/2018
18357718	S4			17/09/2018
18357711	102S			17/09/2018
18357715	106S			17/09/2018

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

14.4

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 180919-43
Location:

Client Reference:
Order Number:

Report Number: 474830
Superseded Report:

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type	All	NDPs: 0 Tests: 4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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CERTIFICATE OF ANALYSIS

Validated

SDG: 180919-43
Location:

Client Reference:
Order Number:

Report Number: 474830
Superseded Report:

Results Legend

X Test
N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container		Sample Type	
	18357706	LT3C	18357707	LT3B	18357708	LT3A	18357709	LT4	18357710	111A	18357711	106A
	18357712	106A	18357713	124	18357714	118	18357715	103	18357716	103	18357717	103
	500ml Plastic (ALE208)	UNL	500ml Plastic (ALE208)	UNL	500ml Plastic (ALE208)	UNL	500ml Plastic (ALE208)	UNL	500ml Plastic (ALE208)	UNL	500ml Plastic (ALE208)	UNL
	500ml Plastic (ALE244)	UNL	500ml Plastic (ALE244)	UNL	500ml Plastic (ALE244)	UNL	500ml Plastic (ALE244)	UNL	500ml Plastic (ALE244)	UNL	500ml Plastic (ALE244)	UNL
	500ml Plastic (ALE208)	UNL	500ml Plastic (ALE208)	UNL	500ml Plastic (ALE208)	UNL	500ml Plastic (ALE208)	UNL	500ml Plastic (ALE208)	UNL	500ml Plastic (ALE208)	UNL
pH Value	All	NDPs: 0 Tests: 15	X	X	X	X	X	X	X	X	X	X
Phenols by HPLC (W)	All	NDPs: 0 Tests: 7		X	X	X	X	X	X	X	X	X
Sulphide	All	NDPs: 0 Tests: 4			X	X	X	X	X	X	X	X
Suspended Solids	All	NDPs: 0 Tests: 4										
TPH by IR Oils and Greases	All	NDPs: 0 Tests: 3		X	X	X	X	X	X	X	X	X
TPH CWG (W)	All	NDPs: 0 Tests: 4							X	X	X	X

18357715	106S			H2SO4 (ALE244)	UNL														
				500ml Plastic (ALE208)	UNL	X													
18357711	102S			H2SO4 (ALE244)	UNL														
				500ml Plastic (ALE208)	UNL	X													
18357718	S4			H2SO4 (ALE244)	UNL														
				500ml Plastic (ALE208)	UNL	X													
18357710	S3			H2SO4 (ALE244)	UNL														
				500ml Plastic (ALE208)	UNL	X													
18357719	S2			H2SO4 (ALE244)	UNL														
				500ml Plastic (ALE208)	UNL	X													
18357716	S1			H2SO4 (ALE244)	UNL														
				500ml Plastic (ALE208)	UNL	X													
18357706	LT3C			H2SO4 (ALE244)	UNL														
				500ml Plastic (ALE208)	UNL	X													



CERTIFICATE OF ANALYSIS

Validated

SDG: 180919-43
Location:

Client Reference:
Order Number:

Report Number: 474830
Superseded Report:

Results Legend		Customer Sample Ref.	103	118	124	106A	111A	LT4
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&+5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Alkalinity, Total as CaCO3	<2 mg/l	TM043						10100
BOD, unfiltered	<1 mg/l	TM045						2110
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	17.5	0.765	0.221	22.6	<0.2	2260
COD, unfiltered	<7 mg/l	TM107						5860
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	1.33	0.271	0.484	0.589	0.473	21.7
Arsenic (diss.filt)	<0.5 µg/l	TM152						55.4
Cadmium (diss.filt)	<0.08 µg/l	TM152						<0.8
Chromium (diss.filt)	<1 µg/l	TM152						322
Copper (diss.filt)	<0.3 µg/l	TM152						<3
Lead (diss.filt)	<0.2 µg/l	TM152						4.74
Manganese (diss.filt)	<3 µg/l	TM152						381
Nickel (diss.filt)	<0.4 µg/l	TM152						257
Zinc (diss.filt)	<1 µg/l	TM152						53.6
Sodium (Dis.Filt)	<0.076 mg/l	TM152						1920
Magnesium (Dis.Filt)	<0.036 mg/l	TM152						77.9
Potassium (Dis.Filt)	<0.2 mg/l	TM152						756
Calcium (Dis.Filt)	<0.2 mg/l	TM152						88.5
Iron (Dis.Filt)	<0.019 mg/l	TM152						13
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01	<0.01			<0.01
Mercury (tot.unfilt)	<0.02 µg/l	TM183		<0.02	<0.02			
Chloride	<2 mg/l	TM184	38.5	23.5	23.5	26.7	25	
Chloride	<0.08 mg/l	TM226						2290
Sulphate	<0.1 mg/l	TM226						6.29
TPH / Oil & Greases	<1 mg/l	TM235		<1	1.31		<1	
pH	<1 pH Units	TM256	7.31	8.01	7.97	7.19	7.42	7.66
Resorcinol	<0.01 mg/l	TM259						<0.1
Catechol	<0.01 mg/l	TM259						0.23
Phenol	<0.002 mg/l	TM259		<0.002	<0.002		<0.002	0.74
Cresols	<0.006 mg/l	TM259		<0.006	<0.006		<0.006	1.18
Xylenols	<0.008 mg/l	TM259		<0.008	<0.008		<0.008	0.16
1-Naphthol	<0.01 mg/l	TM259						<0.1
2,3,5-Trimethylphenol	<0.003 mg/l	TM259						<0.03
2-Isopropylphenol	<0.006 mg/l	TM259						0.13



CERTIFICATE OF ANALYSIS

Validated

SDG: 180919-43
Location:

Client Reference:
Order Number:

Report Number: 474830
Superseded Report:

Results Legend		Customer Sample Ref.	LT3A	LT3B	LT3C	S1	S2	S3
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&+5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Oil or Grease, Visible		PM095				Absent	Absent	Absent
Visible Solids		PM095				Present	Present	Absent
Suspended solids, Total	<2 mg/l	TM022				12	2	5.26
Alkalinity, Total as CaCO3	<2 mg/l	TM043	7800	13200	12700			
BOD, unfiltered	<1 mg/l	TM045	66.7	>7950	>8160			
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	1600	3750	3810	0.429	0.229	<0.2
Sulphide	<0.01 mg/l	TM101				<0.01 2	<0.01 2	<0.01 2
COD, unfiltered	<7 mg/l	TM107	3530	27400	27100			
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	15.8	31.1	31.7	0.35	0.345	0.502
Arsenic (diss.filt)	<0.5 µg/l	TM152	42.9 2	97.3 2	99.4 2			
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.8 2	<8 2	<8 2			
Chromium (diss.filt)	<1 µg/l	TM152	286 2	321 2	303 2			
Copper (diss.filt)	<0.3 µg/l	TM152	585 2	<30 2	<30 2			
Lead (diss.filt)	<0.2 µg/l	TM152	26.3 2	<20 2	<20 2			
Manganese (diss.filt)	<3 µg/l	TM152	259 2	564 2	571 2			
Nickel (diss.filt)	<0.4 µg/l	TM152	241 2	394 2	424 2			
Zinc (diss.filt)	<1 µg/l	TM152	823 2	110 2	179 2			
Sodium (Dis.Filt)	<0.076 mg/l	TM152	1320 2	3230 2	3180 2			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	62.4 2	171 2	170 2			
Potassium (Dis.Filt)	<0.2 mg/l	TM152	612 2	1230 2	1200 2			
Calcium (Dis.Filt)	<0.2 mg/l	TM152	89.9 2	117 2	120 2			
Iron (Dis.Filt)	<0.019 mg/l	TM152	8.24 2	5.69 2	8.29 2			
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01 2	<0.01 2	<0.01 2			
Chloride	<2 mg/l	TM184				21.4	21.4	21.3
Chloride	<0.08 mg/l	TM226	1490	3180	3230			
Sulphate	<0.1 mg/l	TM226	109	5.52	5.59			
pH	<1 pH Units	TM256	8.09	8.05	8.02	7.92	8.09	7.84
Resorcinol	<0.01 mg/l	TM259	<0.1	<0.1	5.14			
Catechol	<0.01 mg/l	TM259	<0.1	1.88	1.26			
Phenol	<0.002 mg/l	TM259	<0.02	3.47	2.61			
Cresols	<0.006 mg/l	TM259	<0.06	16.8	17.1			
Xylenols	<0.008 mg/l	TM259	<0.08	0.5	0.5			
1-Naphthol	<0.01 mg/l	TM259	<0.1	<0.1	<0.1			



CERTIFICATE OF ANALYSIS

Validated

SDG: 180919-43
Location:

Client Reference:
Order Number:

Report Number: 474830
Superseded Report:

OC, OP Pesticides and Triazine Herb

Results Legend		Customer Sample Ref.	LT4	LT3A	LT3B	LT3C		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&+5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Dichlorvos	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Mevinphos	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Tecnazene	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Hexachlorobenzene	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Trifluralin	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
alpha-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Quintozone (PCNB)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Diazinon	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Triallate	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Etrimphos	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
gamma-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Disulfoton	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Propetamphos	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Heptachlor	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Chlorpyrifos methyl	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Dimethoate	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Aldrin	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Chlorothalonil	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Pirimiphos-methyl	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
beta-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Chlorpyrifos	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Telodrin	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Methyl parathion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Isodrin	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Malathion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Fenthion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Fenitrothion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Heptachlor epoxide	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Triadimefon	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Pendimethalin	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Parathion	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
o,p-DDE	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		
Chlorfenvinphos	<0.01 µg/l	TM231	<0.1	<0.1	<0.1	<0.1		



CERTIFICATE OF ANALYSIS

Validated

SDG: 180919-43
Location:

Client Reference:
Order Number:

Report Number: 474830
Superseded Report:

TPH CWG (W)

Results Legend		Customer Sample Ref.	LT4	LT3A	LT3B	LT3C		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&+5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM245	78 1	81 1	65 3	71 2		
GRO >C5-C12	<50 µg/l	TM245	751 1	389 1	1170 2	1170 2		
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 1	<3 1	<3 2	<3 2		
Benzene	<7 µg/l	TM245	<7 1	<7 1	<7 2	<7 2		
Toluene	<4 µg/l	TM245	<4 1	<4 1	4 2	4 2		
Ethylbenzene	<5 µg/l	TM245	<5 1	<5 1	5 2	5 2		
m,p-Xylene	<8 µg/l	TM245	<8 1	<8 1	<8 2	<8 2		
o-Xylene	<3 µg/l	TM245	3 1	<3 1	3 2	5 2		
Sum of detected Xylenes	<11 µg/l	TM245	<11 1	<11 1	<11 2	<11 2		
Sum of detected BTEX	<28 µg/l	TM245	<28 1	<28 1	<28 2	<28 2		
Aliphatics >C5-C6	<10 µg/l	TM245	316 1	232 1	548 2	563 2		
Aliphatics >C6-C8	<10 µg/l	TM245	112 1	52 1	227 2	209 2		
Aliphatics >C8-C10	<10 µg/l	TM245	46 1	23 1	79 2	75 2		
Aliphatics >C10-C12	<10 µg/l	TM245	137 1	38 1	148 2	150 2		
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	25	<10	19	19		
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	126	18	35	42		
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	559	130	227	275		
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	710	148	281	336		
Aromatics >EC5-EC7	<10 µg/l	TM245	<10 1	<10 1	<10 2	<10 2		
Aromatics >EC7-EC8	<10 µg/l	TM245	<10 1	<10 1	<10 2	<10 2		
Aromatics >EC8-EC10	<10 µg/l	TM245	42 1	18 1	62 2	62 2		
Aromatics >EC10-EC12	<10 µg/l	TM245	91 1	25 1	98 2	100 2		
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	39	25	76	71		
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	79	<10	22	24		
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	183	21	130	158		
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	301	46	228	253		
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	1760	583	1680	1760		
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	685	148	262	317		



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Table of Results - Appendix

Method No	Reference	Description
PM095	Standard Methods for the examination of waters and wastewaters 16th Edition, APHA, Washington DC, USA. ISBN 0-87553-131-8.	Preparation of Water Samples for Analysis
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography
TM231	Agilent 6890 Gas Chromatograph system using an Agilent 5973 Mass Selective Detector (MSD)	Determination of Organochlorine and Organophosphorus Pesticides and Triazine Herbicides by GCMS
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



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Test Completion Dates

Lab Sample No(s)	18357713	18357717	18357714	18357720	18357712	18357709	18357708	18357707	18357706	18357716
Customer Sample Ref.	103	118	124	106A	111A	LT4	LT3A	LT3B	LT3C	S1
AGS Ref.										
Depth										
Type	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq
Alkalinity as CaCO ₃						25-Sep-2018	25-Sep-2018	26-Sep-2018	26-Sep-2018	
Ammoniacal Nitrogen	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018
Anions by ion Chromatography						29-Sep-2018	29-Sep-2018	29-Sep-2018	29-Sep-2018	
Anions by Kone (w)	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018					26-Sep-2018
BOD True Total						24-Sep-2018	24-Sep-2018	24-Sep-2018	24-Sep-2018	
COD Unfiltered						26-Sep-2018	26-Sep-2018	26-Sep-2018	25-Sep-2018	
Conductivity (at 20 deg.C)	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	25-Sep-2018	25-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Dissolved Metals by ICP-MS						27-Sep-2018	27-Sep-2018	27-Sep-2018	27-Sep-2018	
EPH CWG (Aliphatic) Aqueous GC (W)						26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	
EPH CWG (Aromatic) Aqueous GC (W)						26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	
GRO by GC-FID (W)						26-Sep-2018	25-Sep-2018	26-Sep-2018	26-Sep-2018	
Mercury Dissolved		26-Sep-2018	26-Sep-2018			28-Sep-2018	28-Sep-2018	28-Sep-2018	28-Sep-2018	
Mercury Unfiltered		28-Sep-2018	02-Oct-2018							
OC, OP Pesticides and Triazine Herb						26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	
Oil, Grease or Solids Visible										20-Sep-2018
pH Value	24-Sep-2018	24-Sep-2018	24-Sep-2018	24-Sep-2018	24-Sep-2018	25-Sep-2018	25-Sep-2018	24-Sep-2018	24-Sep-2018	24-Sep-2018
Phenols by HPLC (W)		24-Sep-2018	24-Sep-2018		24-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	24-Sep-2018	
Sulphide										28-Sep-2018
Suspended Solids										25-Sep-2018
TPH by IR Oils and Greases		24-Sep-2018	24-Sep-2018		24-Sep-2018					
TPH CWG (W)						26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	

Lab Sample No(s)	18357719	18357710	18357718	18357711	18357715
Customer Sample Ref.	S2	S3	S4	102S	106S
AGS Ref.					
Depth					
Type	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq
Ammoniacal Nitrogen	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018
Anions by Kone (w)	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018	26-Sep-2018
Conductivity (at 20 deg.C)	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Oil, Grease or Solids Visible	20-Sep-2018	20-Sep-2018	20-Sep-2018		
pH Value	24-Sep-2018	24-Sep-2018	24-Sep-2018	24-Sep-2018	24-Sep-2018
Sulphide	28-Sep-2018	28-Sep-2018	28-Sep-2018		
Suspended Solids	26-Sep-2018	25-Sep-2018	26-Sep-2018		



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474830

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Quercia Ltd
Clayton Hall Landfill Site
Clayton Hall Sand Company
Dawson Lane
Whittle-le-Woods
Chorley
Lancashire
PR6 7DT

Attention: Matthew Barlow

CERTIFICATE OF ANALYSIS

Date: 13 April 2018
Customer: H_QUERCIA_CHO
Sample Delivery Group (SDG): 180327-17
Your Reference:
Location:
Report No: 451536

We received 16 samples on Tuesday March 27, 2018 and 16 of these samples were scheduled for analysis which was completed on Tuesday April 10, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 180327-17
Location:

Client Reference:
Order Number: 6266

Report Number: 451536
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17274108	103			
17274103	118			
17274107	124			
17274110	106A			
17274104	111A			
17274105	BH3			
17274097	LT4			
17274101	LT3A			
17274100	LT3B			
17274099	LT3C			
17274113	S1			
17274118	S2			
17274117	S3			
17274116	S4			
17274114	102S			
17274111	106S			

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

9.8

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

SDG: 180327-17
Location:Client Reference:
Order Number: 6266Report Number: 451536
Superseded Report:

Results Legend



Test

No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Suspended Solids

All

NDPs: 0
Tests: 4

TPH by IR Oils and Greases

All

NDPs: 0
Tests: 4

17274108

103

500ml Plastic
(ALE208)
UNL

17274103

118

500ml Plastic
(ALE208)
UNL

17274107

124

500ml Plastic
(ALE208)
UNL

17274110

106A

500ml Plastic
(ALE208)
UNL

17274104

111A

500ml Plastic
(ALE208)
UNL

17274105

BH3

500ml Plastic
(ALE208)
UNL

17274097

LT4

500ml Plastic
(ALE208)
UNL

17274101

LT3A

500ml Plastic
(ALE208)
UNL

X

X

X

X

1727411	1065			H2SO4 (ALE244)	UNL				
				500ml Plastic (ALE208)	UNL				
1727414	1025			H2SO4 (ALE244)	UNL				
				500ml Plastic (ALE208)	UNL				
1727416	54			H2SO4 (ALE244)	UNL				
				500ml Plastic (ALE208)	UNL	X			
1727417	53			H2SO4 (ALE244)	UNL				
				500ml Plastic (ALE208)	UNL	X			
1727418	52			H2SO4 (ALE244)	UNL				
				500ml Plastic (ALE208)	UNL	X			
1727413	51			H2SO4 (ALE244)	UNL				
				500ml Plastic (ALE208)	UNL	X			
17274099	LT3C			H2SO4 (ALE244)	UNL				
				500ml Plastic (ALE208)	UNL				
17274100	LT38			H2SO4 (ALE244)	UNL				
				500ml Plastic (ALE208)	UNL				



CERTIFICATE OF ANALYSIS

Validated

SDG: 180327-17
Location:

Client Reference:
Order Number: 6266

Report Number: 451536
Superseded Report:

Notification of NDPs (No determination possible)

Date Received : 27/03/2018 08:26:34

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
17274101	LT3A		Anions by Kone (w)	Sample unsuitable for analysis
17274100	LT3B		Anions by Kone (w)	Sample unsuitable for analysis
17274099	LT3C		Anions by Kone (w)	Sample unsuitable for analysis
17274097	LT4		Anions by Kone (w)	Sample unsuitable for analysis



CERTIFICATE OF ANALYSIS

Validated

SDG: 180327-17
Location:

Client Reference:
Order Number: 6266

Report Number: 451536
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM095	Standard Methods for the examination of waters and wastewaters 16th Edition, APHA, Washington DC, USA. ISBN 0-87553-131-8.	Preparation of Water Samples for Analysis
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES
TM235	The Determination of Hydrocarbon Oils in Waters by Solvent Extraction, Infra red Absorption and Gravimetry 1983, HMSO, London	Determination of Total Petroleum Hydrocarbons (TPH) in Waters By Infra-Red Spectroscopy
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 180327-17
Location:

Client Reference:
Order Number: 6266

Report Number: 451536
Superseded Report:

Test Completion Dates

Lab Sample No(s)	17274108	17274103	17274107	17274110	17274104	17274105	17274097	17274101	17274100	17274099
Customer Sample Ref.	103	118	124	106A	111A	BH3	LT4	LT3A	LT3B	LT3C
AGS Ref.										
Depth										
Type	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified
Alkalinity as CaCO ₃							29-Mar-2018	29-Mar-2018	29-Mar-2018	29-Mar-2018
Ammoniacal Nitrogen	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018
Anions by ion Chromatography	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	05-Apr-2018	29-Mar-2018	29-Mar-2018
BOD True Total							02-Apr-2018	02-Apr-2018	02-Apr-2018	02-Apr-2018
COD Unfiltered							01-Apr-2018	31-Mar-2018	01-Apr-2018	01-Apr-2018
Conductivity (at 20 deg.C)	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018
Dissolved Metals by ICP-MS							10-Apr-2018	10-Apr-2018	10-Apr-2018	10-Apr-2018
Mercury Dissolved		03-Apr-2018	03-Apr-2018			03-Apr-2018				
Mercury Unfiltered		05-Apr-2018	05-Apr-2018			05-Apr-2018				
Metals by iCap-OES Dissolved (W)							28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018
pH Value	29-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	29-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018
Phenols by HPLC (W)		28-Mar-2018	28-Mar-2018		28-Mar-2018	28-Mar-2018				
TPH by IR Oils and Greases		29-Mar-2018	29-Mar-2018		04-Apr-2018	04-Apr-2018				

Lab Sample No(s)	17274113	17274118	17274117	17274116	17274114	17274111
Customer Sample Ref.	S1	S2	S3	S4	102S	106S
AGS Ref.						
Depth						
Type	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified
Ammoniacal Nitrogen	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018
Anions by ion Chromatography	05-Apr-2018	05-Apr-2018	29-Mar-2018	29-Mar-2018	05-Apr-2018	29-Mar-2018
Conductivity (at 20 deg.C)	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018
Oil and Grease Visible	27-Mar-2018	27-Mar-2018	27-Mar-2018	27-Mar-2018		
pH Value	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018
Sulphide	28-Mar-2018	28-Mar-2018	28-Mar-2018	28-Mar-2018		
Suspended Solids	04-Apr-2018	04-Apr-2018	04-Apr-2018	04-Apr-2018		



CERTIFICATE OF ANALYSIS

SDG:	180327-17	Client Reference:		Report Number:	451536
Location:		Order Number:	6266	Superseded Report:	

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Astos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

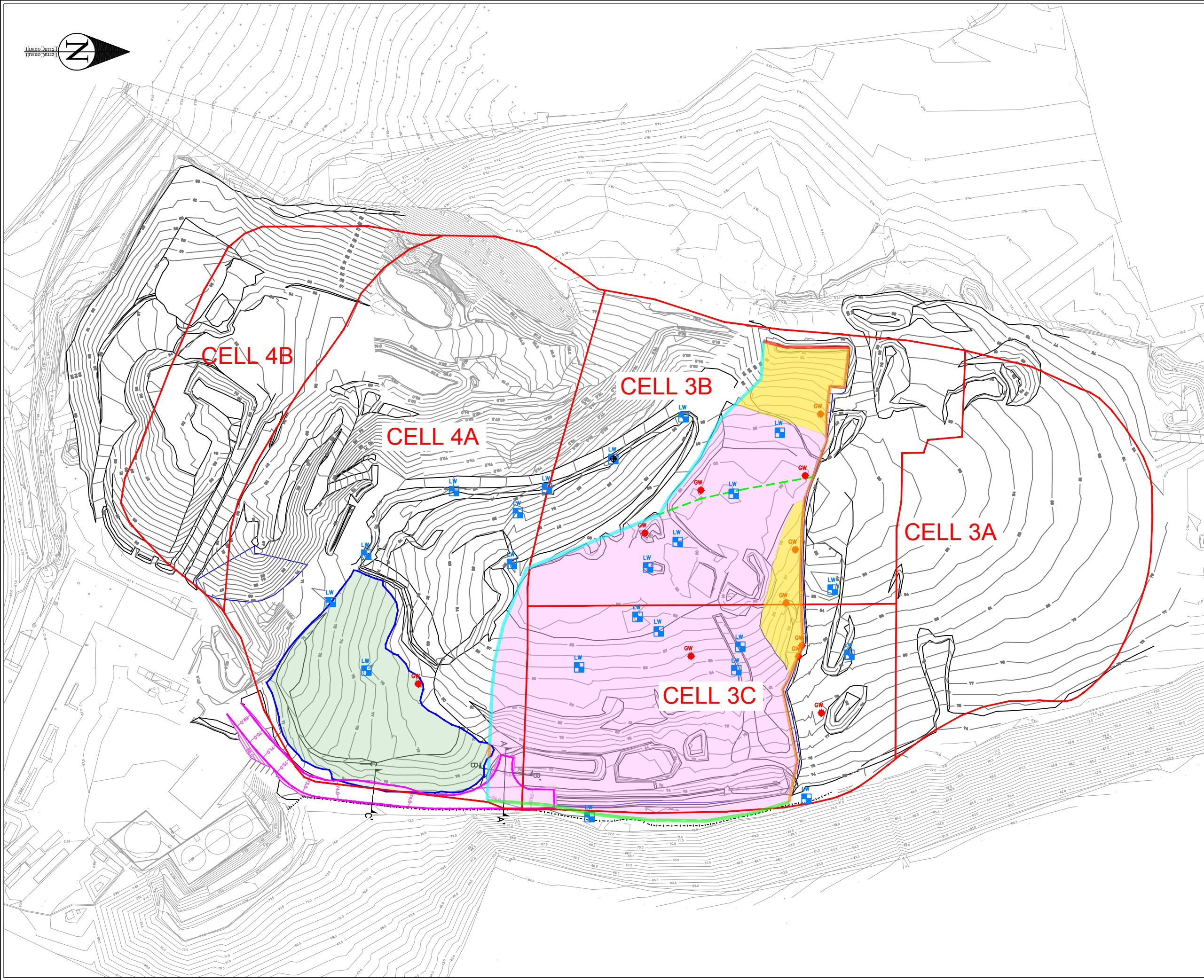
Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

APPENDIX 7

CAPPING DRAWING 2019

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- Notes:
1. Proposed access road to be removed to enable capping where necessary.
 2. Construction Details shown on Drawing 3635/11/002 & 004

- Key
- Proposed Access road
 - 2019 Proposed Capping Area (18,230 m³)
 - 2018 Temporary Capping Area
 - Gas Well
 - Leachate Well
 - Approximate location and extent for geocomposite drainage layer installation
 - Detail 1
 - Detail 2
 - Detail 3
 - Detail 4

TerraConsult

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

Client

Quercia Ltd

Site

Clayton Hall
Landfill

Title

2019 Permanent Cap Layout

Scale		1:1,500	@ A3
Drawing No.		3635/11/001	
Rev	Date	Description	
A	June 2019	Corrections	
File			
363511001CapLayoutREVA			
Date	05/19	Engineer	JW
Drawn	OS	Checked	JW

APPENDIX 2

Borehole Network

Table A2.1 Summary of Groundwater Monitoring Boreholes

Table A2.2 Summary of Leachate Monitoring and Extraction Wells

Table A2.3 Summary of Surface Water Monitoring Points

Borehole Logs

Table A2.1: Summary of Groundwater Monitoring Boreholes																		
Borehole	Piezometer / Alternative Reference	Sample Reference on Laboratory Reports	Borehole Log Available	Drill Date		Easting	Northing	Ground Level (mAOD)*	Drill Depth		Topsoil / Made Ground				Glaciofluvial Deposits / Till			
				Start	Finish				(mbgl)	(mAOD)	Top (mbgl)	Base (mbgl)	Top (mAOD)	Base (mAOD)	Top (mbgl)	Base (mbgl)	Top (mAOD)	Base (mAOD)
BH3	-	BH3	Yes	-	-	356934	422071	61.00	40.00	21.00	0.00	2.00	61.00	59.00	2.00	40.00	59.00	21.00
BH102	BH102S	102S	Yes	14/06/1999	17/06/1999	356873	422323	61.00	30.70	30.30	0.00	1.30	61.00	59.70	1.30	21.40	59.70	39.60
	BH102D	-																
BH103A	-	103	Yes	25/05/1999	25/05/1999	356681	422229.5	74.00	11.00	63.00	0.00	11.00	74.00	63.00	-	-	-	-
BH106A	-	106A	Yes	15/11/2010	17/11/2010	356698.9	421790.3	64.03	50.00	14.03	0.00	0.75	64.03	63.28	0.75	37.50	63.28	26.53
BH106	BH106S	106S	No	-	-	356675	421792	62.00	-	-	-	-	-	-	-	-	-	-
	BH106D	-																
BH111	-	111	Yes	23/12/2004	13/01/2005	356892.59	421964.84	74.00	40.00	34.00	0.00	1.20	74.00	72.80	0.00	38.00	74.00	36.00
BH111A	-	111A	Yes***	12/07/2013	16/07/2013	356887.72	421907.74	74.12	40.00	34.12	0.00	7.50	74.12	66.62	7.50	32.00	66.62	42.12
BH113	BH113D	113	Yes	17/11/2004	23/11/2004	356883.23	422253.52	61.4	30.70	30.70	0.00	1.20	61.40	60.20	1.20	26.00	60.20	35.40
BH118A	-	118 / 118A	Yes	12/01/2011	18/01/2011	356765.60	422277.40	77.98	68.50	9.48	0.00	17.50	77.98	60.48	17.50	58.50	60.48	19.48
BH124	-	124	Yes	25/11/2010	26/11/2010	356674.30	422176.5	78.74	70.00	8.74	0.00	19.00	78.74	59.74	19.00	60.00	59.74	18.74

Notes:

mbgl = m below ground level

mAOD = m Above Ordnance Datum

mbtc = m below top of casing

* Ground level from borehole logs or monitoring data (BH3, BH102, BH103A, BH106)

** Compliance limit specified in Table S3.4 in Environmental Permit (EPR/BV1364ID)

*** Installation only, depths of strata estimated from installation log

**** Installation assumed based on information included in 2019 HRAR (Figure 5 Conceptual Site Model)

***** Groundwater level monitoring data to June 2020, although uncertainty in June 2020 data. WA borehole survey suggests that monitoring data from June 2020 may be for the deep monitoring borehole BH106D installed within the Sherwood Sandstone

Table A2.1: Summary of Groundwater Monitoring Boreholes

Borehole	Sherwood Sandstone Group				Screen					Up-gradient / Down-gradient	Depth to Base 28/11/2024		Groundwater Level 28/11/2024		Compliance Limit**	Groundwater Level Monitoring Data	Groundwater Quality Monitoring Data
	Top (mbgl)	Base (mbgl)	Top (mAOD)	Base (mAOD)	Top (mbgl)	Base (mbgl)	Top (mAOD)	Base (mAOD)	Strata		(mbgl)	(mAOD)	(mbgl)	(mAOD)			
BH3	-	-	-	-	-	40.00	-	21.00	Glaciofluvial Deposits	-	5.27	55.73	2.04	58.96	Yes	Yes	Yes
BH102	21.40	30.70	39.60	30.30	3.00	10.70	58.00	50.30	Glaciofluvial Deposits	-	10.6	50.40	6.49	54.51	No	Yes	Yes
					24.00	30.40	37.00	30.60	Sherwood Sandstone	Down-gradient	28.86	32.14	20.79	40.21	No	Yes	Yes
BH103A	-	-	-	-	1.00	10.05	73.00	63.95	Made Ground	-	10.04	63.96	4.22	69.78	No	Yes	Yes
BH106A	37.50	50.00	26.53	14.03	40.00	50.00	24.03	14.03	Sherwood Sandstone	Up-gradient	23.68	40.35	2.95	61.08	No	Yes	Yes
BH106	-	-	-	-	-	-	-	-	Glaciofluvial Deposits****	-	-	-	-	-	No	Yes*****	Yes
					-	-	-	-	Sherwood Sandstone****	-	51.41	10.59	22.85	39.15	No	No	No
BH111	38.00	40.00	36.00	34.00	38.00	40.00	36.00	34.00	Sherwood Sandstone	-	-	-	-	-	Yes	No	No
BH111A	32.00	40.00	42.12	34.12	34.00	40.00	40.12	34.12	Sherwood Sandstone	Up-gradient	27.62	46.5	1.95	72.17	No	Yes	Yes
BH113	26.00	30.70	35.40	30.70	26.70	29.70	34.70	31.70	Sherwood Sandstone	Down-gradient	11.9	49.5	-	-	Yes	No	Yes
BH118A	58.50	68.50	19.48	9.48	59.50	68.50	18.48	9.48	Sherwood Sandstone	Down-gradient	68.80	9.18	30.75	47.23	Yes	Yes	Yes
BH124	60.00	70.00	18.74	8.74	61.00	70.00	17.74	8.74	Sherwood Sandstone	Down-gradient	-	-	-	-	Yes	Yes	Yes

Notes:

mbgl = m below ground level

mAOD = m Above Ordnance Datum

mbtc = m below top of casing

* Ground level from borehole logs or monitoring data (BH3, BH102, BH103A, BH106)

** Compliance limit specified in Table S3.4 in Environmental Permit (EPR/BV1364ID)

*** Installation only, depths of strata estimated from installation log

**** Installation assumed based on information included in 2019 HRAR (Figure 5 Conceptual Site Model)

***** Groundwater level monitoring data to June 2020, although uncertainty in June 2020 data. WA borehole survey suggests that monitoring data from June 2020 may be for the deep monitoring borehole BH106D installed within the Sherwood Sandstone

Table A2.2: Summary of Leachate Monitoring Points						
Leachate Monitoring Well	Alternative Reference	Cell	Easting	Northing	Leachte Level Monitoring Data	Leachate Quality Monitoring Data
L3A	-	Cell 3A	356791.8	422132.7	Yes	Yes
L3B	-	Cell 3B	356792.7	422064.3	Yes	Yes
L3C	-	Cell 3C	356819.7	422055.2	Yes	Yes
L4A	L4	Cell 4A	356775.4	421953.3	Yes	Yes
L4B	-	Cell 4B	-	-	-	-

Table A2.3: Summary of Surface Water Monitoring Points				
Surface Water Monitoring Point	Description	Easting	Northing	Surface Water Quality Data
SD1	Surface water discharge	356590.7	421848.5	Yes
S1	Surface water monitoring point	357104.9	422191.2	Yes
S2		356864.6	422511	Yes
S3		356783.9	421550.9	Yes
S4		356578.8	421828.6	Yes

CABLE PERCUSSION BORING DAILY REPORT (5-1-68)

GA8
(REV. 2/95)

SITE LOCATION: CLAYTON HALL BOREHOLE No 3

Initial diameter of borehole: _____ Depth of casing: 250mm to _____ 200mm to _____ 150mm to _____

STRATA RECORD

Depth at
start

TUBE SAMPLES

CLAY FILL

C/L

2-a

BOULDER CLAY-

3-50

SILTY SAND -
WITH CLAY BANDS. 6-0

6-a

40-0

Depth at
finish

REMARKS (including explanation of standing time and visits)

INSTALL PIPE AT BASE
OF HOLE.

WATER PIPE - GATE -

LOCATION OF DEEP BORE HOLE NO. 3
GATE / FOOTPATH / WATER PIPE.

TIME SPENT

Total (this sheet) hrs Boring hrs

Moving (including pulling casing from borehole)				hrs
---	--	--	--	-----

Chilling between (m) and hrs

Chiselling between (m) and hrs

Chiselling between (m) [] and [] hrs

Standing times (details in remarks)	(i) hrs	(ii) hrs	(iii) hrs
--	---------	----------	-----------

At what levels was water encountered ? _____

Did the level rise ? _____

If so, how much and how fast? _____

Was water added to assist boring ? _____

If so, at what depths ? _____

At what depths was water cut off by casing ? _____

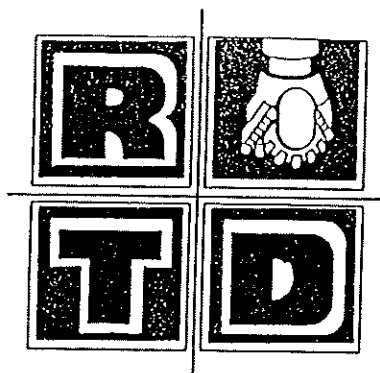
NOTE: If more than one water level is encountered give details of them all
Details of any standpipe/piezometer to be given on the reverse of this sheet

Type of rig PILCON 150

Ganger D. MARKLAND

Crew J. MARKLAND

Day Date BH No.



SITE INVESTIGATION

REPORT

BOREHOLE RECORD SHEETS
FOR DEEP MONITORING
WELLS AT
CLAYTON HALL
CHORLEY.

BOREHOLE RECORD SHEETS
FOR DEEP MONITORING
WELLS AT
CLAYTON HALL
CHORLEY.

ROTARY TEST DRILLING

Marshes Farm, Coach Road, off Wigan Road,
Hart Common, West Houghton, Bolton BL5 2BT
Tel: 01942 - 810348 Fax: 01942 - 840543

Site CLAYTON HALL

Client QUERCIA/NEALES

Date 09/06/99 - 12/06/99

O.D. Level

Job No.
167/99

Borehole

101

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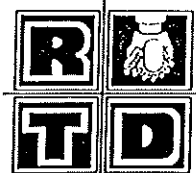
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
09			G.L.	Topsoil. (0.20)						
			0.20	MADE GROUND - Brown clay, stone, sand and ash. (1.00)						
			1.20	Brown SAND with occasional clay and gravel bands. (1.50)						
			2.70	Red / brown clayey silty SAND. (3.30)						
			6.00	Red / brown SAND. (2.00)						
09		8.00	8.00							

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
6.00	med	20	5.10					

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 8.5M
50MM MONITORING WELL INSTALLED TO 31.0M
10 - 8 - 6" CASINGS WITH 2.0M BENTONITE SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client QUERCIA/NEALES

Date 09/06/99 - 12/06/99

O.D. Level

Job No.
167/99

Borehole

101

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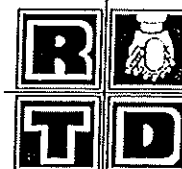
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
09		8.00	8.00	Red / brown SILTY SAND. (0.60)						
10			8.60	Firm brown SILTY CLAY with sand lenses. (1.70)						
			10.30	Stiff brown SANDY CLAY. (1.50)						
			11.80	Firm brown SILTY SANDY CLAY. (3.10)						
			14.90	Red brown clayey silty SAND. (11.10)						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry A - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 8.5M
50MM MONITORING WELL INSTALLED TO 31.0M
10 - 8 - 6" CASINGS WITH 2.0M BENTONITE SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client QUERCIA/NEALES

Date
09/06/99 - 12/06/99

O.D. Level

Job No.
167/99

Borehole
101
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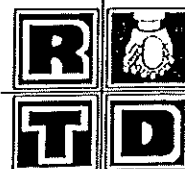
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Sample Type	Depth	'N' Value
			16.00	(Continued) Red brown clayey silty SAND. (11.10)						
10										
11		20.00								

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry X - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 8.5M
50MM MONITORING WELL INSTALLED TO 31.0M
10 - 8 - 6" CASINGS WITH 2.0M BENTONITE SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client QUERCIA/NEALES

Date 09/06/99 - 12/06/99

O.D. Level

Job No.
167/99

Borehole

101

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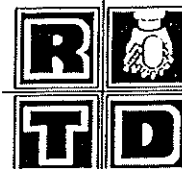
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
			24.00	(Continued) Red brown clayey silty SAND. (11.10)						
			26.00	Stiff brown laminated SILTY CLAY (2.00)						
11 12		28.00	28.00	Brown SILTY SAND. (3.60)						
12		31.00	31.60	Base of Borehole						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry A - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 8.5M
50MM MONITORING WELL INSTALLED TO 31.0M
10 - 8 - 6" CASINGS WITH 2.0M BENTONITE SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client QUERCIA / NEALES

Date 14/06/99 - 17/06/99

O.D. Level

Job No.
167/99

Borehole

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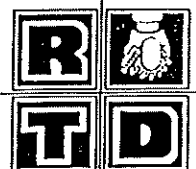
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Depth	'N' Value
14			G.L.	Soil, sand, clay and gravel. POSSIBLE MADE GROUND. (1.30)						
			1.30	Dense brown SAND AND GRAVEL. (2.40)						
			3.70	Dense brown SAND. (7.00)						
14										
15		6.00								

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
4.90								

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 30.40M.
50MM MONITORING WELL INSTALLED TO 10.70M.
10 - 8 - 6" CASING 2M BENTONITE SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client QUERCIA / NEALES

Date
14/06/99 - 17/06/99

O.D. Level

Job No.
167/99

Borehole

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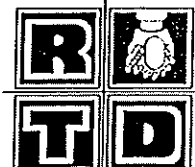
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Depth	'N' Value
			8.00	(Continued) Dense brown SAND. (7.00)						
			10.70	Stiff brown CLAY with occasional stone inclusions. (3.60)						
			14.30	Brown clayey silty fine SAND. (3.90)						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry A - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 30.40M.
50MM MONITORING WELL INSTALLED TO 10.70M.
10 - 8 - 6" CASING 2M BENTONITE SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client QUERCIA / NEALES

Date
14/06/99 - 17/06/99

O.D. Level

Job No.
167/99

Borehole

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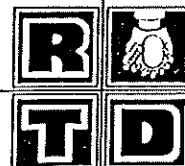
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Depth	'N' Value
			16.00	(Continued) Brown clayey silty fine SAND. (3.90)						
15		18.00	18.20	Stiff brown SANDY CLAY with occasional stone inclusions. (3.20)						
16			21.40	Red / brown SILTY SAND. (9.30)						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry X - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 30.40M.
50MM MONITORING WELL INSTALLED TO 10.70M.
10 - 8 - 6" CASING 2M BENTONITE SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Job No.
167/99

Client QUERCIA / NEALES

Borehole

102

Date
14/06/99 - 17/06/99

O.D. Level

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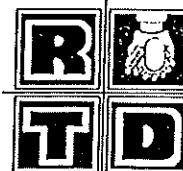
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Depth	'N' Value
			24.00	(Continued) Red / brown SILTY SAND. (9.30)						
16		28.00								
17		30.30	30.70	Base of Borehole						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry A - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 30.40M.
50MM MONITORING WELL INSTALLED TO 10.70M.
10 - 8 - 6" CASING 2M BENTONITE SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client QUERCIA / NEALES

Date
24/05/99 - 24/05/99

O.D. Level

Job No.
167/99

Borehole

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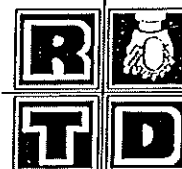
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Depth	'N' Value
21			G.L.	Topsoil. (0.30)						
			0.30	MADE GROUND - Brown sandy clay with stone, brick, ash, wood and concrete pieces. (4.20)						
			4.50	MADE GROUND - Compact paper, plastic, wood, bricks, metal and concrete. (4.50)						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
4.50	slow	20	4.20					

Remarks

EXCAVATE TO CLEAR SERVICES.
CHISEL CONCRETE AT 9.0 - 9.2M
NO PROGRESS AT 9.2M ABORT BOREHOLE.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client QUERCIA / NEALES

Date
24/05/99 - 24/05/99


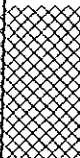
O.D. Level

Job No.
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Borehole

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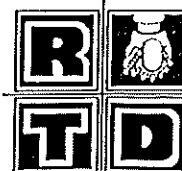
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Depth	'N' Value
21		9.20	8.00	(Continued) MADE GROUND - Compact paper, plastic, wood, bricks, metal and concrete. (4.50)						
			9.00							
			9.20	Reinforced concrete. (0.20) Base of Borehole						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry X - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
CHISEL CONCRETE AT 9.0 - 9.2M
NO PROGRESS AT 9.2M ABORT BOREHOLE.



Marshes Farm, Coach Road, off Wigan Road,
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Tel: 01942 - 810348 Fax: 01942 - 840543

Client EDGE

Date
25/05/99 - 25/05/99

O.D. Level

Job No. 167/99

Borehole

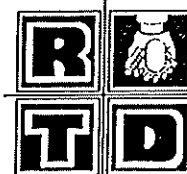
103A

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Symbols	U - undisturbed sample	J - jar sample	B - bulk sample	W - water sample
	N - Standard Penetration Test	Δ - Water entry	∇ - Water level	

Remarks

EXCAVATE TO CLEAR SERVICES
CHISEL OBSTRUCTION 1.5HR
BOREHOLE ABORTED AT 11.0M.
50MM MONITORING WELL INSTALLED TO 10.05M.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Job No.
167/99

Client EDGE



Borehole

Date
25/05/99 - 25/05/99

O.D. Level

103A

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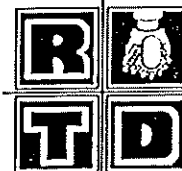
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
25		10.60	8.00	(Continued) MADE GROUND - Paper, plastic, wood, rubber and metal. (7.00)						
			11.00	Base of Borehole						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry A - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES
CHISEL OBSTRUCTION 1.5HR
BOREHOLE ABORTED AT 11.0M.
50MM MONITORING WELL INSTALLED TO 10.05M.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client EDGE

Date
26/05/99 - 01/06/99



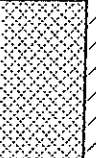


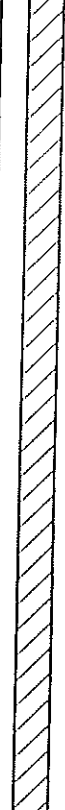



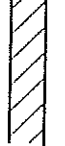
O.D. Level

Job No.
167/99

Borehole

103B

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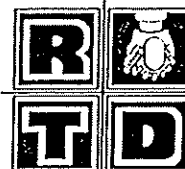
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Depth	'N' Value
26			G.L.	TOPSOIL. (0.20)						
			0.20	POSSIBLE MADE GROUND - Compact soil, clay, sand and stone. (1.10)						
			1.30	Stiff brown SANDY BOULDER CLAY. (5.40)						
26		5.00	6.70	Brown silty sandy CLAY with lenses of brown silty fine sand. (0.40)						
27			7.10	Red brown silty fine SAND.. (5.20)						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ⚡ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
7.10	v slow		6.90					

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 29.0M
10 - 8 - 6 CASINGS WITH 2.0M SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client EDGE

Date
26/05/99 - 01/06/99





O.D. Level

Job No.
167/99

Borehole

103B

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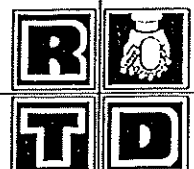
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Log-end	Inst.	Reduced Level	Sample Type	Depth	'N' Value
			8.00	(Continued) Red brown silty fine SAND.. (5.20)						
			12.30	Dense brown GRAVEL with boulders. (4.10)						
27 28		15.00								

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry A - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
12.30	med		11.00					

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 29.0M
10 - 8 - 6 CASINGS WITH 2.0M SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client EDGE

Date
26/05/99 - 01/06/99

O.D. Level

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167/99

Borehole

103B

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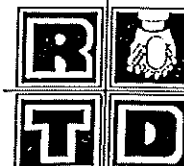
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
			16.00	(Continued) Dense brown GRAVEL with boulders. (4.10)						
			16.40	Firm brown SILTY CLAY with lenses of silty fine sand. (1.60)						
			18.00	Red brown clayey silty fine SAND with bands of silt. (4.60)						
			22.60	Stiff brown sandy BOULDER CLAY. (1.40)						
			24.00							

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry A - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 29.0M
10 - 8 - 6 CASINGS WITH 2.0M SEAL AT REDUCTION.



ROTARY TEST DRILLING

Marshes Farm, Coach Road, off Wigan Road,
Hart Common, West Houghton, Bolton BL5 2BT
Tel: 01942 - 810348 Fax: 01942 - 840543

Site CLAYTON HALL

Client EDGE

Date 26/05/99 - 01/06/99

O.D. Level

Job No.
167/99

Borehole
103B

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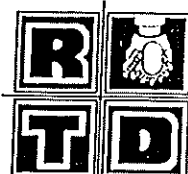
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Depth	'N' Value
28 01		25.00	24.00	Stiff brown laminated SILTY CLAY with lenses of brown silty fine sand. (1.70)	x					
			25.70	Red brown slightly clayey silty fine SAND. (6.10)	x					
01		31.60	31.80	Base of Borehole						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry X - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 29.0M
10 - 8 - 6 CASINGS WITH 2.0M SEAL AT REDUCTION.



ROTARY TEST DRILLING

Marshes Farm, Coach Road, off Wigan Road,
Hart Common, West Houghton, Bolton BL5 2BT
Tel: 01942 - 810348 Fax: 01942 - 840543

Site CLAYTON HALL

Client OUEIRA / NEALES

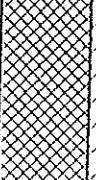

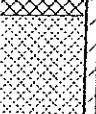

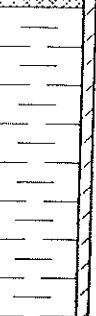






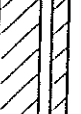




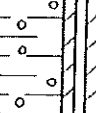







Date
11/05/99 - 17/05/99

O.D. Level

Job No.
167/99

Borehole
104

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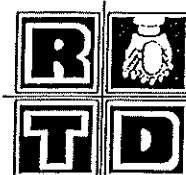
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
11			G.L.	MADE GROUND - Compact brick, stone, sand and ash. (1.30)				B1	0.50 - 1.00	
			1.30	POSSIBLE MADE GROUND - Soft grey clay with soil sand and stone. (0.70)				N2	1.10 - 1.55	16
			2.00	Brown CLAY with silty sand lenses. (2.10)				B3	2.00 - 2.50	
								N4	2.50 - 2.95	9
								B5	3.50 - 4.00	
			4.10	Medium dense Red Brown SILTY SAND. (1.90)				N6	4.00 - 4.45	14
								B7	5.00 - 5.50	
								N8	5.50 - 5.95	10
			6.00	Stiff brown stoney CLAY. (3.60)				N9	6.20 - 6.65	21
								B10	7.00 - 7.50	
								N11	7.40 - 7.95	25
								B12	8.00 - 8.50	

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry X - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 34.0M
50MM MONITORING WELL INSTALLED TO 12.0M.
10 - 8 - 6" CASINGS WITH 2M BENTONITE SEAL AT REDUCTION.



ROTARY TEST DRILLING

Marshes Farm, Coach Road, off Wigan Road,
Hart Common, West Houghton, Bolton BL5 2BT
Tel: 01942 - 810348 Fax: 01942 - 840543

Site CLAYTON HALL

Client QUERIA / NEALES

Date
11/05/99 - 17/05/99

O.D. Level

Job No.
167/99

Borehole
104

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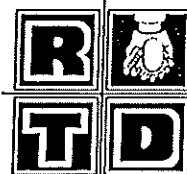
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg- end	Inst.	Reduced Level	Sample Type	Depth	'N' Value
			8.00	(Continued) Stiff brown stoney CLAY. (3.60)						
			9.60	Dense brown SAND AND GRAVEL. (1.00)				N13	9.00 - 9.45	27
11		9.60						N14	9.70 - 10.15	20
12								W15	8.00	
								W16	8.00	
								B17	10.00-10.50	
			10.60	Dense black / brown GRAVEL. (0.80)				N18	10.60-11.05	32
								B19	11.00-11.50	
			11.40	Stiff brown SANDY CLAY with stone inclusions. (1.90)				B20	11.50-12.00	
								N21	12.00-12.45	20
			13.30	Dense brown SAND AND GRAVEL. (2.70)				N22	13.50-13.95	24
								B23	14.50-15.00	
								N24	15.00-15.50	44
			16.00					B25	16.00-16.50	

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
9.60	v slow	20	9.30	9.10				

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 34.0M
50MM MONITORING WELL INSTALLED TO 12.0M.
10 - 8 - 6" CASINGS WITH 2M BENTONITE SEAL AT REDUCTION.



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Site CLAYTON HALL

Job No.
167/99

Client QUERIA / NEALES

Borehole

104

Date
11/05/99 - 17/05/99

O.D. Level

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Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
			16.00	Stiff brown CLAY with silty sand lenses. (7.10)				N26	16.50-16.95	20
								B27	17.50-18.00	
								N28	18.00-18.45	26
								B29	19.00-19.50	
12		19.00						N30	19.50-19.90	22
13								B31	20.50-21.00	
								N32	21.00-21.45	24
								B33	22.00-22.50	
								N34	22.50-22.95	28
			23.10	Red brown clayey silty fine SAND with clay bands. (0.40)				B35	23.50-24.00	
			23.50	Firm to stiff brown CLAY with sand lenses and bands. (6.50)				N36	24.00-24.45	28

Symbols

U - undisturbed sample

J - jar sample

B - bulk sample

W - water sample

N - Standard Penetration Test

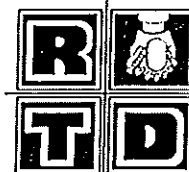
Δ - Water entry

▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 34.0M
50MM MONITORING WELL INSTALLED TO 12.0M.
10 - 8 - 6" CASINGS WITH 2M BENTONITE SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Job No.
167/99

Client QUERIA / NEALES

Borehole

Date
11/05/99 - 17/05/99

O.D. Level

104

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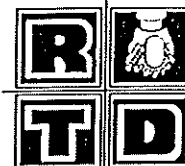
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
			24.00	(Continued) Firm to stiff brown CLAY with sand lenses and bands. (6.50)						
								B37	25.00-25.50	
								N38	25.50-25.95	29
								B39	26.50-27.00	
								N40	27.00-27.45	31
								B41	28.00-28.50	
								N42	28.50-28.95	35
								B43	29.50-30.00	
13		30.00	30.00	Stiff brown laminatyed Clay with lenses of brown sand. (3.70)				B44	30.50-31.00	
14								N45	31.50-31.95	29.0

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Z - Water entry A - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 34.0M
50MM MONITORING WELL INSTALLED TO 12.0M.
10 - 8 - 6" CASINGS WITH 2M BENTONITE SEAL AT REDUCTION.



ROTARY TEST DRILLING

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Site CLAYTON HALL

Client QUERIA / NEALES

Date 11/05/99 - 17/05/99

O.D. Level

Job No.
167/99

Borehole

104

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Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
17		37.20	32.00	(Continued) Stiff brown laminated clay with lenses of brown sand. (3.70)				B46	32.50-33.00	42
								N47	33.00-33.45	
			33.70	Dense red brown silty fine SAND. (3.80)				N48	34.00-34.45	47
								B49	35.00-36.00	54
								N50	36.00-36.45	
								B51	37.00-37.50	
			37.50	Base of Borehole						

Symbols

U - undisturbed sample

J - jar sample

B - bulk sample

W - water sample

N - Standard Penetration Test

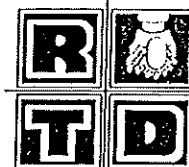
Δ - Water entry



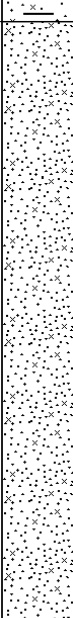

▲ - Water level

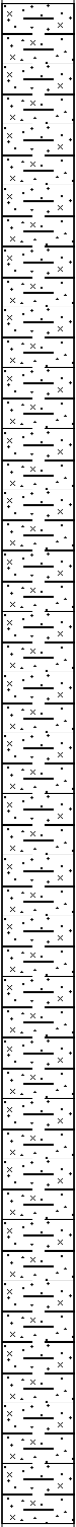
Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

EXCAVATE TO CLEAR SERVICES.
50MM MONITORING WELL INSTALLED TO 34.0M.
50MM MONITORING WELL INSTALLED TO 12.0M.
10 - 8 - 6" CASINGS WITH 2M BENTONITE SEAL AT REDUCTION.



THE ARLEY CONSULTING COMPANY LIMITED								Site Clayton Hall Landfill Site		Borehole Number 106A	
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 168mm cased to 38.00m			Ground Level (mOD) 64.03		Client Quercia Limited		Job Number 08469	
			Location 356698.9 E 421790.3 N			Dates 15/11/2010- 17/11/2010		Engineer DK		Sheet 1/5	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						63.28	(0.75)	Dark brown sandy silty clay with rootlets (TOPSOIL)			
							0.75	Firm dark brown sandy silty CLAY			
							(2.75)				
							3.50	Reddish brown silty f-m SAND with some clay lenses			
						60.53	(4.00)				
						56.53	7.50	Stiff reddish brown sandy silty CLAY with occasional gravel			
Remarks Borehole complete at 50 m									Scale (approx)	Logged By	
									1:50	JP	
									Figure No. 08469.106A		

THE ARLEY CONSULTING COMPANY LIMITED								Site Clayton Hall Landfill Site		Borehole Number 106A	
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 168mm cased to 38.00m			Ground Level (mOD) 64.03		Client Quercia Limited		Job Number 08469	
			Location 356698.9 E 421790.3 N			Dates 15/11/2010-17/11/2010		Engineer DK		Sheet 2/5	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
							(14.00)				
Remarks Borehole complete at 50 m									Scale (approx) 1:50	Logged By JP	
									Figure No. 08469.106A		

THE ARLEY CONSULTING COMPANY LIMITED								Site Clayton Hall Landfill Site		Borehole Number 106A			
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 168mm cased to 38.00m			Ground Level (mOD) 64.03		Client Quercia Limited		Job Number 08469			
			Location 356698.9 E 421790.3 N			Dates 15/11/2010- 17/11/2010		Engineer DK		Sheet 3/5			
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr		
								42.53	21.50			Grey subangular-subrounded f-c GRAVEL	
								42.03	22.00			Stiff reddish brown sandy silty CLAY with occasional gravel	
						39.03	25.00	Reddish brown silty f-m SAND with occasional clay lenses					
Remarks Borehole complete at 50 m									Scale (approx) 1:50	Logged By JP	Figure No. 08469.106A		

[illegible]

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356892.59 E
Project	Clayton Hall	Drilling Rig	Dando 250		421964.84 N
		Driller	GT	Ground Level	74.00m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	23/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	13/01/2005

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
23/12/2004	1730	12.65	12.65	NR	End of Shift	12.65	40.00	Air/Mist	100%	0.00*
10/01/2005	0730	12.65	12.65	NR	Start of Shift					
10/01/2005	1730	33.65	33.65	NR	End of Shift					
11/01/2005	0730	33.65	33.65	NR	Start of Shift					
11/01/2005	1730	36.65	36.65	NR	End of Shift					
13/01/2005	0730	36.65	36.65	NR	Start of Shift					
13/01/2005	1730	40.00	40.00	NR	End of Hole					




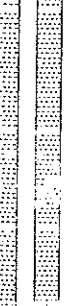
CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	40.00	120	40.00								

GENERAL NOTES		SPT DETAILS				
1. Odex drilling from GL to 40.00m. 2. 50mm diameter standpipe installed to 40.00m.		Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTES: All depths in metres, all diameters in millimetres,
water strike rise time in minutes.

Form	ARIAL ROTARY HEADER
Version	3.04
Revised	18/01/2005

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356892.59 E
Project	Clayton Hall	Drilling Rig	Dando 250		421964.84 N
		Driller	GT	Ground Level	74.00m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	23/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	13/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RDD	SPT N & depth	Installation
CLAY. (Driller's description)									
SAND and GRAVEL. (Driller's description)		8.00	66.00						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356892.59 E
Project	Clayton Hall	Drilling Rig	Dando 250		421964.84 N
		Driller	GT	Ground Level	74.00m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	23/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	13/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	ROD	SPT N & depth	Installation
CLAY. (Driller's description)		10.00	64.00						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openhole	Coordinates	356892.59 E
Project	Clayton Hall	Drilling Rig	Dando 250		421964.84 N
		Driller	GT	Ground Level	74.00m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
Consultant	Edge Consultants UK Ltd	Core barrel	ODEX	Date started	25/12/2004
		Core bit	ODEX	Date completed	15/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RCD	SPT N & depth	Installation
CLAY. (Driller's description)									
SAND and GRAVEL. (Driller's description)		21.00	53.00						
CLAY. (Driller's description)		23.00	51.00						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Contract No. 713706
Project Clayton Hall

Method	Rotary Open-holeing
Drilling Rig	Dando 250
Driller	GT
Logged by	GT
Core barrel	ODEX
Core bit	ODEX

Coordinates:	356892.59 E 421964.84 N
Ground Level:	74.00m AOD
Orientation:	Vertical
Date Started:	23/12/2004
Date Completed:	12/01/2005

Client	Google Limited
Consultant	Bridge Consultants UK Ltd

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	ROD	SPT N & depth	Installation
CLAY. (Driller's description)									
SAND. (Driller's description)		36.00	38.00						

Rotary drilling complete at 40.00 m.

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

SECRETARY LOG

Version 3.65

Revised 03/02/2004

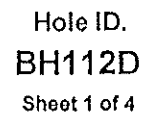
Contract No.	F13703	Method	Rotary Openholing	Coordinates	356897.54 E
Project	Clayton Hall	Drilling Rig	Dando 250		422080.16 N
		Driller	GT	Ground Level	72.47m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	14/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	19/01/2005

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
14/01/2005	1730	25.65	25.65	NR	End of Shift	0.00	40.00	Air/Mist	100%	0.00*
18/01/2005	0730	25.65	25.65	NR	Start of Shift					
18/01/2005	1730	40.00	40.00	NR	End of Hole					

CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	40.00	120	40.00								

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NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.



Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
		Logged by	GT	Orientation	Vertical
Client	Quercia Limited	Core barrel	ODEX	Date Started	14/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	19/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RCD	SPT N & depth	Installation
TOPSOIL. (Driller's description)		0.50							
SAND and GRAVEL. (Driller's description)		9.00							
CLAY. (Driller's description)									

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

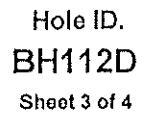
Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
		Logged by	GT	Orientation	Vertical
Client	Quercia Limited	Core barrel	ODEX	Date Started	14/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	19/01/2005

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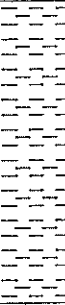
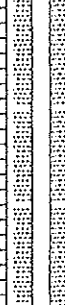




NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004



Form	ARIAL ROTARY LOG
Version	3.05
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	14/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	19/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RCD	SPT N & depth	Installation
CLAY. (Driller's description)									
Sandy CLAY. (Driller's description)		32.00							
SAND. (Driller's description)		36.00							

Rotary drilling complete at 40.00 m.

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356884.32 E
Project	Clayton Hall	Drilling Rig	Dando 250		422232.38 N
		Driller	GT	Ground Level	61.40m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	17/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	23/11/2004

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
17/11/2004	1730	30.70	30.70	NR	End of Shift	0.00	30.70	Air/Mist	100%	0.00*
23/11/2004	1730	30.70	30.70	NR	End of Hole					




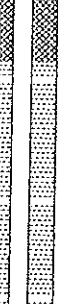
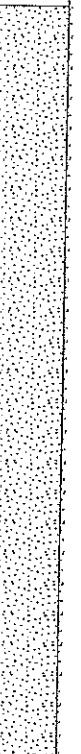

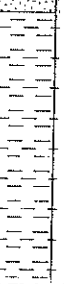
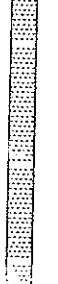
CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	30.70	120	30.70								

GENERAL NOTES	SPT DETAILS				
1. Odex drilling GL to 30.70m. 2. 50mm diameter standpipe installed to 29.70m.	Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form	ARIAL ROTARY HEADER
Version	3.04
Revised	19/01/2005

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356884.32 E
Project	Clayton Hall	Drilling Rig	Dando 250		422232.38 N
		Driller	GT	Ground Level	61.40m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	17/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	23/11/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
TOPSOIL. (Driller's description)									
CLAY. (Driller's description)		1.20	60.20						
SAND. (Driller's description)		3.20	58.20						
CLAY. (Driller's description)		8.20	53.20						

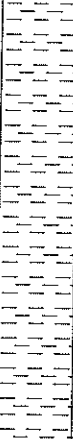

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form ARIAL ROTARY LOG

Version 3.05

Revised 03/02/2004

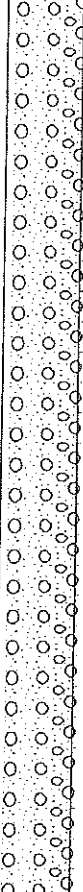
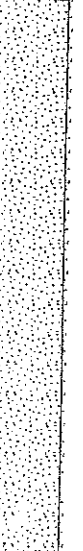

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356884.32 E
Project	Clayton Hall	Drilling Rig	Dando 250		422232.38 N
		Driller	GT	Ground Level	61.40m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	17/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	23/11/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
CLAY. (Driller's description)									
SAND and GRAVEL. (Driller's description)		13.00	48.40						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356884.32 E
Project	Clayton Hall	Drilling Rig	Dando 250		422232.38 N
		Driller	GT	Ground Level	61.40m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	17/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	23/11/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
SAND and GRAVEL. (Driller's description)									
SAND. (Driller's description)		26.00	35.40						
		29.70	31.70						

NOTES: All depths in metres, all diameters in millimetres
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

File	PIAL.PATENTLOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356884.32 E
Project	Clayton Hall	Drilling Rig	Dando 250		422232.38 N
		Driller	GT	Ground Level	61.40m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	17/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	23/11/2004

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NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ECHADT1100G
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356650.73 E
Project	Clayton Hall	Drilling Rig	Dando 250		422008.61 N
Client	Quercia Limited	Driller	GT	Ground Level	79.92m AOD
		Logged by	GT	Orientation	Vertical
Consultant	Edge Consultants UK Ltd	Core barrel	ODEX	Date Started	10/12/2004
		Core bit	ODEX	Date Completed	15/12/2004

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
10/12/2004	1730	13.20	13.20	NR	End of Shift	0.00	40.20	Air/Mist	100%	0.00*
13/12/2004	0730	13.20	13.20	NR	Start of Shift					
13/12/2004	1730	25.20	25.20	NR	End of Shift					
14/12/2004	0730	25.20	25.20	NR	Start of Shift					
14/12/2004	1730	37.20	37.20	NR	End of Shift					
15/12/2004	0730	37.20	37.20	NR	Start of Shift					
15/12/2004	1730	40.20	40.20	NR	End of Hole					

CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	40.20	120	40.20								

GENERAL NOTES	
1. Odex drilling from GL to 40.20m. 2. 50mm diameter standpipe installed to 40.20m.	

SPT DETAILS				
Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTES: All depths in metres, all diameters in millimetres,
water strike rise time in minutes.

Form	ARIAL ROTARY HEADER
Version	3.04
Revised	19/01/2005



Norwest Holst Soil Engineering Ltd.

BOREHOLE LOG - ROTARY

Hole ID.
BH115
Sheet 1 of 5




Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	10/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	15/12/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
MADE GROUND: Landfill waste. (Driller's description)									

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	10/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	15/12/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
MADE GROUND: Landfill waste. (Driller's description)									
CLAY. (Driller's description)		16.00							
SAND and GRAVEL. (Driller's description)		18.00							

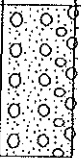


NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form ARIAL ROTARY LOG

Version 3.06

Revised 03/02/2034


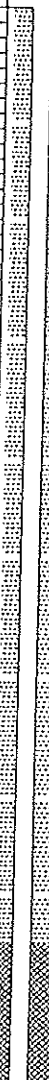


Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	10/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	15/12/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
SAND and GRAVEL. (Driller's description)		21.00							
CLAY. (Driller's description)									
Sandy CLAY. (Driller's description)		28.00							

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	10/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	15/12/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD		SPT N & depth	Installation
Sandy CLAY. (Driller's description)										
SAND. (Driller's description)		37.20								

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356666.80 E
Project	Clayton Hall	Drilling Rig	Dando 250		422142.96 N
		Driller	GT	Ground Level	78.94m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	16/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	16/12/2004

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
16/12/2004	1730	11.50	11.50	NR	End of Hole	0.00	11.50	Air/Mist	100%	0.00"

CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	11.50	120	11.50								

GENERAL NOTES					SPT DETAILS				
1. Borehole grouted upon completion.					Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form: ARIAL ROTARY HEADER
Version: 3.04
Revised: 19/01/2005



Norwest Holst Soil Engineering Ltd.

BOREHOLE LOG - ROTARY

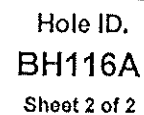
Hole ID.
BH116A
Sheet 1 of 2

Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	16/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	16/12/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD		SPT N & depth	Installation
TOPSOIL. (Driller's description)										
MADE GROUND: Clay. (Driller's description)		1.20								
MADE GROUND: Landfill waste.		8.00								

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004



Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	16/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	16/12/2004

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356663.34 E
Project	Clayton Hall	Drilling Rig	Dando 250		422145.02 N
		Driller	GT	Ground Level	78.87m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	17/02/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	17/02/2004

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
17/02/2004	1730	10.50	10.50	NR	End of Hole	0.00	10.50	Air/Mist	100%	0.00"




CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	10.50	120	10.50								

GENERAL NOTES					SPT DETAILS				
1. Borehole grouted upon completion.					Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form	ARIAL ROTARY HEADER
Version	3.04
Revised	19/01/2005

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356663.34 E
Project	Clayton Hall	Drilling Rig	Dando 250		422145.02 N
		Driller	GT	Ground Level	78.87m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	17/02/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	17/02/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RCD	SPT N & depth	Installation
TOPSOIL. (Driller's description)									
MADE GROUND: Clay. (Driller's description)		0.50	78.37						
MADE GROUND: Landfill waste. (Driller's description)		4.20	74.67						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356663.34 E
Project	Clayton Hall	Drilling Rig	Dando 250		422145.02 N
		Driller	GT	Ground Level	78.87m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	17/02/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	17/02/2004

[illegible]

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356658.42 E
Project	Clayton Hall	Drilling Rig	Dando 250		422147.27 N
		Driller	GT	Ground Level	78.32m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	18/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	18/12/2004

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
18/12/2004	1330	10.20	10.20	NR	End of Hole	0.00	10.20	Air/Mist	100%	0.00"




CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	10.20	120	10.20								

GENERAL NOTES	SPT DETAILS				
1. Borehole grouted upon completion.	Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form	BS 5938:1999
Version	3.04
Revised	19/01/2005



Contract No.	F13703	Method	Rotary Openholing	Coordinates	356658.42 E
Project	Clayton Hall	Drilling Rig	Dando 250		422147.27 N
		Driller	GT	Ground Level	78.32m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	18/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	18/12/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	ROD	SPT N & depth	Installation
TOPSOIL. (Driller's description)		0.20	78.12						
MADE GROUND: Clay. (Driller's description)									
MADE GROUND: Landfill waste. (Driller's description)		6.20	72.12						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress, and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	1.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356658.42 E
Project	Clayton Hall	Drilling Rig	Dando 250		422147.27 N
		Driller	GT	Ground Level	78.32m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	18/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	18/12/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RCD	SPT N & depth	Installation
MADE GROUND: Landfill waste. (Driller's description) Rotary drilling complete at 10.20 m.		10.20	68.12						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form: ARIAL ROTARY LOG
Version: 3.06
Revised: 03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356691.55 E
Project	Clayton Hall	Drilling Rig	Dando 250		422276.81 N
		Driller	GT	Ground Level	75.68m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	24/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	25/11/2004

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
24/11/2004	1730	10.20	10.20	NR	End of Shift	0.00	11.70	Air/Mist	100%	0.00*
25/11/2004	0730	10.20	10.20	NR	Start of Shift					
25/11/2004	1730	11.70	11.70	NR	End of Hole					

CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	11.70	120	11.70								

GENERAL NOTES	SPT DETAILS				
1. Borehole grouted upon completion.	Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form	ARIAL ROTARY HEADER
Version	3.04
Revised	19/01/2005

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356691.55 E
Project	Clayton Hall	Drilling Rig	Dando 250		422276.81 N
		Driller	GT	Ground Level	75.68m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	24/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	25/11/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
MADE GROUND: Landfill waste. (Driller's description)									

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356691.55 E
Project	Clayton Hall	Drilling Rig	Dando 250		422276.81 N
		Driller	GT	Ground Level	75.68m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	24/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	25/11/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	ROD		SPT N & depth	Installation
MADE GROUND: Landfill waste. (Driller's description)										
Rotary drilling complete at 11.70 m.		11.70	63.98							

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3 06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356687.21 E
Project	Clayton Hall	Drilling Rig	Dando 250		422279.40 N
		Driller	GT	Ground Level	75.59m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	25/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	25/11/2004

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
25/11/2004	1730	7.20	7.20	NR	End of Hole	0.00	7.20	Air/Mist	100%	0.00*


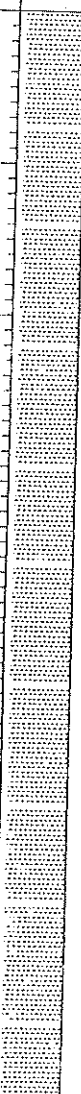
CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	7.20	120	7.20								

GENERAL NOTES	SPT DETAILS				
1. Borehole grouted upon completion.	Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form	ARIAL ROTARY BOREHOLE
Version	3.04
Revised	19/01/2005

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356687.21 E
Project	Clayton Hall	Drilling Rig	Dando 250		422279.40 N
		Driller	GT	Ground Level	75.59m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
Consultant	Edge Consultants UK Ltd	Core barrel	ODEX	Date Started	25/11/2004
		Core bit	ODEX	Date Completed	25/11/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	ROC	SPT N & depth	Installation
MADE GROUND: Landfill waste. (Driller's description)									
Rotary drilling complete at 7.20 m.		7.20	68.39						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	1.0
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356784.59 E
Project	Clayton Hall	Drilling Rig	Dando 250		422362.72 N
		Driller	GT	Ground Level	75.79m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	26/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	01/12/2004

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
26/11/2004	1730	27.20	27.20	18.40	End of Shift	0.00	56.60	Air/Mist	100%	0.00*
29/11/2004	0730	27.20	27.20	20.40	Start of Shift					
29/11/2004	1730	42.20	42.20	20.10	End of Shift					
30/11/2004	0730	42.20	42.20	21.10	Start of Shift					
30/11/2004	1730	54.20	54.20	18.40	End of Shift					
01/12/2004	0730	54.20	54.20	NR	Start of Shift					
01/12/2004	1730	56.60	56.60	NR	End of Hole					

CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	56.60	120	56.60								

GENERAL NOTES	SPT DETAILS				
1. Borehole grouted upon completion.	Depth	Type	Incremental blow count/penetration	Casing	Water Depth



NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form ARIAL ROTARY HEADER

Version 3.04

Revised 19/01/2005

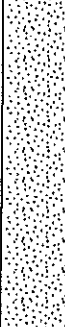

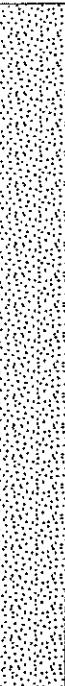
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Project	Clayton Hall	Drilling Rig	Dando 250	Ground Level	-
		Driller	GT	Orientation	Vertical
Client	Quercia Limited	Logged by	GT	Date Started	26/11/2004
Consultant	Edge Consultants UK Ltd	Core barrel	ODEX	Date Completed	01/12/2004
		Core bit	ODEX		

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RCD	SPT N & depth	Installation
MADE GROUND: Clay. (Driller's description)									
SAND. (Driller's description)		3.20							

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

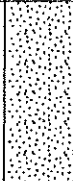
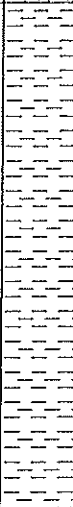

Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250	Ground Level	-
		Driller	GT	Orientation	Vertical
Client	Quercia Limited	Logged by	GT	Date Started	26/11/2004
Consultant	Edge Consultants UK Ltd	Core barrel	ODEX	Date Completed	01/12/2004
		Core bit	ODEX		

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
SAND. (Driller's description)									
CLAY. (Driller's description)		12.20							
SAND. (Driller's description)		15.40							

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250	Ground Level	-
		Driller	GT	Orientation	Vertical
Client	Quercia Limited	Logged by	GT	Date Started	26/11/2004
		Core barrel	ODEX	Date Completed	01/12/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX		

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
SAND. (Driller's description)									
CLAY. (Driller's description)		21.20							
Stiff CLAY. (Driller's description)		24.60							

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

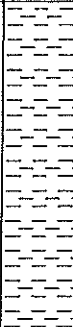

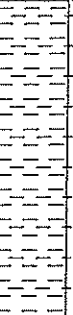
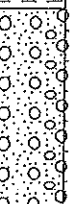
Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	26/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	01/12/2004

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NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

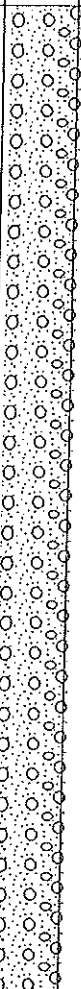
Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	26/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	01/12/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RCD	SPT N & depth	Installation
Stiff CLAY. (Driller's description)									
SAND. (Driller's description)		42.20							
CLAY. (Driller's description)		46.40							
SAND and GRAVEL. (Driller's description)		48.60							

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	-
Project	Clayton Hall	Drilling Rig	Dando 250		-
		Driller	GT	Ground Level	-
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	26/11/2004
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	01/12/2004

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
SAND and GRAVEL. (Driller's description)									
Rotary drilling complete at 56.60 m.		56.60							

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.05
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356750.91 E
Project	Clayton Hall	Drilling Rig	Dando 250		422363.26 N
		Driller	GT	Ground Level	77.30m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	20/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	20/01/2005

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
20/01/2005	1730	7.65	7.65	NR	End of Hole	0.00	7.65	Air/Mist	NR	0.00*


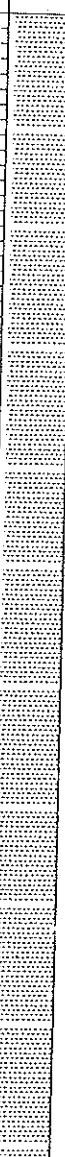
CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	7.65	120	7.65								

GENERAL NOTES					SPT DETAILS				
1. Borehole grouted upon completion.					Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form	ARIAL ROTARY HEADER
Version	3.1.
Revised	19/01/2005

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356750.91 E
Project	Clayton Hall	Drilling Rig	Dando 250		422363.26 N
		Driller	GT	Ground Level	77.30m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	20/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	20/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCC	RCD		SPT N & depth	Installation
MADE GROUND: Landfill. (Driller's description)										
Rotary drilling complete at 7.65 m.		7.65	69.65							

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ARIAL ROTARY LOG
Version	3.06
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356763.79 E
Project	Clayton Hall	Drilling Rig	Dando 250		422366.93 N
		Driller	GT	Ground Level	76.68m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	21/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	21/01/2005

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
21/01/2005	1730	11.65	11.65	NR	End of Hole	0.00	11.65	Air/Mist	100%	0.00"


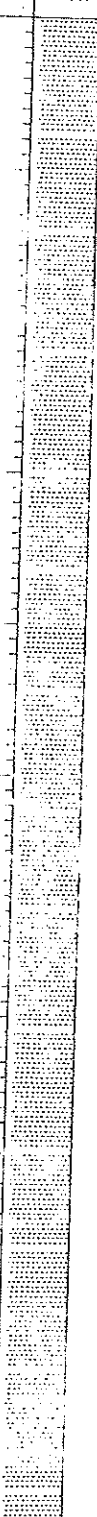
CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	11.65	120	11.65								

GENERAL NOTES	SPT DETAILS				
1. Borehole grouted upon completion.	Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form	ARIAL ROTARY HEADLOG
Version	3.04
Revised	19/01/2005

Contract No.	F13703	Method	Rotary Openhole	Coordinates	356763.79 E
Project	Clayton Hall	Drilling Rig	Dando 250		422366.93 N
		Driller	GT	Ground Level	76.68m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	21/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	21/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	ROD	SPT N & depth	Installation
MADE GROUND: Landfill materials. (Driller's description)									

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form ARINC REPORT LOG
Version 3.76
Revised 03/07/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356785.36 E
Project	Clayton Hall	Drilling Rig	Dando 250		422366.93 N
		Driller	GT	Ground Level	75.50m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	21/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	21/01/2005

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
21/01/2005	1830	6.65	6.65	NR	End of Hole	0.00	6.65	Air/Mist	NR	0.00*


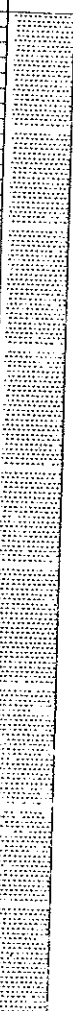
CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	6.65	120	6.65								

GENERAL NOTES		SPT DETAILS				
1. Borehole grouted upon completion.		Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form	ARIAL ROTARY HEADER
Version	3.04
Revised	19/01/2005

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356785.36 E
Project	Clayton Hall	Drilling Rig	Dando 250		422366.93 N
		Driller	GT	Ground Level	75.50m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	21/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	21/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
MADE GROUND: Landfill materials. (Driller's description)									
Rotary drilling complete at 6.65 m.		6.65	68.85						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	AR/1 ROTARY LOG
Version	3.05
Revised	03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356788.64 E
Project	Clayton Hall	Drilling Rig	Dando 250		422360.26 N
		Driller	GT	Ground Level	75.44m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	21/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	25/01/2005

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
21/01/2005	1730	6.65	6.65	NR	End of Shift	0.00	28.65	Air/Mist	100%	0.00"
24/01/2005	0730	6.65	6.65	NR	Start of Shift					
24/01/2005	1730	27.65	27.65	NR	End of Shift					
25/01/2005	0730	27.65	27.65	NR	Start of Shift					
25/01/2005	1730	28.65	28.65	NR	End of Hole					

CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	28.65	120	28.65								

GENERAL NOTES					SPT DETAILS				
1. Borehole grouted upon completion.					Depth	Type	Incremental blow count/penetration		Casing
									Water Depth

NOTES: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form: ARIAL ROTARY HEADER
Version: 3.04
Revised: 19/01/2005


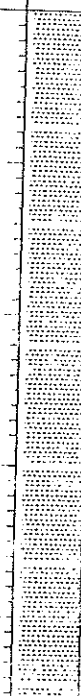
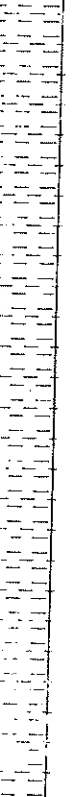

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356788.64 E
Project	Clayton Hall	Drilling Rig	Dando 250		422360.26 N
		Driller	GT	Ground Level	75.44m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
Consultant	Edge Consultants UK Ltd	Core barrel	ODEX	Date Started	21/01/2005
		Core bit	ODEX	Date Completed	25/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	ROD	SPT N & depth	Installation
MADE GROUND: Clay. (Driller's description)									
MADE GROUND: Landfill waste. (Driller's description)		3.65	71.79						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form	ANAL ROTARY LOG
Version	3.01
Revised	03/02/2004

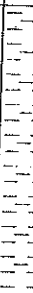

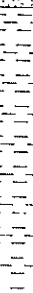
Contract No.	F13703	Method	Rotary Openholing	Coordinates	356788.64 E
Project	Clayton Hall	Drilling Rig	Dando 250		422360.26 N
		Driller	GT	Ground Level	75.44m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	21/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	25/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
MADE GROUND: Landfill waste. (Driller's description)									
CLAY (Driller's description)		14.55	60.79						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form: ARIAL ROTARY LOG
Version: 1.05
Revised: 03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356788.64 E
Project	Clayton Hall	Drilling Rig	Dando 250		422360.26 N
		Driller	GT	Ground Level	75.44m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	21/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	25/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
CLAY. (Driller's description)									
SAND. (Driller's description)		22.00	53.44						
CLAY. (Driller's description)		24.00	51.44						
Rotary drilling complete at 28.65 m.		28.65	46.79						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form AR/M. ROTARY LOG
Version 3.05
Revised 03/02/2001


Contract No.	F13703	Method	Rotary Openholing	Coordinates	356789.10 E
Project	Clayton Hall	Drilling Rig	Dando 250		422330.75 N
		Driller	GT	Ground Level	75.18m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	26/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	26/01/2005

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
26/01/2005	1730	7.50	7.50	NR	End of Hole	0.00	7.50	Air/Mist	100%	0.00"

CASING				WATER STRIKES							
Hole diam.	Max depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	7.50	120	7.50								

GENERAL NOTES				SPT DETAILS				
1. Borehole grouted upon completion.				Depth	Type	Incremental blow count/penetration	Casing	Water depth

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356789.10 E
Project	Clayton Hall	Drilling Rig	Dando 250		422330.75 N
		Driller	GT	Ground Level	75.18m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	26/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	26/01/2005

Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RQD	SPT N & depth	Installation
MADE GROUND: Landfill waste. (Driller's description)									
Rotary drilling complete at 7.50 m.		7.50	67.68						

NOTES: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.

Form ARIAL ROTARY LOG
Version 1.06
Revised 03/02/2004

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356789.51 E
Project	Clayton Hall	Drilling Rig	Dando 250		422365.76 N
		Driller	GT	Ground Level	74.98m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
		Core barrel	ODEX	Date Started	26/01/2005
Consultant	Edge Consultants UK Ltd	Core bit	ODEX	Date Completed	26/01/2005

PROGRESS						BORING DETAILS				
Date	Time	Hole depth	Casing depth	Water depth	Remarks	From depth	To depth	Flush type	Flush return	Core diameter
26/01/2005	1730	7.50	7.50	NR	End of Hole	0.00	7.50	Air/Mist	100%	0.00"


CASING				WATER STRIKES							
Hole diam.	Max. depth of hole at dia.	Casing diameter	Max depth of casing of dia.	Date	Time	Strike at depth	Rise to depth	Time taken to rise	Flow	Casing depth at strike time	Casing depth to seal flow
120	7.50	120	7.50								

GENERAL NOTES				SPT DETAILS				
1. Borehole grouted upon completion				Depth	Type	Incremental blow count/penetration	Casing	Water Depth

NOTE: All depths in metres, all diameters in millimetres, water strike rise time in minutes.

Form: ARIA ROTARY HEADER
 Version: 3.04
 Revised: 19/01/2005

Contract No.	F13703	Method	Rotary Openholing	Coordinates	356789.51 E
Project	Clayton Hall	Drilling Rig	Dando 250		422365.76 N
		Driller	GT	Ground Level	74.98m AOD
Client	Quercia Limited	Logged by	GT	Orientation	Vertical
Consultant	Edge Consultants UK Ltd	Core barrel	ODEX	Date Started	26/01/2005
		Core bit	ODEX	Date Completed	26/01/2005

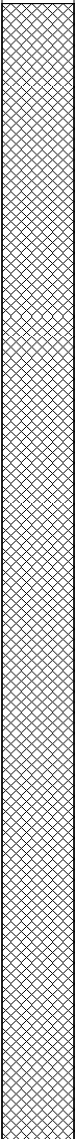
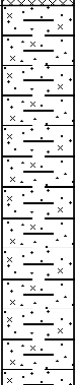
Description of Strata	Legend	Drilled Length	Datum Level	Coring and Sampling	TCR	SCR	RCD	SPT N & depth	Installation
MADE GROUND: Landfill waste. (Driller's description)									
Rotary drilling complete at 7.50 m.		7.50	67.48						

NOTE: All depths in metres, all diameters in millimetres.
See header sheet for details of drilling, progress and water strikes. See legend sheet for key to symbols.


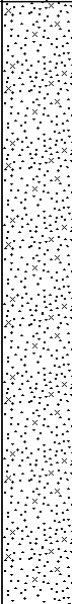
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Version: 3.02
Revised: 03/02/2004

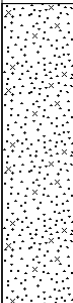
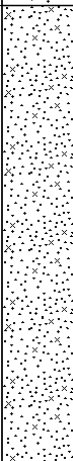
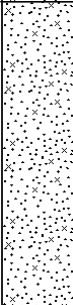
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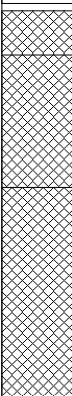


THE ARLEY CONSULTING COMPANY LIMITED							Site Clayton Hall Landfill Site			Borehole Number 118A		
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 194mm cased to 27.00m 132mm cased to 50.00m 110mm cased to 58.50m			Ground Level (mOD) 77.98		Client Quercia Limited			Job Number 08469	
			Location 356765.6 E 422277.4 N			Dates 12/01/2011- 18/01/2011		Engineer DK			Sheet 1/7	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr	
						75.98		Reddish brown clay and sand with brick and concrete fragments (MADE GROUND)				
							(2.00)					
							2.00	Dark brown silty clay and reddish brown sand (MADE GROUND)				
							(6.00)					
						69.98	8.00	Dark grey contaminated clay with rubber and timber fragments (MADE GROUND)				
Remarks									Scale (approx) 1:50	Logged By JP		
									Figure No. 08469.118A			

THE ARLEY CONSULTING COMPANY LIMITED								Site Clayton Hall Landfill Site		Borehole Number 118A	
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 194mm cased to 27.00m 132mm cased to 50.00m 110mm cased to 58.50m			Ground Level (mOD) 77.98		Client Quercia Limited		Job Number 08469	
			Location 356765.6 E 422277.4 N			Dates 12/01/2011- 18/01/2011		Engineer DK		Sheet 2/7	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						60.48	(9.50)				
							(4.50)				
Stiff dark brown sandy silty CLAY with occasional gravel											
Remarks									Scale (approx) 1:50	Logged By JP	
									Figure No. 08469.118A		

THE ARLEY CONSULTING COMPANY LIMITED								Site Clayton Hall Landfill Site		Borehole Number 118A	
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 194mm cased to 27.00m 132mm cased to 50.00m 110mm cased to 58.50m			Ground Level (mOD) 77.98		Client Quercia Limited		Job Number 08469	
			Location 356765.6 E 422277.4 N			Dates 12/01/2011- 18/01/2011		Engineer DK		Sheet 3/7	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						55.98	22.00	Reddish brown silty f-m SAND			
							(8.00)				
Remarks									Scale (approx) 1:50	Logged By JP	
									Figure No. 08469.118A		

THE ARLEY CONSULTING COMPANY LIMITED							Site Clayton Hall Landfill Site			Borehole Number 118A		
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 194mm cased to 27.00m 132mm cased to 50.00m 110mm cased to 58.50m			Ground Level (mOD) 77.98		Client Quercia Limited			Job Number 08469	
			Location 356765.6 E 422277.4 N			Dates 12/01/2011- 18/01/2011		Engineer DK			Sheet 4/7	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr	
						47.98	30.00	Stiff dark brown sandy silty CLAY with occasional gravel				
							(6.00)					
						41.98	36.00	Reddish brown silty f-m SAND				
							(6.00)					
Remarks									Scale (approx) 1:50	Logged By JP		
									Figure No. 08469.118A			

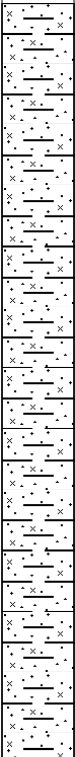
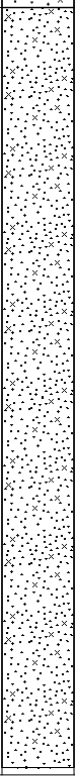
THE ARLEY CONSULTING COMPANY LIMITED							Site Clayton Hall Landfill Site			Borehole Number 118A		
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 194mm cased to 27.00m 132mm cased to 50.00m 110mm cased to 58.50m			Ground Level (mOD) 77.98		Client Quercia Limited			Job Number 08469	
			Location 356765.6 E 422277.4 N			Dates 12/01/2011- 18/01/2011		Engineer DK			Sheet 5/7	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr	
						35.98		Stiff dark brown sandy silty CLAY with occasional gravel				
							42.00					
						32.98	45.00	Reddish brown silty f-m SAND				
							(3.00)					
						29.98	48.00	Reddish brown silty f-m SAND with some gravel				
Remarks									Scale (approx) 1:50	Logged By JP		
									Figure No. 08469.118A			

THE ARLEY CONSULTING COMPANY LIMITED						Site Clayton Hall Landfill Site				Borehole Number 118A								
Installation Type Single Installation			Dimensions			Client Quercia Limited				Job Number 08469								
			Location 356765.6 E 422277.4 N		Ground Level (mOD) 77.98		Engineer DK			Sheet 1/1								
Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling												
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)			
											5 min	10 min	15 min	20 min				
						Groundwater Observations During Drilling												
						Date	Start of Shift					End of Shift						
							Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)		
Instrument Groundwater Observations																		
Inst. [A] Type :																		
Date	Instrument [A]			Remarks														
	Time	Depth (m)	Level (mOD)															

THE ARLEY CONSULTING COMPANY LIMITED								Site Clayton Hall Landfill Site		Borehole Number 124	
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 194mm cased to 28.50m 141mm cased to 58.50m			Ground Level (mOD) 78.74		Client Quercia Limited		Job Number 08469	
			Location 356674.3 E 422176.5 N			Dates 25/11/2010- 26/11/2010		Engineer DK		Sheet 1/7	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
								Reddish brown silty clay with sand lenses and brick and concrete fragments (MADE GROUND)			
							(5.50)				
						73.24	5.50	Dark grey contaminated clay with fragments of timber and plastic (MADE GROUND)			
							(2.50)				
						70.74	8.00	Black contaminated clay with timber and brick fragments (MADE GROUND)			
Remarks Borehole complete at 70 m									Scale (approx) 1:50	Logged By JP	
									Figure No. 08469.124		

THE ARLEY CONSULTING COMPANY LIMITED								Site Clayton Hall Landfill Site			Borehole Number 124	
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 194mm cased to 28.50m 141mm cased to 58.50m			Ground Level (mOD) 78.74		Client Quercia Limited			Job Number 08469	
			Location 356674.3 E 422176.5 N			Dates 25/11/2010- 26/11/2010		Engineer DK			Sheet 2/7	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr	
							<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div>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THE ARLEY CONSULTING COMPANY LIMITED								Site Clayton Hall Landfill Site		Borehole Number 124	
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 194mm cased to 28.50m 141mm cased to 58.50m			Ground Level (mOD) 78.74		Client Quercia Limited		Job Number 08469	
			Location 356674.3 E 422176.5 N			Dates 25/11/2010- 26/11/2010		Engineer DK		Sheet 3/7	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
							(3.80)				
						55.94	22.80	Reddish brown silty f-m SAND with lenses of clay			
							(2.20)				
						53.74	25.00	Stiff dark brown sandy silty CLAY with occasional gravel			
Remarks Borehole complete at 70 m									Scale (approx) 1:50	Logged By JP	Figure No. 08469.124

THE ARLEY CONSULTING COMPANY LIMITED								Site Clayton Hall Landfill Site		Borehole Number 124	
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 194mm cased to 28.50m 141mm cased to 58.50m			Ground Level (mOD) 78.74		Client Quercia Limited		Job Number 08469	
			Location 356674.3 E 422176.5 N			Dates 25/11/2010- 26/11/2010		Engineer DK		Sheet 5/7	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						33.74					
							45.00	Reddish brown silty f-m SAND			
							(8.00)				
Remarks Borehole complete at 70 m									Scale (approx)	Logged By	
									1:50	JP	
									Figure No. 08469.124		

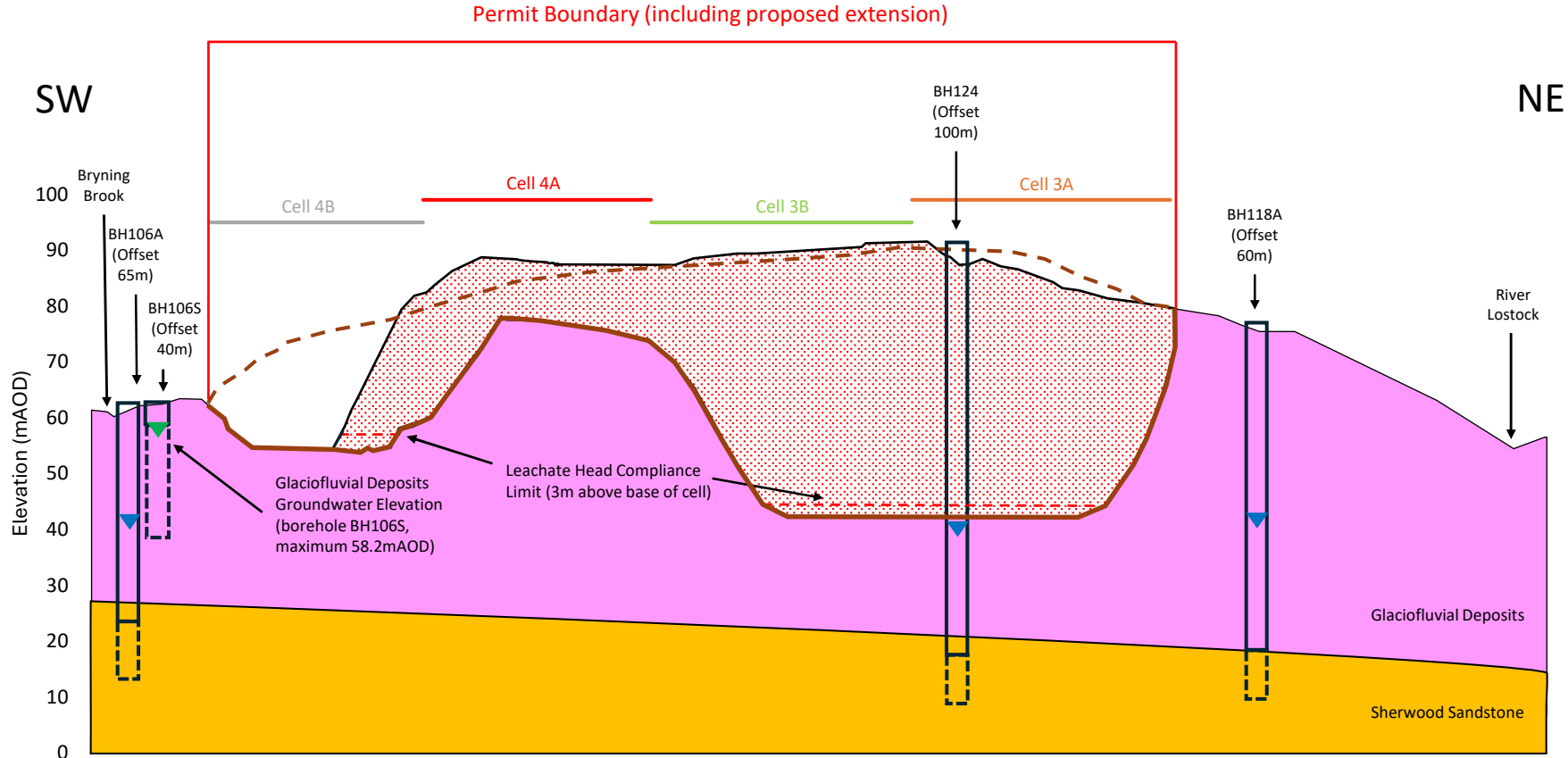
THE ARLEY CONSULTING COMPANY LIMITED								Site Clayton Hall Landfill Site		Borehole Number 124	
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 194mm cased to 28.50m 141mm cased to 58.50m			Ground Level (mOD) 78.74		Client Quercia Limited		Job Number 08469	
			Location 356674.3 E 422176.5 N			Dates 25/11/2010- 26/11/2010		Engineer DK		Sheet 6/7	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						25.74	53.00	Reddish brown silty f-m SAND with some gravel			
							(2.00)				
					Water strike(1) at 55.00m.	23.74	55.00	Grey, black, white and reddish brown subangular to subrounded f-c GRAVEL of sandstonr, siltstone and quartzite		▽1	
							(5.00)				
Remarks Borehole complete at 70 m									Scale (approx)	Logged By	
									1:50	JP	
									Figure No. 08469.124		

THE ARLEY CONSULTING COMPANY LIMITED							Site Clayton Hall Landfill Site			Borehole Number 124		
Machine : Comacchio MC 450p Flush : Air Core Dia: 194 mm Method : Rotary Drilling			Casing Diameter 194mm cased to 28.50m 141mm cased to 58.50m			Ground Level (mOD) 78.74		Client Quercia Limited			Job Number 08469	
			Location 356674.3 E 422176.5 N			Dates 25/11/2010- 26/11/2010		Engineer DK			Sheet 7/7	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr	
						18.74	60.00	Moderately weak reddish brown medium grained SANDSTONE (Sherwood Sandstone)				
							(10.00)					
						8.74	70.00					
Remarks Borehole complete at 70 m									Scale (approx)		Logged By	
									1:50		JP	
									Figure No. 08469.124			

THE ARLEY CONSULTING COMPANY LIMITED						Site Clayton Hall Landfill Site				Borehole Number 124										
Installation Type Single Installation			Dimensions			Client Quercia Limited				Job Number 08469										
			Location 356674.3 E 422176.5 N		Ground Level (mOD) 78.74		Engineer DK				Sheet 1/1									
Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling														
					Topfill	Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)					
											5 min	10 min	15 min	20 min						
						26/11/10		55.00	55.00											
						Groundwater Observations During Drilling														
						Date	Start of Shift					End of Shift								
							Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)				
						Instrument Groundwater Observations														
						Inst. [A] Type :														
						Date	Instrument [A]			Remarks										
							Time	Depth (m)	Level (mOD)											
									23.74	55.00	Bentonite Seal									
									17.74	61.00	Slotted Standpipe									
									8.74	70.00										
						Remarks														

Appendix 3

Schematic Hydrogeological Cross Section



KEY:

Fill

Landfill Waste

Superficial geology

Glaciofluvial Deposits

Bedrock geology

Sherwood Sandstone

Proposed Top of Waste



Formation Elevation

Maximum Groundwater Elevation (Sherwood Sandstone)

Offset location of a Groundwater Monitoring Borehole

Leachate Head Compliance Limit

Note: Screened section of borehole BH106S is inferred from Figure 5 of 2019 HRA.

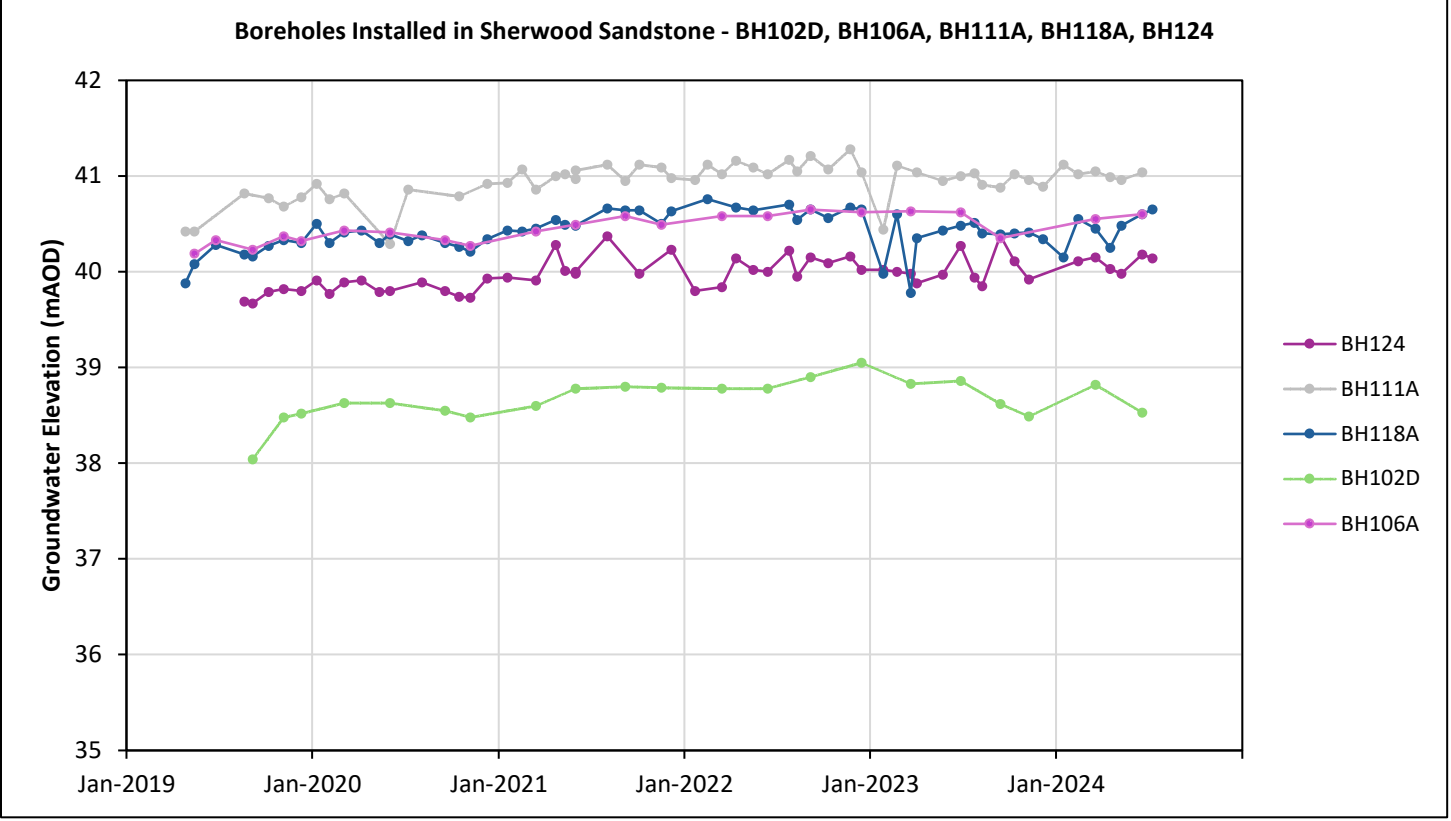
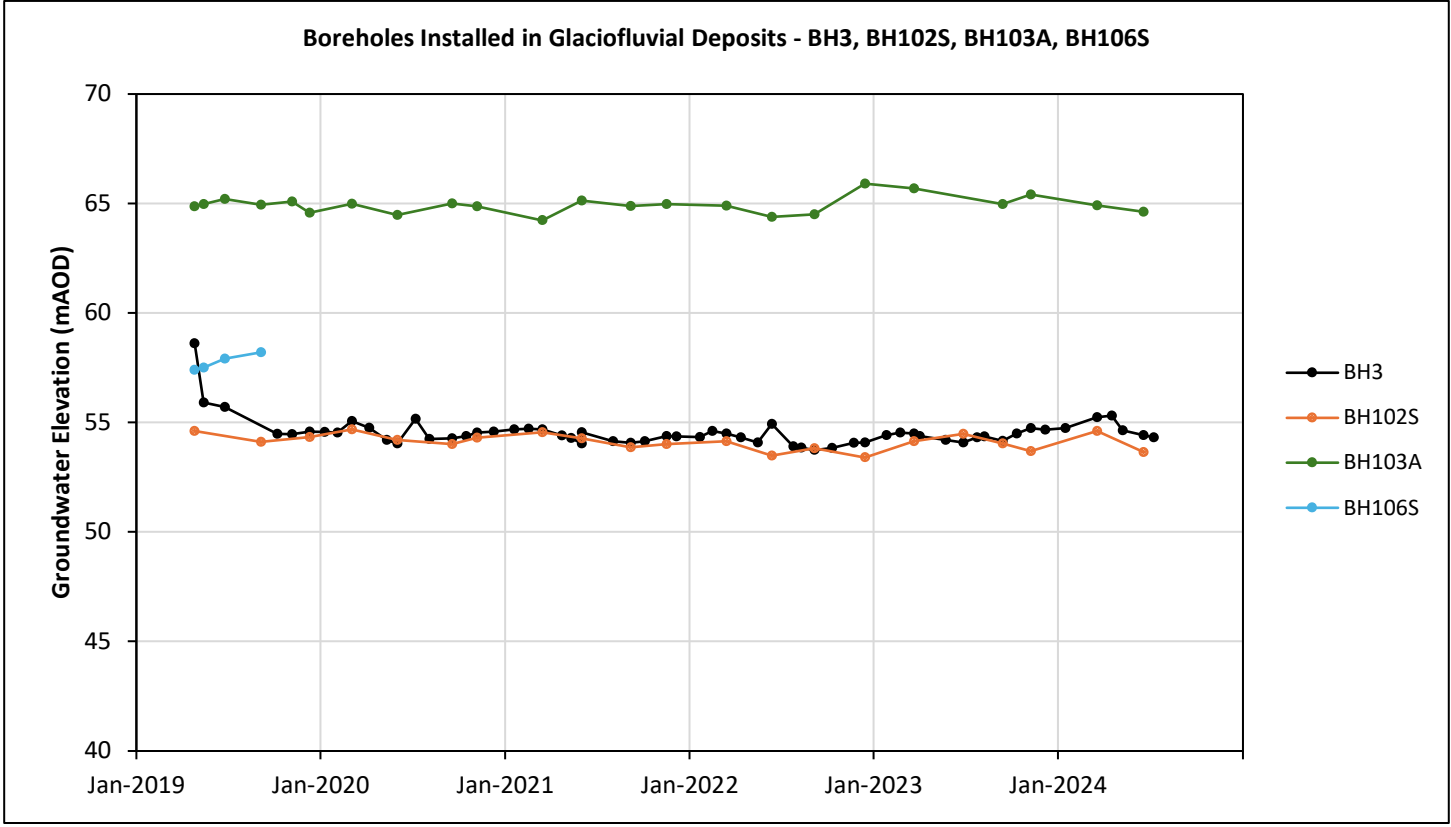
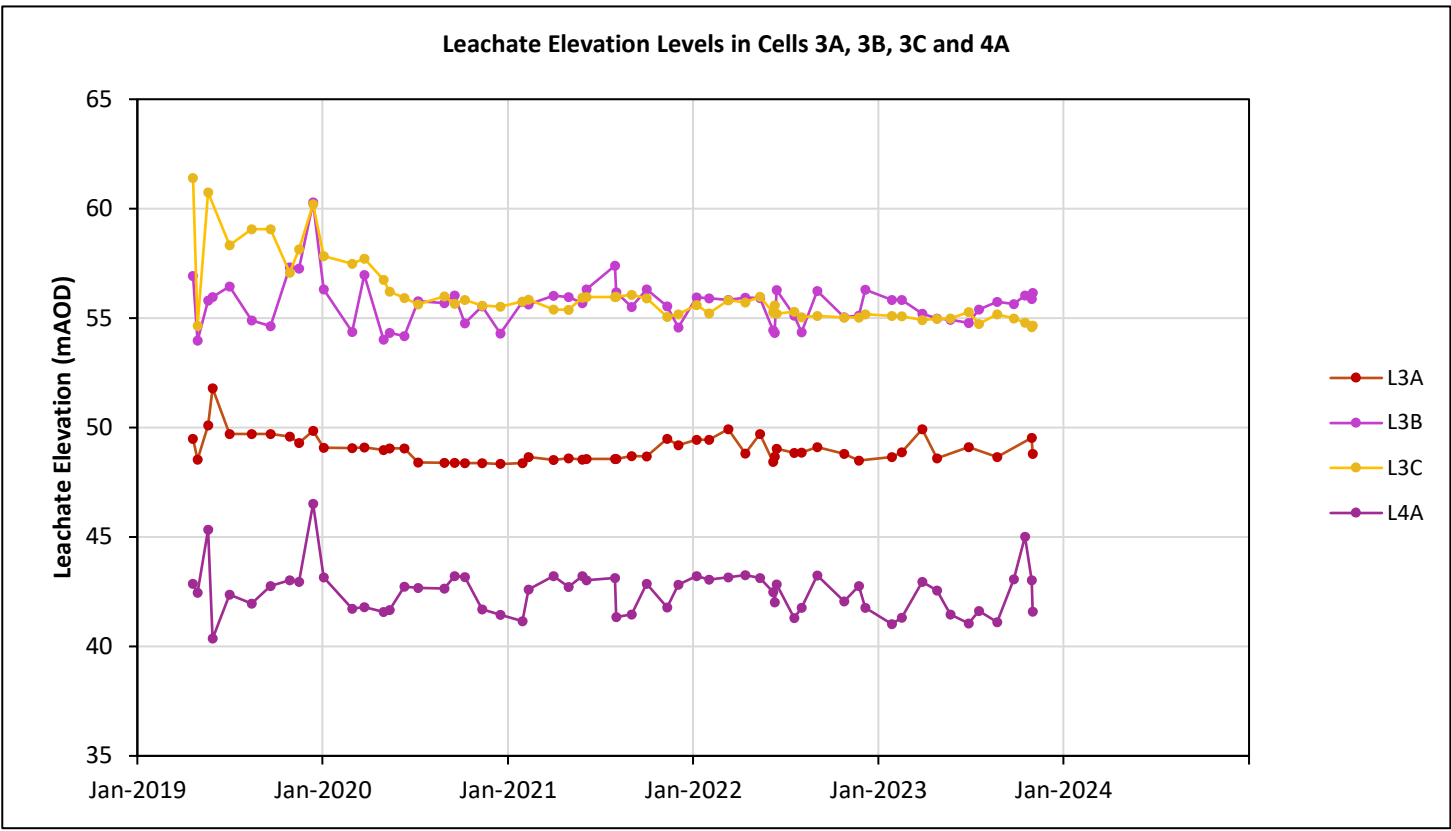
 			
CLIENT	Quercia Limited		
PROJECT	Clayton Hall Landfill		
FIGURE TITLE	Schematic Hydrogeological Cross Section		
FIGURE NO.	DRAWN BY	APPROVED BY	DATE
A3.1	EB	AS	Dec 2024

APPENDIX 4

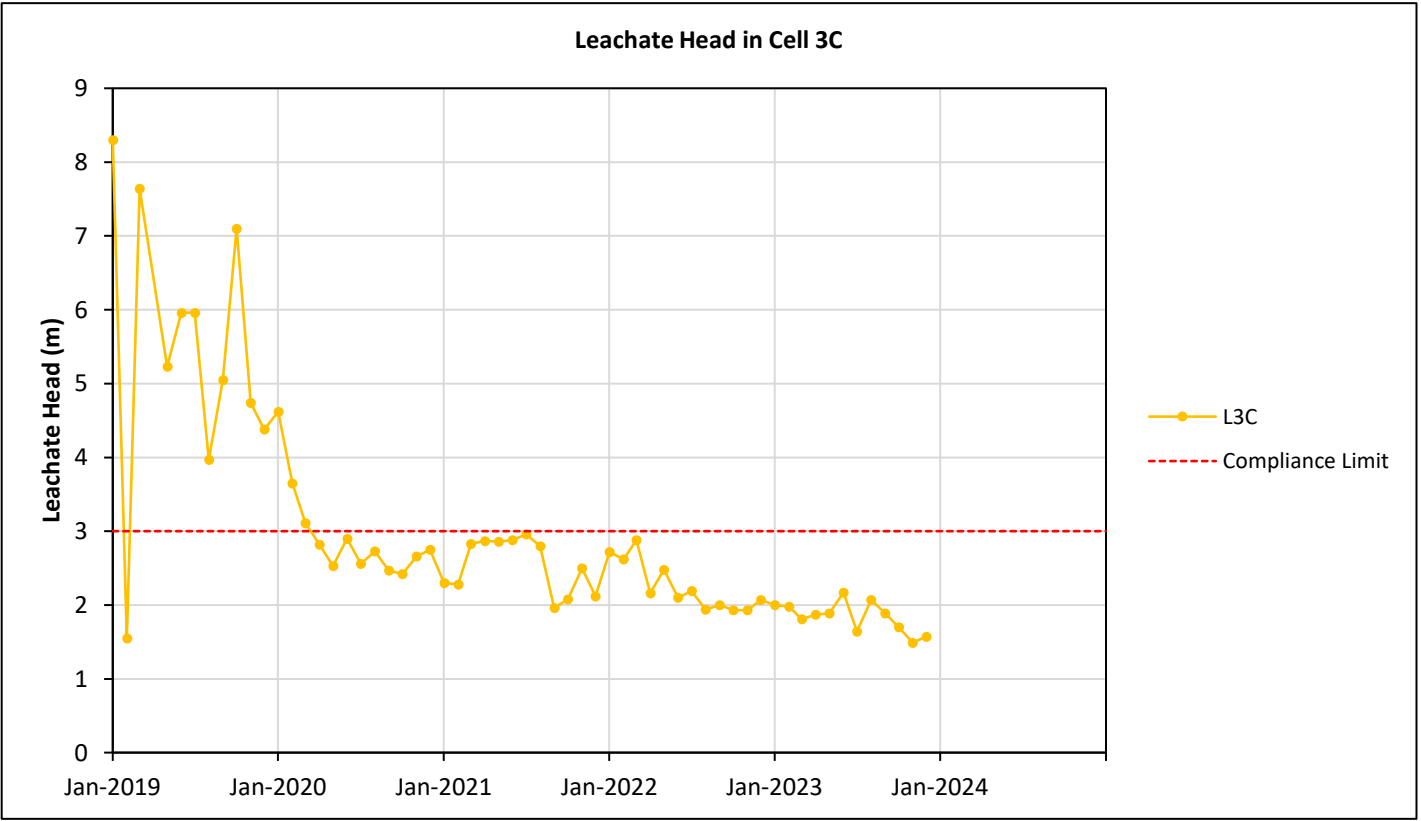
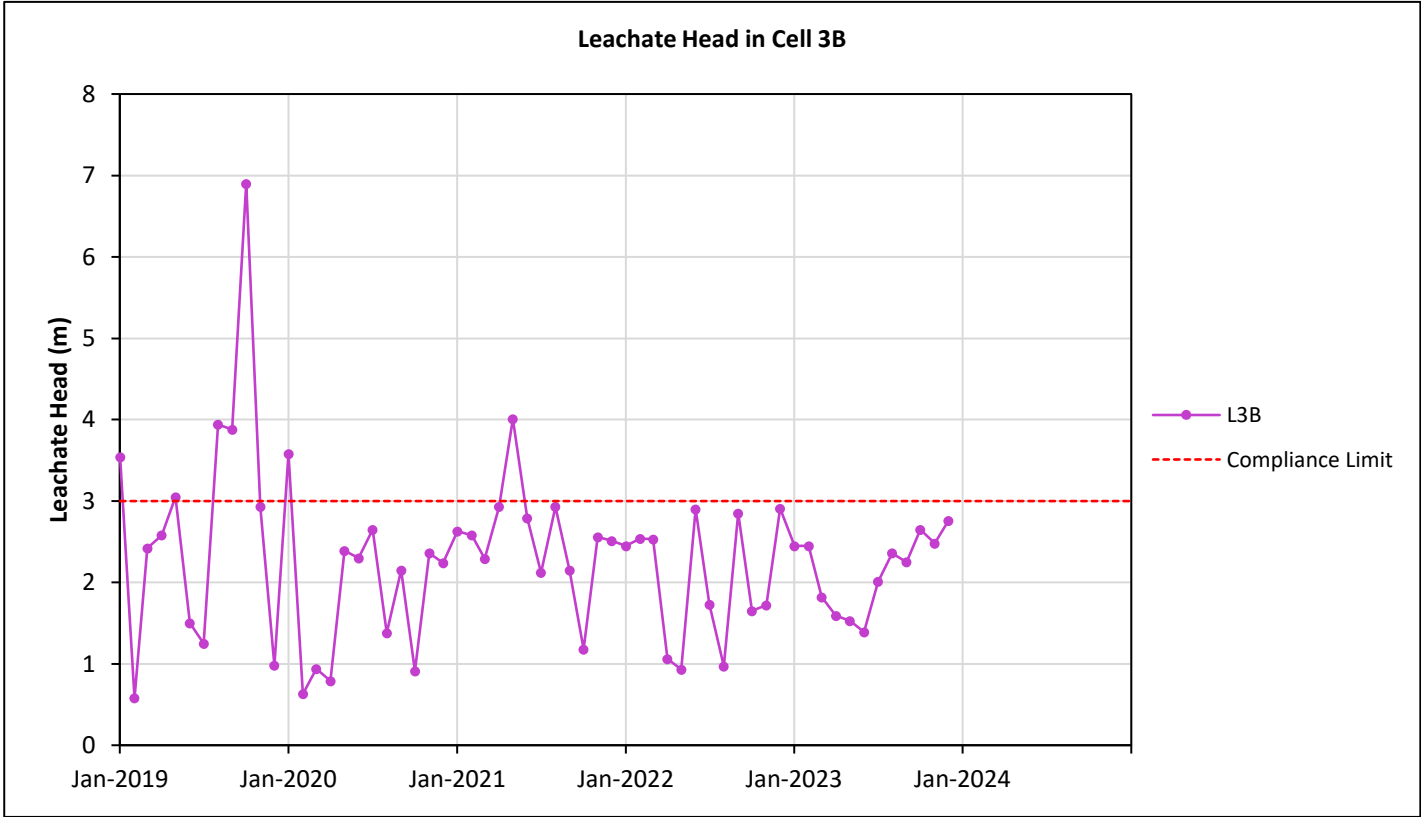
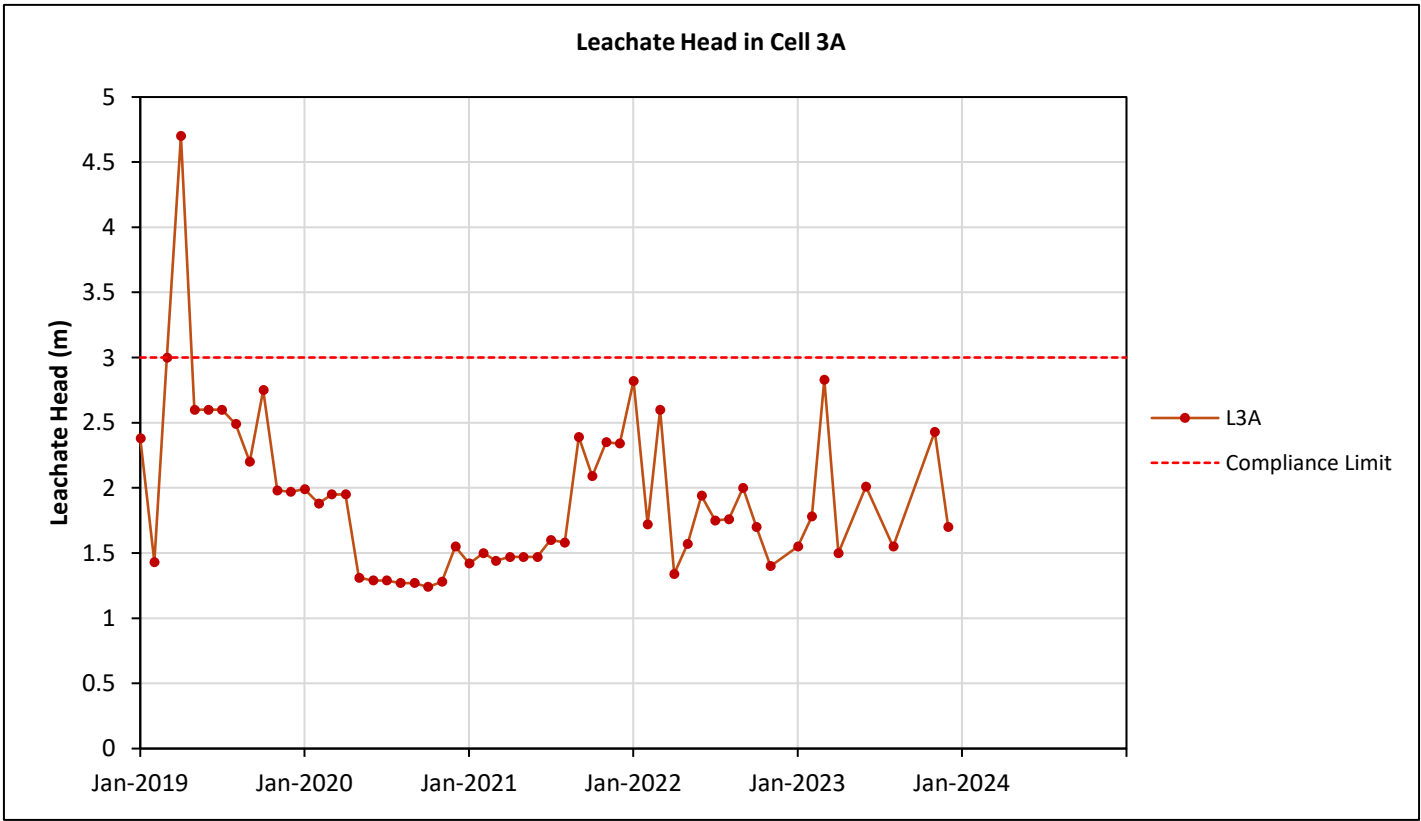
Groundwater and Leachate Elevations



Figure A4.1 Leachate and Groundwater Elevations

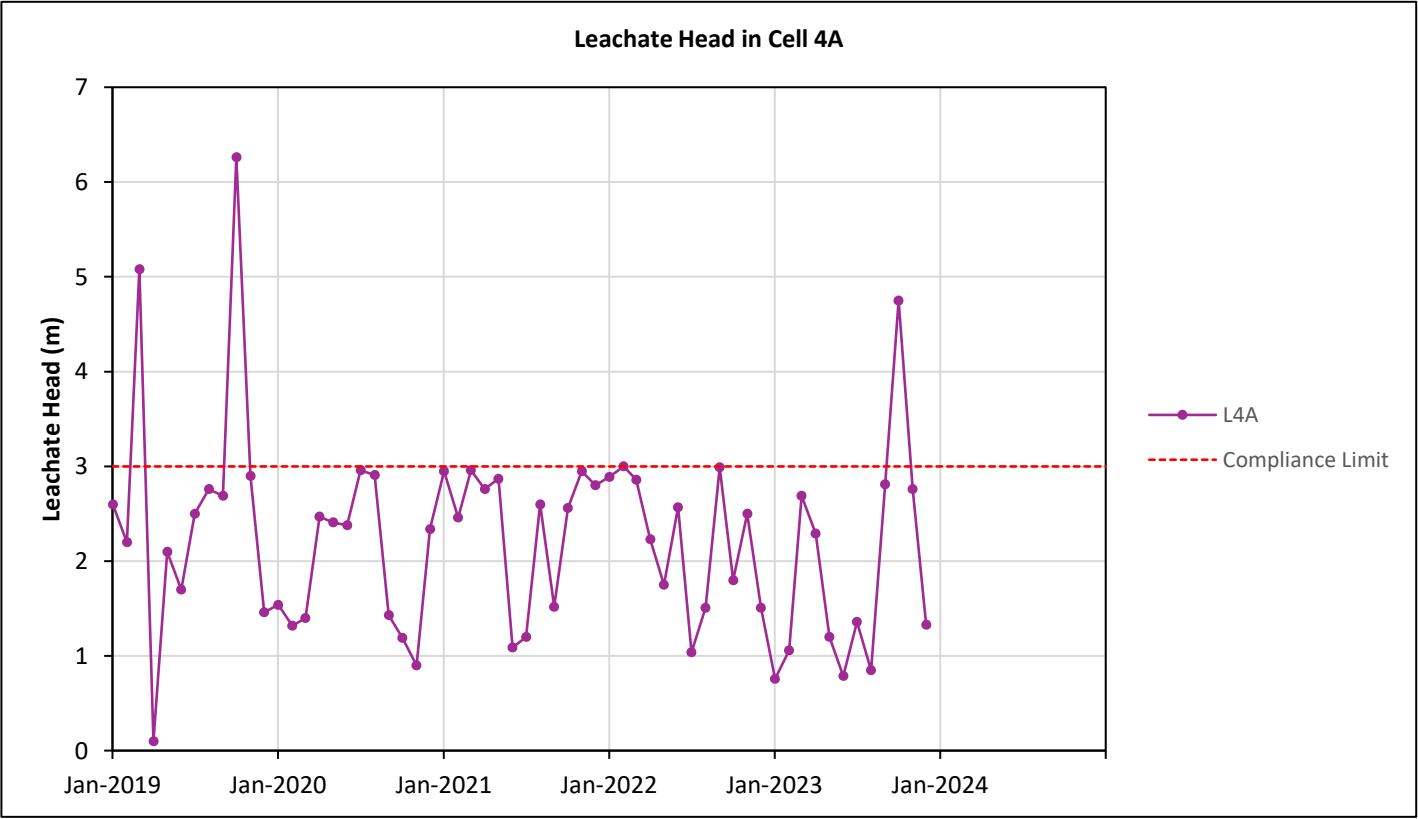
Figure A4.2 Leachate Heads




 wardell armstrong PART OF  SLR			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Groundwater and Leachate Elevations		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A4.1	KT	AS	Dec-24



<div><div></div><div><div>PART OF</div><div></div></div></div>			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate Head		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A4.2	KT	AS	Dec-24



<div><div></div><div><div>PART OF</div><div></div></div></div>			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate Head		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A4.2	KT	AS	Dec-24

APPENDIX 5

Groundwater, Leachate Elevations and Surface Water Quality

Table A5.1 Summary of Groundwater, Leachate and Surface Water Quality

Figure A5.3 to A5.37 Groundwater, Leachate and Surface Water Quality

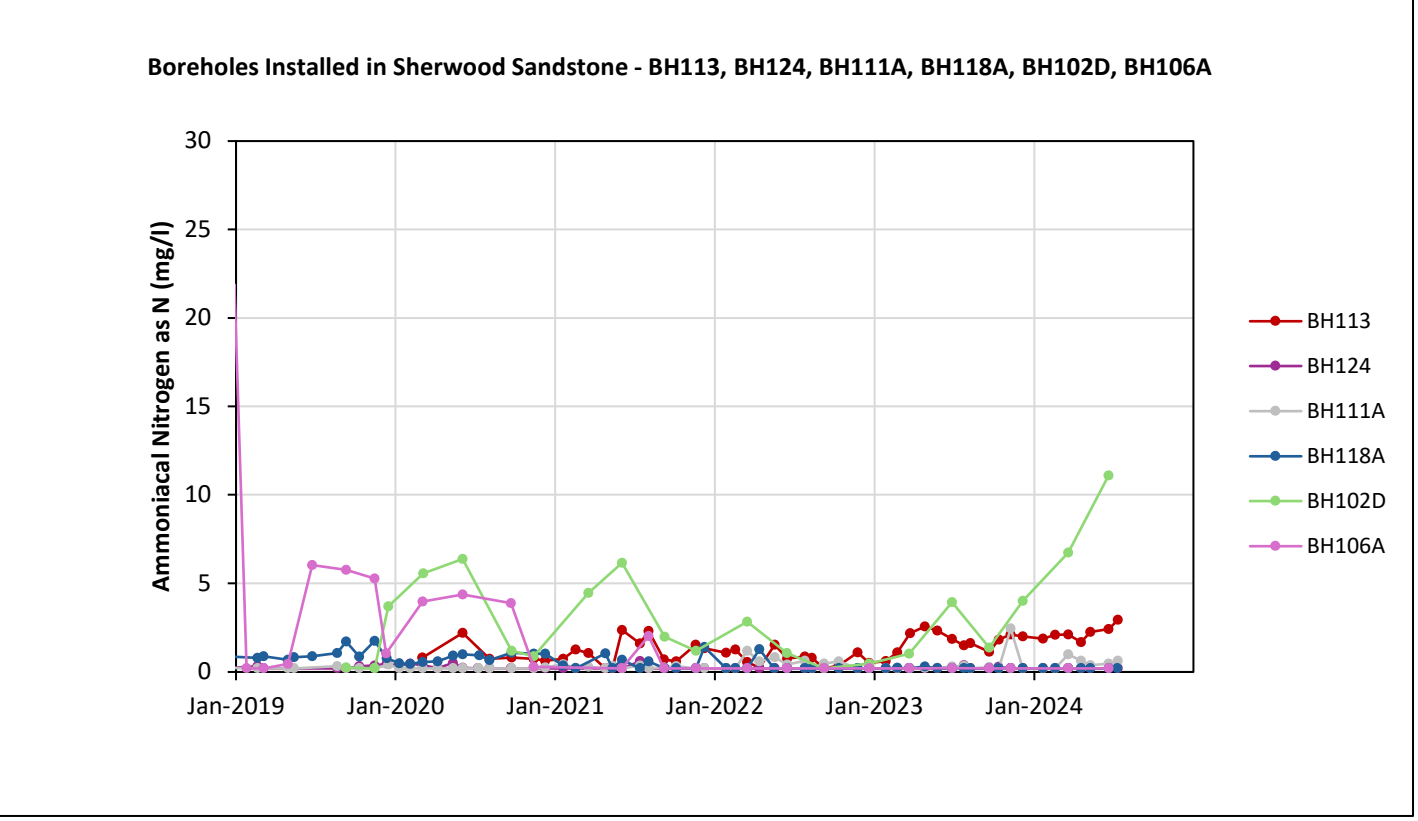
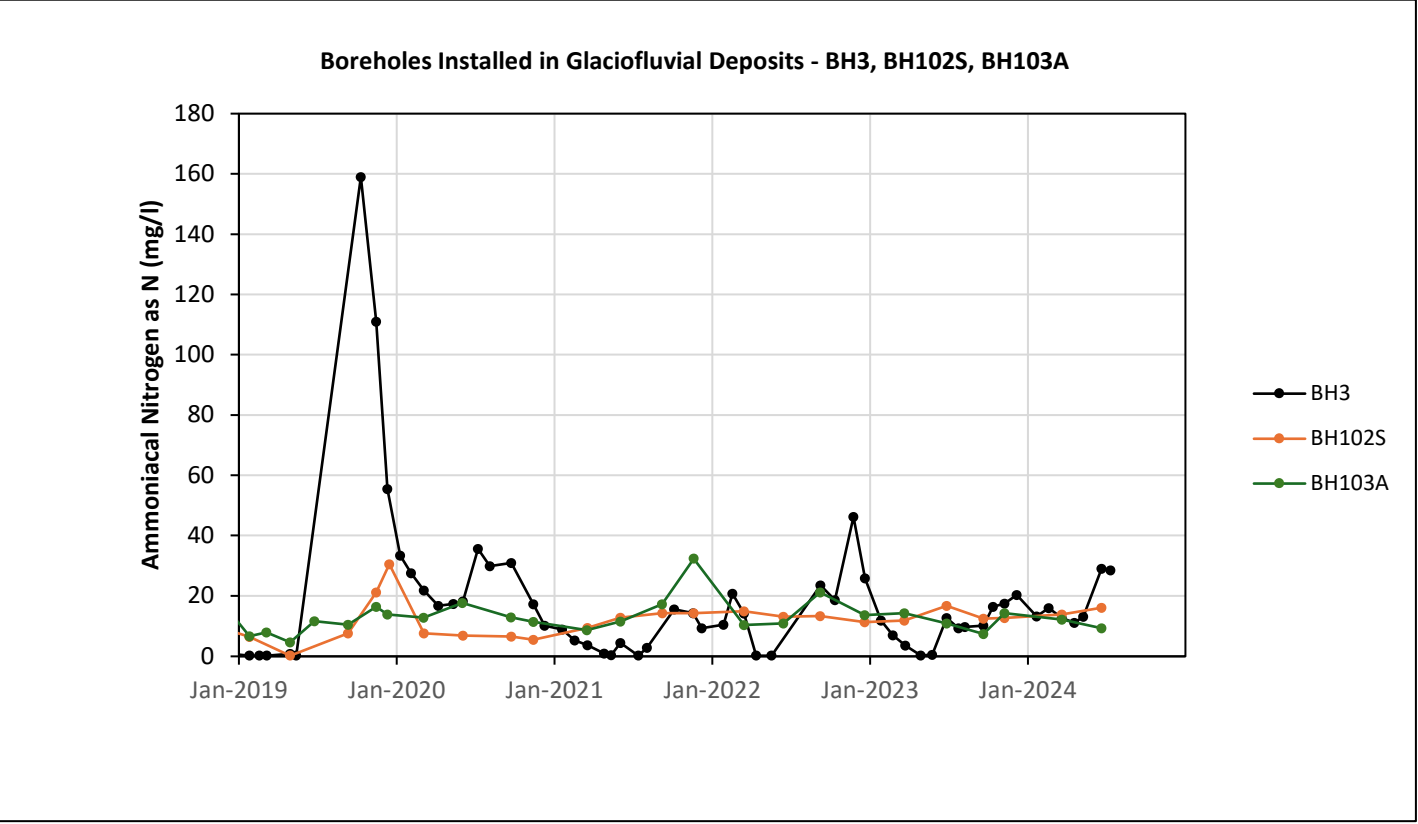
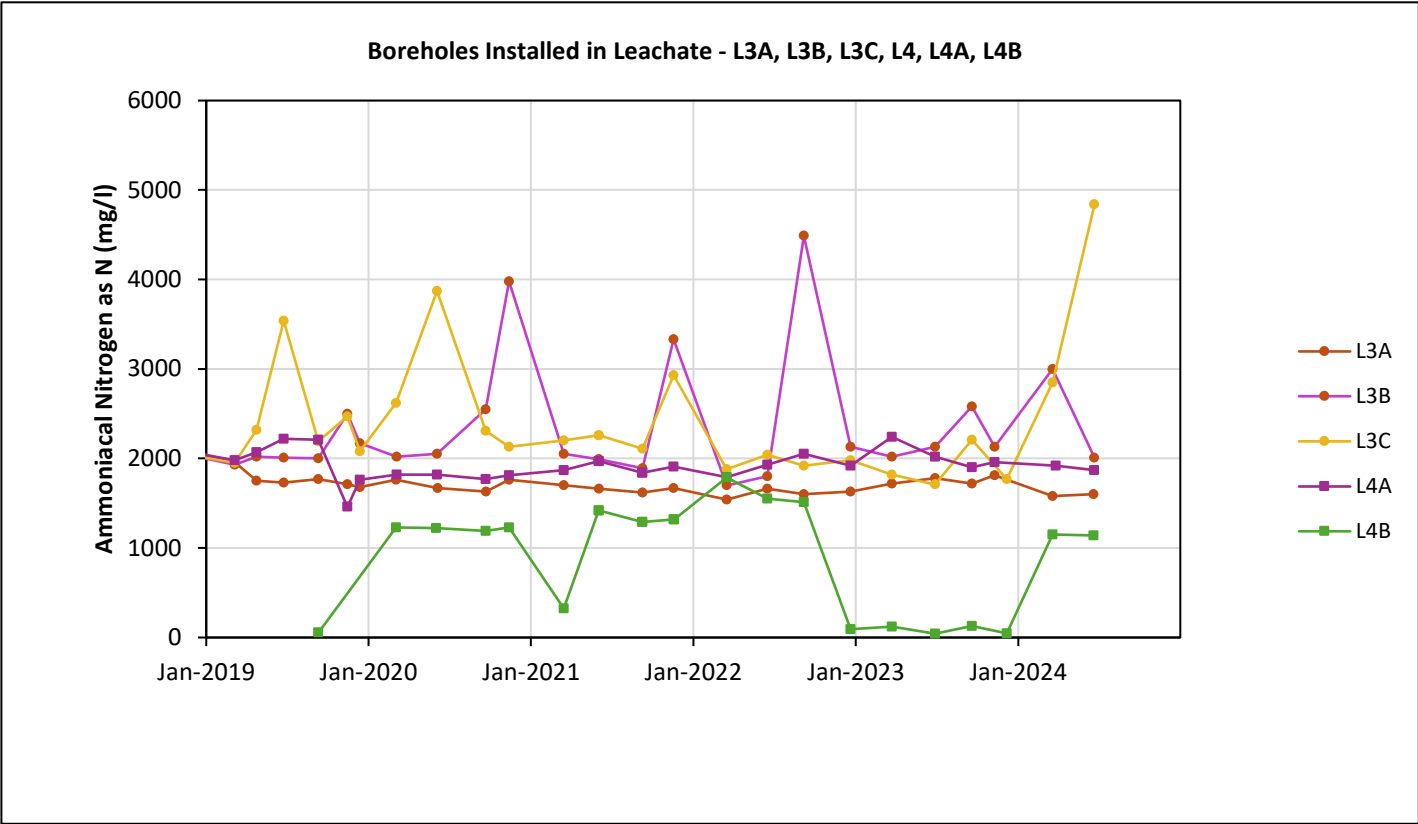
Quercia Limited Clayton Hall Landfill																										Hydrogeological Risk Assessment Review December 2024
Table A5.1: Leachate, Groundwater and Surface Water Quality Data																										
Determinand	Leachate						Groundwater in the Glacioluvial Deposits						Groundwater in the Sherwood Sandstone						Surface Water						Plotted	
	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)		
1,1,1,2-Tetrachloroethane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,1,1-Trichloroethane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,1,2,2-Tetrachloroethane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,1,2-Trichloroethane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,1-Dichloroethane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,1-Dichloroethene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,1-Dichloropropene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,2,3-Trichlorobenzene (µg/l)	28	0	<0.05	-	<1	0	12	0	<0.01	-	<10	0	23	0	<0.01	-	<1	0	18	0	<0.01	-	<1	0	No	
1,2,3-Trichloropropane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,2,4-Trichlorobenzene (µg/l)	28	0	<0.05	-	<1	0	12	0	<0.01	-	<10	0	23	0	<0.01	-	<1	0	18	0	<0.01	-	<1	0	No	
1,2,4-Trichlorobenzene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
1,2,4-Trimethylbenzene (µg/l)	19	16	<1	12.72315789	24.9	84	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,2-Dibromo-3-chloropropane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,2-Dibromoethane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,2-Dichlorobenzene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,2-Dichlorobenzene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
1,2-Dichloroethane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,2-Dichloropropane (µg/l)	19	1	<1	1.034210526	1.65	5	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,3,5-Trichlorobenzene (µg/l)	28	0	<0.05	-	<1	0	11	0	<0.01	-	<10	0	23	0	<0.01	-	<1	0	18	0	<0.01	-	<1	0	No	
1,3,5-Trimethylbenzene (µg/l)	19	16	<1	3.184210526	6.47	84	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,3-Dichlorobenzene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,3-Dichlorobenzene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
1,3-Dichloropropane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,4-Dichlorobenzene (µg/l)	19	15	<1	2.367894737	5.5	79	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
1,4-Dichlorobenzene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
1-Naphthol (mg/l)	10	1	<0.01	0.077	0.25	10	8	1	<0.01	0.01	0.01	13	18	0	<0.01	-	<0.01	0	4	0	<0.01	-	<0.01	0	No	
2,2-Dichloropropane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
2,3,5-Trimethylphenol (mg/l)	15	7	<0.003	0.031266667	0.075	47	15	1	<0.003	0.003	0.003	7	31	0	<0.003	-	<0.003	0	4	0	<0.003	-	<0.003	0	No	
2,4,5-Trichlorophenol (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
2,4,6-Trichlorophenol (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
2,4-Dichlorophenol (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
2,4-Dimethylphenol (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	1	<1	3.2781818	10	9	9	0	<1	-	<1	0	No	
2,4-Dinitrotoluene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
2,6-Dinitrotoluene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
2-Chloronaphthalene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
2-Chlorophenol (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
2-Chlorotoluene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
2-Isopropylphenol (mg/l)	15	6	<0.006	0.0752	0.24	40	15	1	<0.006	0.006	0.006	7	31	0	<0.006	-	<0.006	0	4	0	<0.006	-	<0.006	0	No	
2-Methylnaphthalene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
2-Methylphenol (aq) (µg/l)	19	5	<10	86.63157895	148	26	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
2-Nitroaniline (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20															

Table A5.1: Leachate, Groundwater and Surface Water Quality Data																										
Determinand	Leachate						Groundwater in the Glacioluvial Deposits						Groundwater in the Sherwood Sandstone						Surface Water						Plotted	
	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)		
Atrazine (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.1	0	9	0	<0.01	-	<0.01	0	No	
Azinphos ethyl (µg/l)	9	0	<0.1	-	<0.8	0	6	0	<0.02	-	<0.4	0	11	0	<0.02	-	<0.2	0	9	0	<0.02	-	<0.04	0	No	
Azinphos methyl (µg/l)	9	0	<0.1	-	<1.2	0	6	0	<0.02	-	<0.6	0	11	0	<0.02	-	<0.2	0	9	0	<0.02	-	<0.06	0	No	
Azobenzene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Benzene (µg/l)	19	15	<1	11.37473684	25.8	79	19	3	<1	2.87210526	10	16	38	0	<1	-	<7	0	9	0	<1	-	<1	0	Yes	
Benzo(a)anthracene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Benzo(a)pyrene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Benzo(b)fluoranthene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Benzo(g,h,i)perylene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Benzo(k)fluoranthene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
beta-HCH (µg/l)	16	0	<0.01	-	<0.2	0	6	0	<0.01	-	<0.01	0	11	0	<0.01	-	<0.02	0	9	0	<0.01	-	<0.01	0	No	
bis(2-Chloroethoxy)methane (µg/l)	0	-	-	-	-	-	3	0	<1	-	<10	0	4	0	<1	-	<4	0	4	0	<1	-	<1	0	No	
bis(2-Chloroethoxy)methane (aq) (µg/l)	19	0	<10	-	<100	0	3	0	<8	-	<20	0	7	0	<1	-	<10	0	5	0	<1	-	<1	0	No	
bis(2-Chloroethyl)ether (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
bis(2-Ethylhexyl) phthalate (aq) (µg/l)	19	0	<20	-	<200	0	6	3	<7.06	25.36	40	50	11	2	<2	6.6854545	20	18	9	0	<2	-	<2	0	Yes	
BOD, unfiltered (mg/l)	113	102	<30.5	1388.159551	9380	90	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	No	
Bromobenzene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Bromochloromethane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Bromodichloromethane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Bromoform (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Bromomethane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Butylbenzyl phthalate (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Cadmium (diss.filt) (µg/l)	102	37	<0.08	0.760105882	8	36	23	3	<0.08	0.12717391	0.48	13	45	4	<0.08	0.1720444	2.61	9	0	-	-	-	-	-	Yes	
Cadmium (tot.unfilt) (µg/l)	4	0	<0.5	-	<3	0	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	No	
Calcium (diss.filt) (mg/l)	101	103	10.9	70.4039604	185	102	23	23	143	220.608696	316	100	45	45	27.3	104.17778	248	100	0	-	-	-	-	-	Yes	
Calcium (Tot. Unfilt.) (mg/l)	4	4	67.7	88.6000	112	100	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	No	
Carbazole (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Carbon disulphide (µg/l)	19	9	<1	3	10.3	47	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Carbontetrachloride (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Carbophenothion (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.14	0	9	0	<0.01	-	<0.01	0	No	
Catechol (mg/l)	10	2	<0.01	0.078	0.25	20	8	1	<0.01	0.01	0.01	13	18	0	<0.01	-	<0.01	0	4	0	<0.01	-	<0.01	0	No	
Chlorfenvinphos (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.1	0	9	0	<0.01	-	<0.01	0	No	
Chloride (mg/l)	153	155	133	2058.385621	4670	101	111	111	12.4	61.290991	149	100	281	281	13	26.471886	118	100	259	263	4.56	25.752355	91.9	102	Yes	
Chlorobenzene (µg/l)	19	16	<1	19.70473684	80.7	84	6	1	<1	2.51333333	10	17	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Chloroethane (µg/l)	19	0	<1	-	<1	0	6	1	<1	2.63833333	10	17	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Chloroform (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Chloromethane (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Chlorpyrifos (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.1	0	9	0	<0.01	-	<0.01	0	No	
Chlorpyrifos methyl (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.1	0	9	0	<0.01	-	<0.01	0	No	
Chromium (diss.filt) (µg/l)	102	103	7.32	287.5341176	1090	101	23	4	<1	1.74565217	6	17	45	8	<1	2.7464444	22.8	18	0	-	-	-	-	-	Yes	
Chromium (tot.unfilt) (µg/l)	4	4	229	355.75	509	100	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	No	
Chrysene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0														

Table A5.1: Leachate, Groundwater and Surface Water Quality Data																										
Determinand	Leachate						Groundwater in the Glacioluvial Deposits						Groundwater in the Sherwood Sandstone						Surface Water						Plotted	
	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)		
Fenthion (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.1	0	9	0	<0.01	-	<0.01	0	No	
Fluoranthene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Fluorene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
gamma-HCH (Lindane) (µg/l)	16	0	<0.01	-	<0.2	0	6	0	<0.01	-	<0.01	0	11	0	<0.01	-	<0.02	0	9	0	<0.01	-	<0.01	0	No	
GRO >C5-C10 (µg/l)	0	-	-	-	-	-	3	2	<10	285.666667	485	67	7	0	<10	-	<10	0	0	-	-	-	-	-	No	
GRO >C5-C12 (µg/l)	10	8	<50	490	879	80	10	1	<50	53.1	81	10	20	0	<50	-	<50	0	0	-	-	-	-	-	No	
Heptachlor (µg/l)	16	0	<0.01	-	<1	0	6	0	<0.01	-	<0.01	0	11	0	<0.01	-	<0.02	0	9	0	<0.01	-	<0.01	0	No	
Heptachlor epoxide (µg/l)	16	0	<0.01	-	<0.2	0	6	0	<0.01	-	<0.01	0	11	0	<0.01	-	<0.02	0	9	0	<0.01	-	<0.01	0	No	
Hexachlorobenzene (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.1	0	9	0	<0.01	-	<0.01	0	No	
Hexachlorobenzene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Hexachlorobutadiene (µg/l)	28	0	<0.05	-	<1	0	12	0	<0.01	-	<10	0	23	0	<0.01	-	<1	0	18	0	<0.01	-	<1	0	No	
Hexachlorobutadiene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Hexachlorocyclopentadiene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Hexachloroethane (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Indeno(1,2,3-cd)pyrene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Iron (diss.filt) (mg/l)	102	103	0.0948	7.046047059	23.1	101	23	23	0.0894	9.92807826	48.1	100	45	30	<0.019	3.5797156	37.2	67	0	-	-	-	-	-	Yes	
Iron (Tot. Unfilt.) (mg/l)	4	4	8.96	12.6575	21	100	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	No	
Isodrin (µg/l)	16	0	<0.01	-	<0.2	0	6	0	<0.01	-	<0.01	0	11	0	<0.01	-	<0.02	0	9	0	<0.01	-	<0.01	0	No	
Isophorone (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
Isopropylbenzene (µg/l)	19	11	<1	4.737894737	13.6	58	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Lead (diss.filt) (µg/l)	102	90	<0.402	15.66927451	313	88	23	6	<0.2	0.46134783	2.34	26	45	4	<0.2	0.2965111	2.2	9	0	-	-	-	-	-	Yes	
Lead (tot.unfilt) (µg/l)	4	3	<6	19.25	25.6	75	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	No	
m,p-Xylene (µg/l)	19	17	<1	36.46210526	87.2	89	19	0	<1	-	<10	0	38	0	<1	-	<8	0	9	0	<1	-	<1	0	No	
Magnesium (diss.filt) (mg/l)	102	103	9.4	75.0	240	101	23	23	20.3	44.8	72.6	100	45	45	4.73	27.9	59.3	100	0	-	-	-	-	-	Yes	
Magnesium (Tot. Unfilt.) (mg/l)	4	4	69.4	97.0500	116	100	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	No	
Malathion (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.1	0	9	0	<0.01	-	<0.01	0	No	
Manganese (diss.filt) (µg/l)	102	99	<16.7	188.4568627	2850	97	23	23	369	5189.91304	15700	100	45	38	<3	2983.7896	24900	84	0	-	-	-	-	-	Yes	
Manganese (tot.unfilt) (µg/l)	4	4	104	211.5	362	100	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	No	
Mercury (diss.filt) (µg/l)	152	73	<0.005	0.294570395	1.75	48	33	1	<0.01	0.01019091	0.0163	3	98	0	<0.01	-	<0.1	0	1	0	<0.01	-	<0.01	0	No	
Mercury (tot.unfilt) (µg/l)	0	-	-	-	-	-	1	0	<0.02	-	<0.02	0	2	1	<0.02	0.02195	0.0239	50	0	-	-	-	-	-	No	
Methyl Parathion (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.1	0	9	0	<0.01	-	<0.01	0	No	
Methyl tertiary butyl ether (MTBE) (µg/l)	19	5	<1	1.038947368	1.33	26	19	0	<1	-	<10	0	38	0	<1	-	<3	0	9	0	<1	-	<1	0	No	
Mevinphos (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.1	0	9	0	<0.01	-	<0.01	0	No	
Naphthalene (µg/l)	19	15	<1	4.191578947	10.1	79	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Naphthalene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
n-Butylbenzene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
n-Dibutyl phthalate (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
n-Dioctyl phthalate (aq) (µg/l)	19	0	<50	-	<500	0	6	0	<5	-	<100	0	11	0	<5	-	<50	0	9	0	<5	-	<5	0	No	
Nickel (diss.filt) (µg/l)	102	103	21.2	273.2676471	628	101	23	23	1.65	8.64	25.6	100	45	33	<0.4	3.9960667	22.9	73	0	-	-	-	-	-	Yes	
Nickel (tot.unfilt) (µg/l)	4	4	238	301.5	356	100	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	No	
Nitrobenzene (aq) (µg/l)	19	0	<10	-	<100	0	6	0	<1	-	<20	0	11	0	<1	-	<10	0	9	0	<1	-	<1	0	No	
n-Nitroso-n-dipropylamine (aq) (µg/l)	19	0	&																							

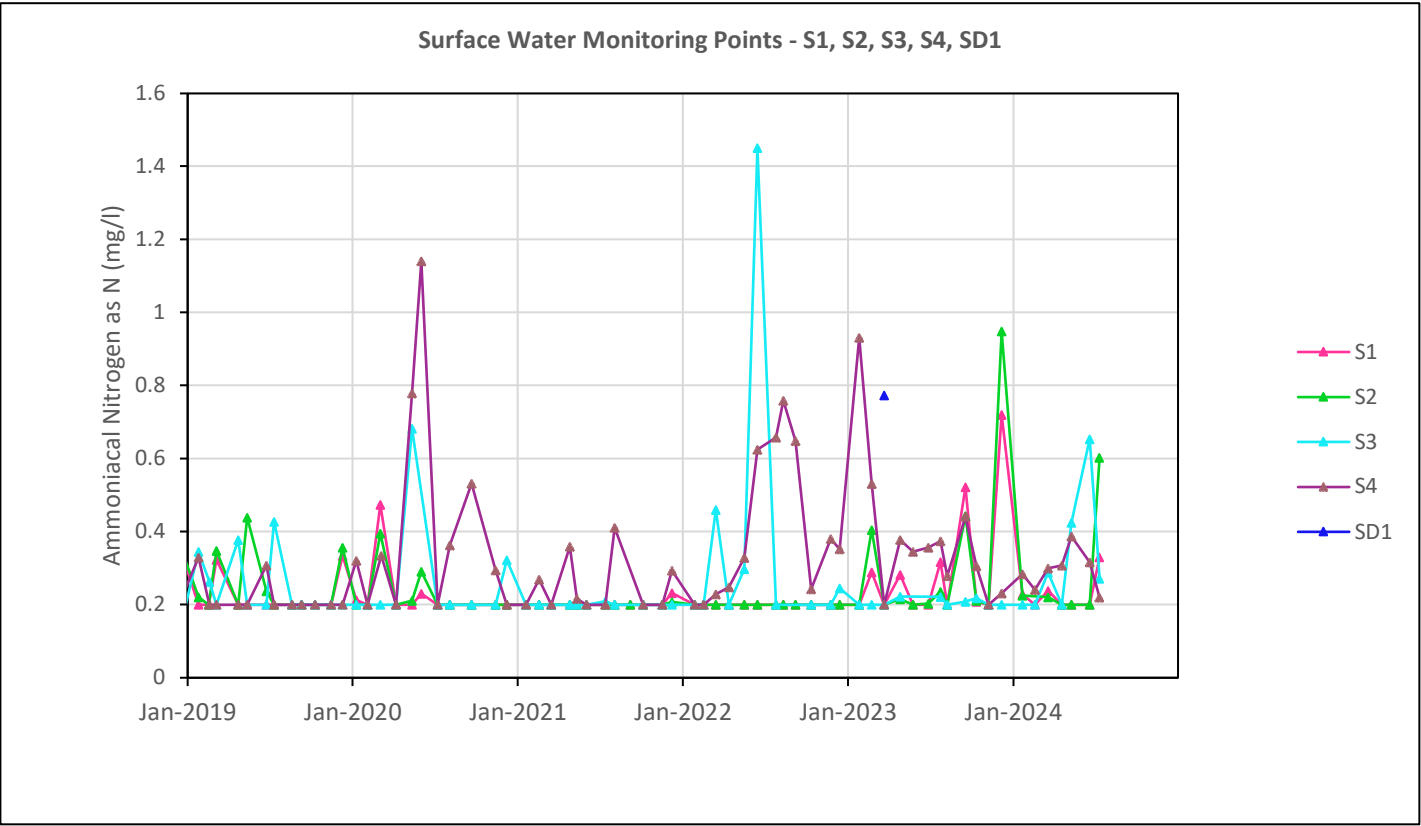
Table A5.1: Leachate, Groundwater and Surface Water Quality Data																										
Determinand	Leachate						Groundwater in the Glacioldluvial Deposits						Groundwater in the Sherwood Sandstone						Surface Water						Plotted	
	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)	Count	Count > LOD	Minimum	Average	Maximum	Percentage Detection (%)		
Simazine (µg/l)	9	1	<0.05	0.372222222	2.45	11	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.1	0	9	0	<0.01	-	<0.01	0	No	
Sodium (diss.filt) (mg/l)	102	103	217	1931	5340	101	23	23	20.6	52	117	100	45	45	10.7	21.968889	61.2	100	0	-	-	-	-	-	Yes	
Sodium (Tot. Unfilt.) (mg/l)	4	4	1350	1685	2070	100	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	No	
Styrene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Sulphate (mg/l)	76	47	<1	54.55460526	530	62	15	11	<2	63.2	248	73	29	26	<2	42.027586	128	90	0	-	-	-	-	-	Yes	
Sulphide (mg/l)	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	0	<0.01	-	<0.01	0	No	
Sum of BTEX (µg/l)	10	8	<5	93.78	217	80	13	6	<5	82.6892308	485	46	27	0	<5	-	<28	0	0	-	-	-	-	-	Yes	
Sum of detected Xylenes (µg/l)	10	8	<2	45.2	120	80	10	0	<2	-	<11	0	20	0	<2	-	<11	0	0	-	-	-	-	-	No	
Suspended solids, Total (mg/l)	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	333	283	<2	17.426877	237	85	Yes	
Tecnazene (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0	11	0	<0.01	-	<0.1	0	9	0	<0.01	-	<0.01	0	No	
tert-Amyl methyl ether (TAME) (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
tert-Butylbenzene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Tetrabutyl tin (ng/l)	19	0	<60	-	<600	0	6	0	<2	-	<60	0	11	0	<2	-	<60	0	9	0	<2	-	<2	0	No	
Tetrachloroethene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0	12	0	<1	-	<1	0	9	0	<1	-	<1	0	No	
Toluene (µg/l)	19	17	<1	10.99789474	31.4	89	19	8	<1	68.5505263	485	42	38	0	<1	-	<4	0	9	0	<1	-	<1	0	Yes	
Total Aliphatics & Aromatics >C5-35 (aq) (µg/l)	20	18	<5	750.1	1180	90	10	6	<10	227.2	810	60	20	6	<10	126.15	2050	30	0	-	-	-	-	-	Yes	
Total Aliphatics >C12-C35 (aq) (µg/l)	20	11	<5	120.65	364	55	10	5	<10	201.8	810	50	20	2	<10	21.45	147	10	0	-	-	-	-	-	No	
Total Aromatics >EC12-EC35 (aq) (µg/l)	20	15	<5	215.15	470	75	10	4	<10	39.6	119	40	20	6	<10	118.15	2050	30	0	-	-	-	-	-	Yes	
Total EPH (C6-C40) (aq) (µg/l)	0	-	-	-	-	-	3	3	224	971.333333	1670	100	7	6	<100	294.71429	433	86	0	-	-	-	-	-	No	
Total Extractable Compounds* (mg/l)	0	-	-	-	-	-	1	0	<0.6	-	<0.6	0	4	1	<0.6	0.626	0.704	25	0	-	-	-	-	-	No	
Total Petroleum Hydrocarbons* (mg/l)	0	-	-	-	-	-	1	0	<0.3	-	<0.3	0													No	
TPH / Oil & Greases (mg/l)	9	9	27.6	54.7333333	93.9	100	22	8	<1	3.53863636	18.7	36													Yes	
trans-1,2-Dichloroethene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0													No	
trans-1,3-Dichloropropene (µg/l)	19	0	<1	-	<1	0	6	0	<1	-	<10	0													No	
trans-Chlordane (µg/l)	25	0	<0.01	-	<0.2	0	12	0	<0.01	-	<0.1	0													No	
Triadimefon (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0													No	
Triallate (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0													No	
Triazophos (µg/l)	9	0	<0.05	-	<0.2	0	6	0	<0.01	-	<0.1	0													No	
Tributyl tin (ng/l)	19	0	<30	-	<300	0	6	0	<1	-	<30	0	11	0	<1	-	<30	0	9	0	<1	-	<1	0	No	
Trichloroethene (µg/l)	24	0	<1	-	<1	0	6	0	<1	-	<10	0													No	
Trichlorofluoromethane (µg/l)	24	0	<1	-	<1	0	6	0	<1	-	<10	0													No	
Trifluralin (µg/l)	21	0	<0.01	-	<1	0	6	0	<0.01	-	<0.01	0													No	
Triphenyl tin (ng/l)	24	0	<30	-	<300	0	6	0	<1	-	<30	0													No	
Vinyl chloride (µg/l)	24	3	<1	1.03375	1.6	13	6	0	<1	-	<10	0													No	
Visible Solids (No units)	3	3	0	0	0	100	1	1	0	0	0	100													No	
Xylenols (mg/l)	25	21	<0.01	0.204	1.05	84	42	1	<0.008	0.008	0.008	2													No	
Zinc (diss.filt) (µg/l)	102	100	<4.22	366.0933333	8650	98	23	23	2.01	11.546087	67.1	100	45	45	1.09	16.552889	67.1	100	0	-	-	-	-	-	Yes	
Zinc (tot.unfilt) (µg/l)	4	4	57.8	157.2	274	100	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	No	

Notes:
LOD = laboratory method limit of detection
Leachate, groundwater and surface water quality data for 2019 to 2024
Graphs were produced to show long-term trends in groundwater concentrations if there were more than 10 groundwater samples analysed and there is greater than 10% detection (i.e. greater than 10% of samples were above the laboratory method limit of detection).



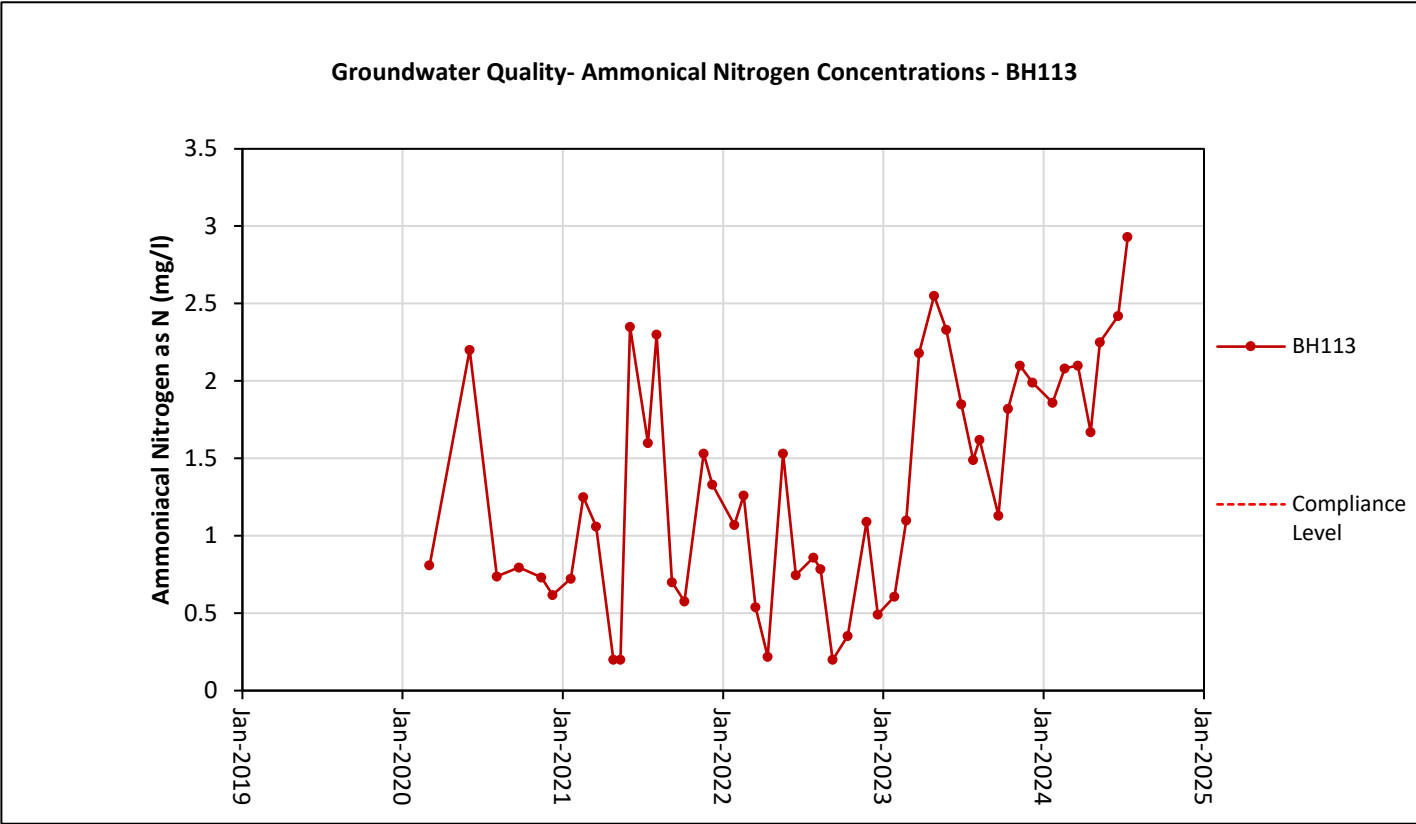
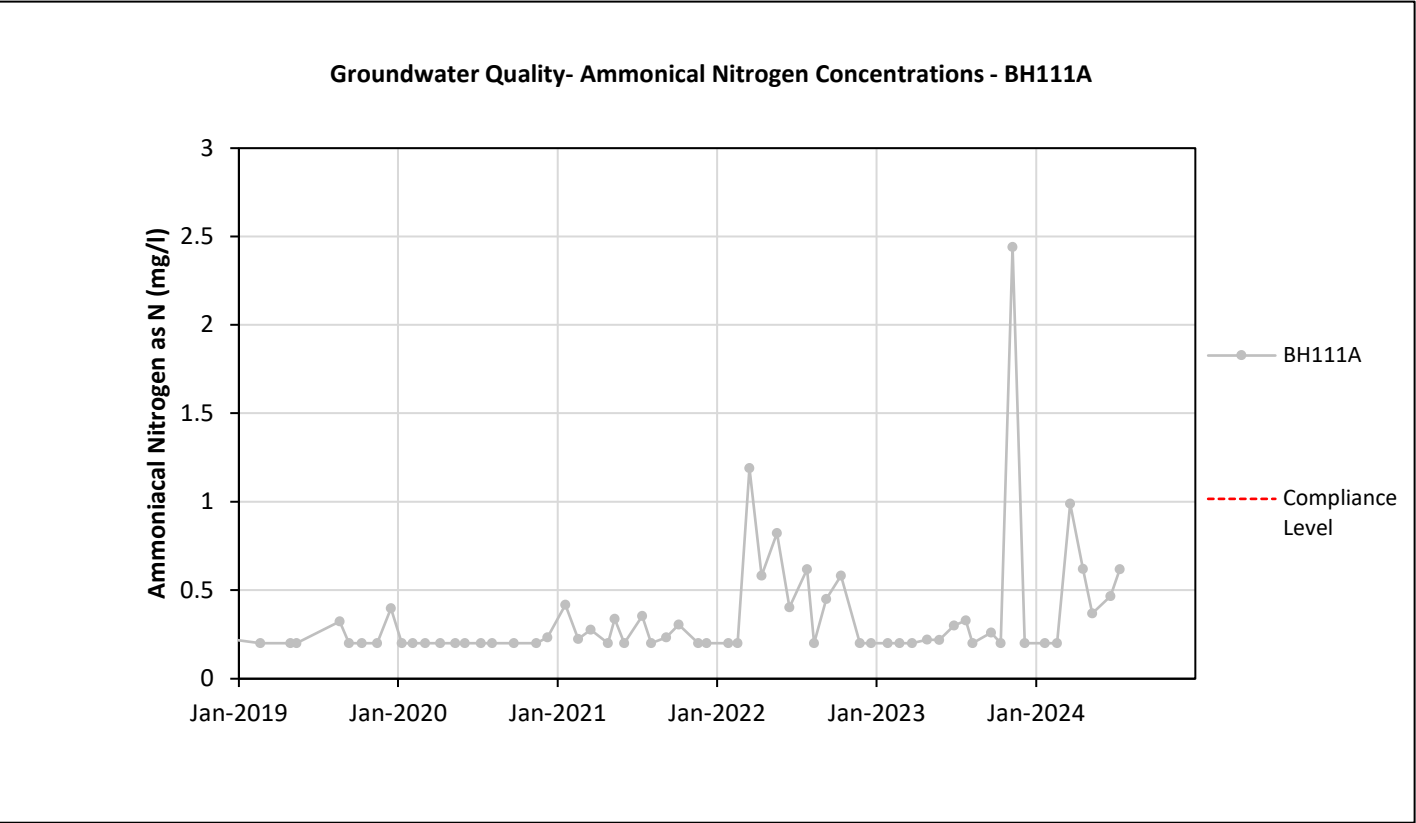
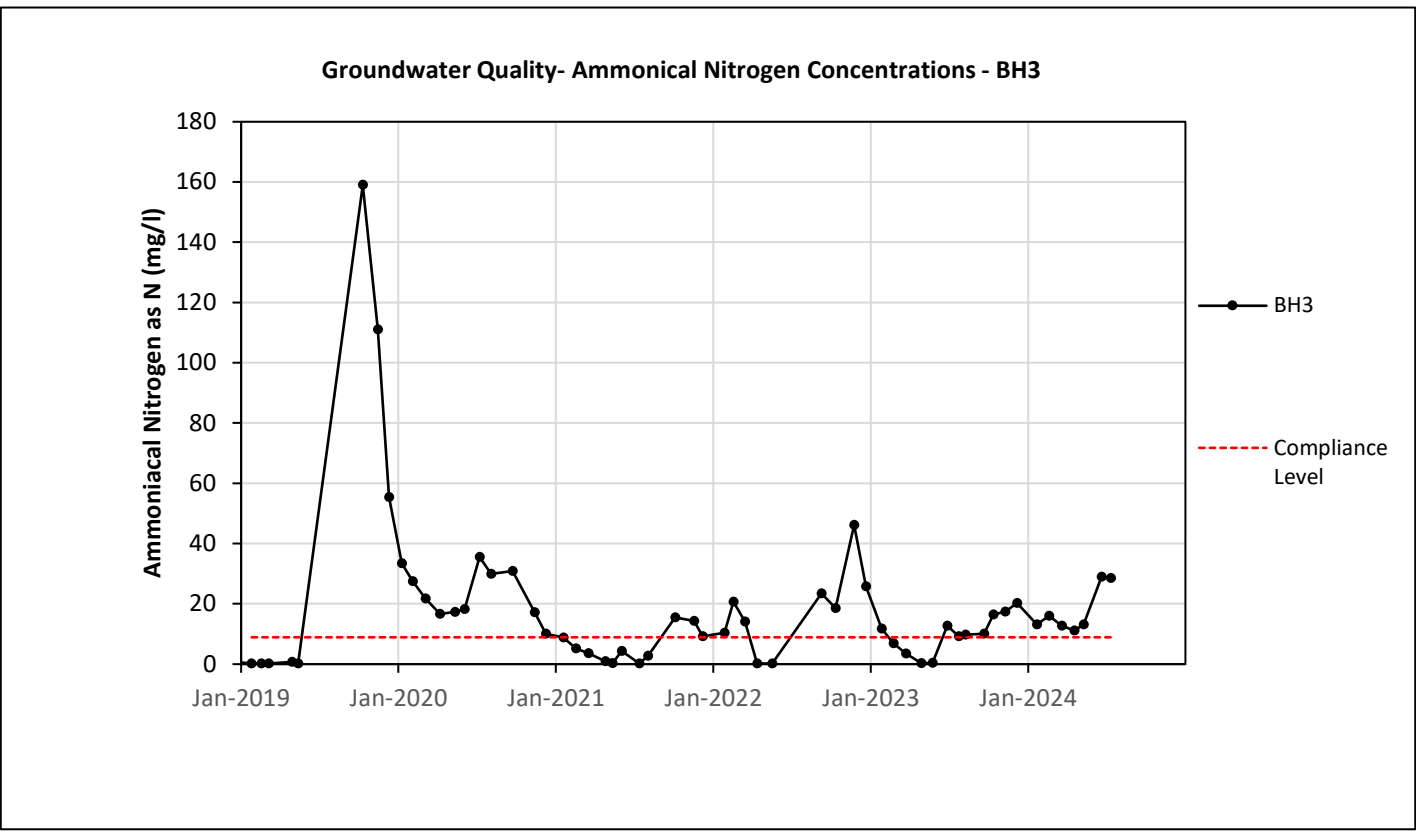
Note: Ammoniacal nitrogen concentrations recorded at 0.2mg/l correspond to LOD.

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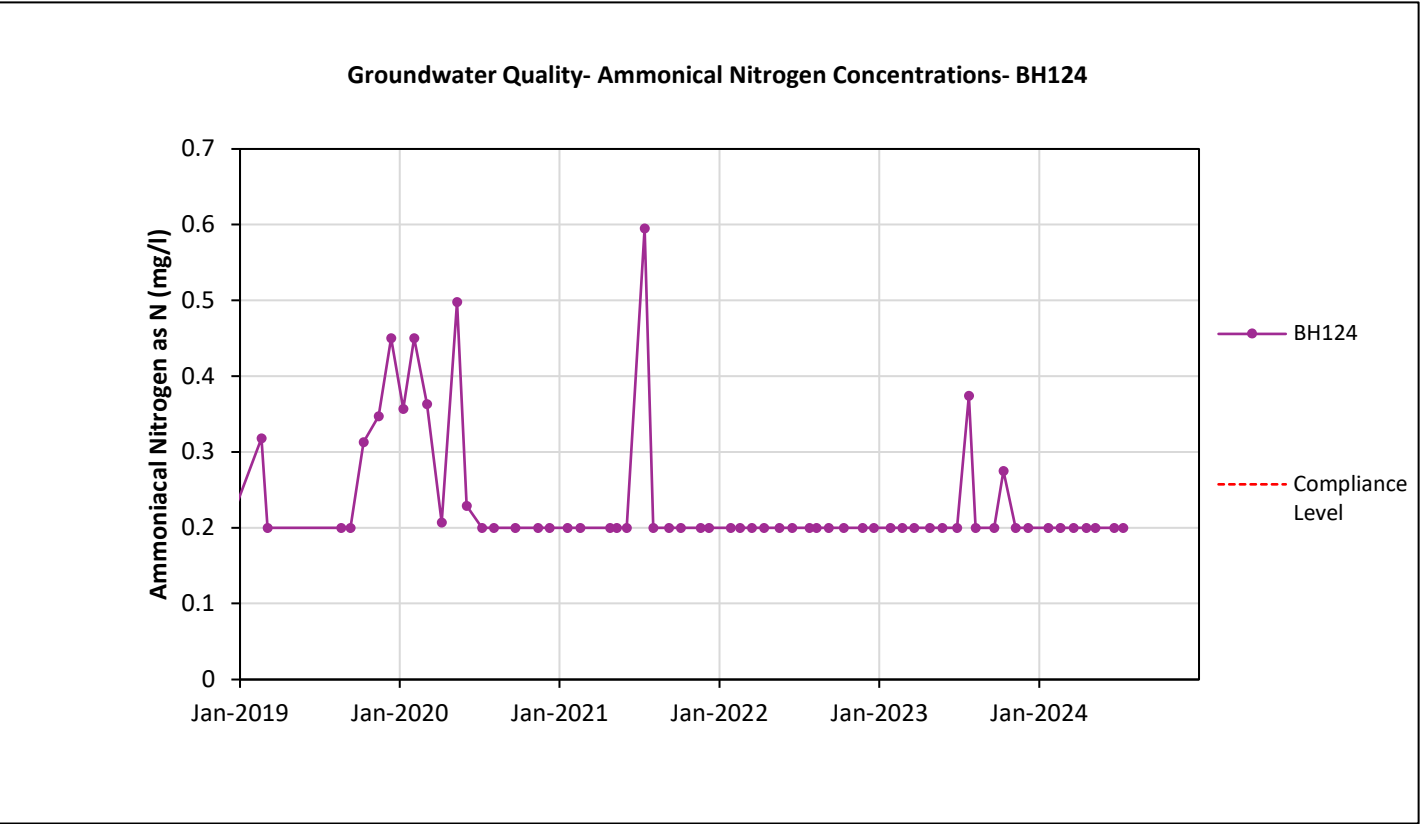
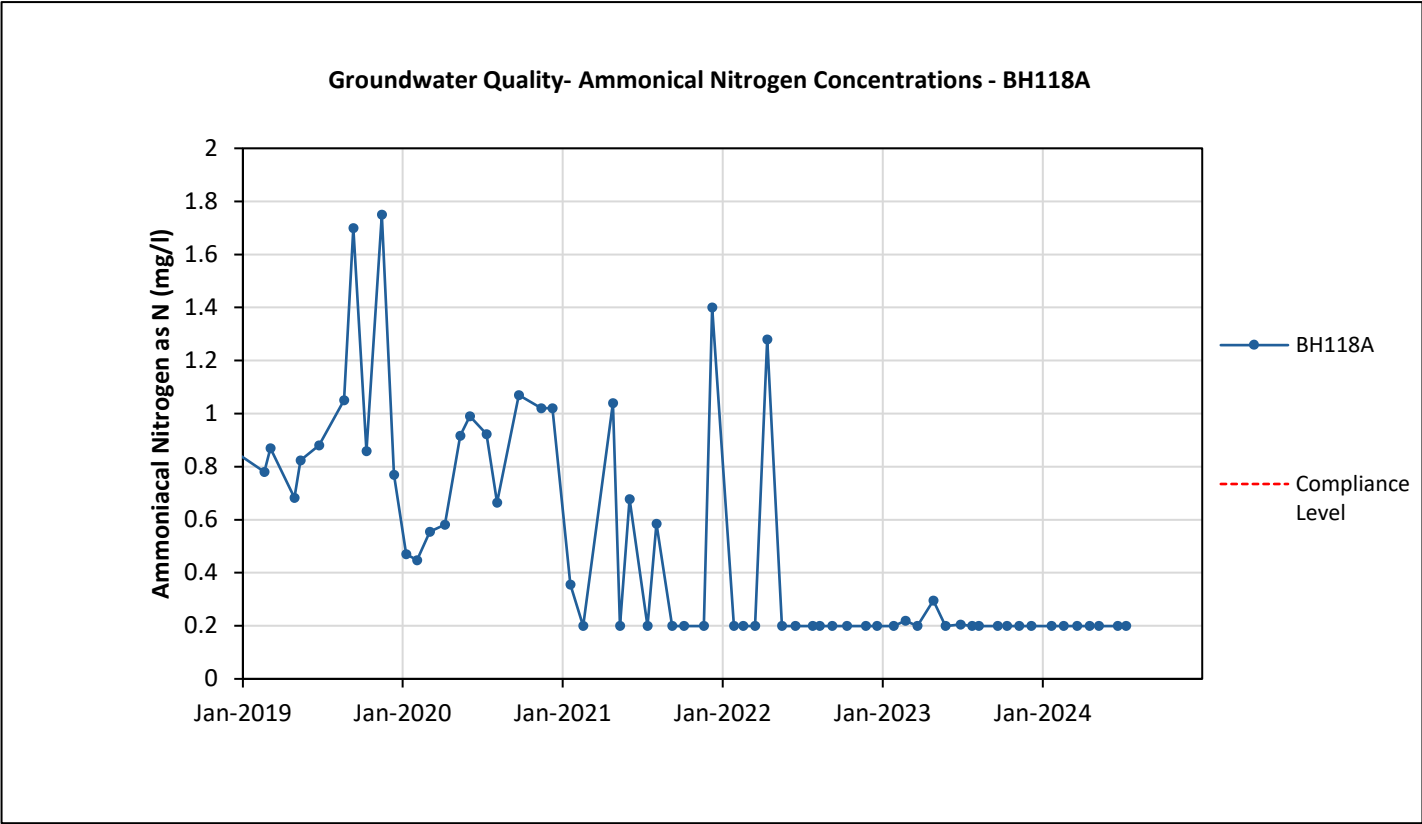
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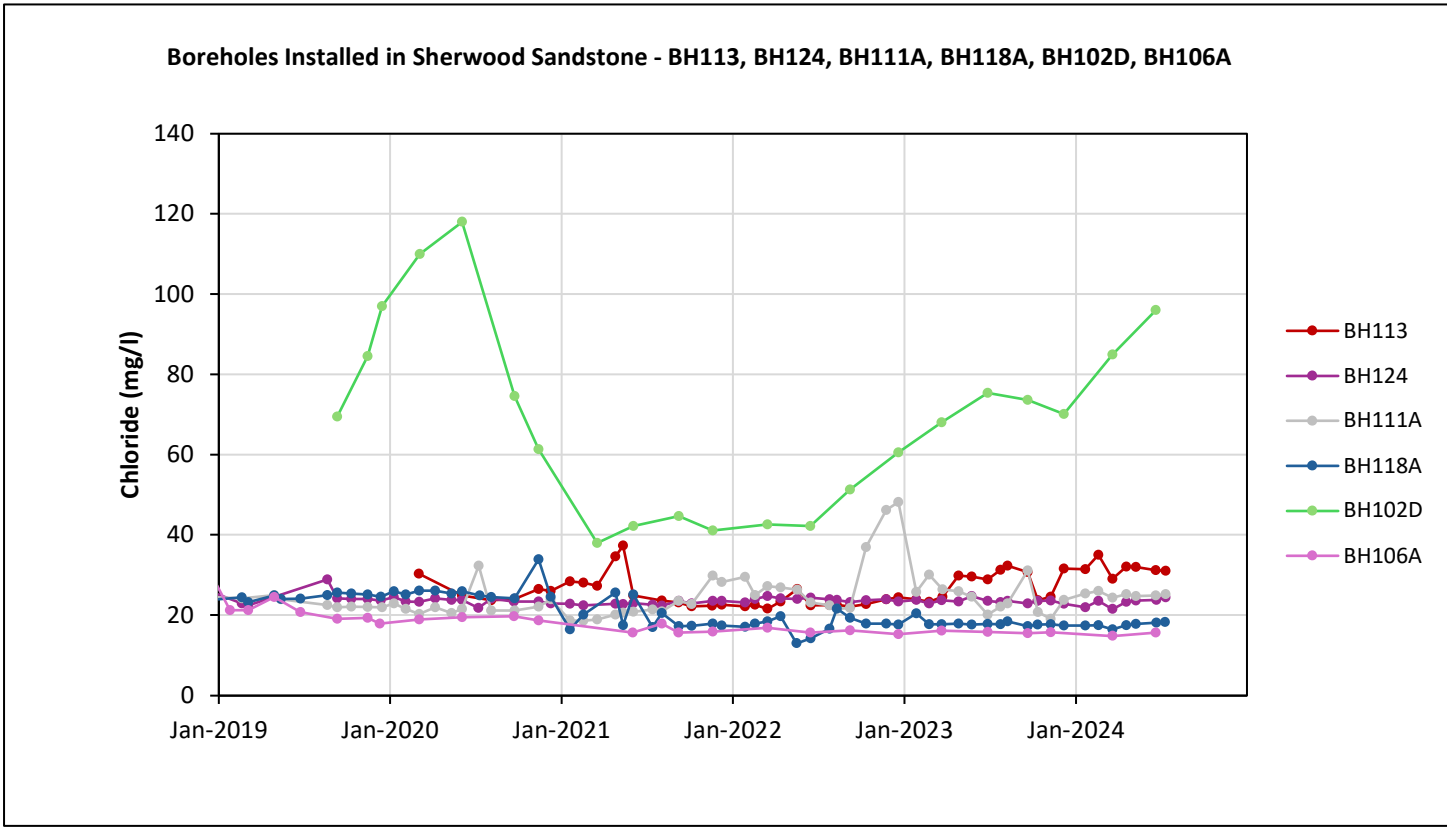
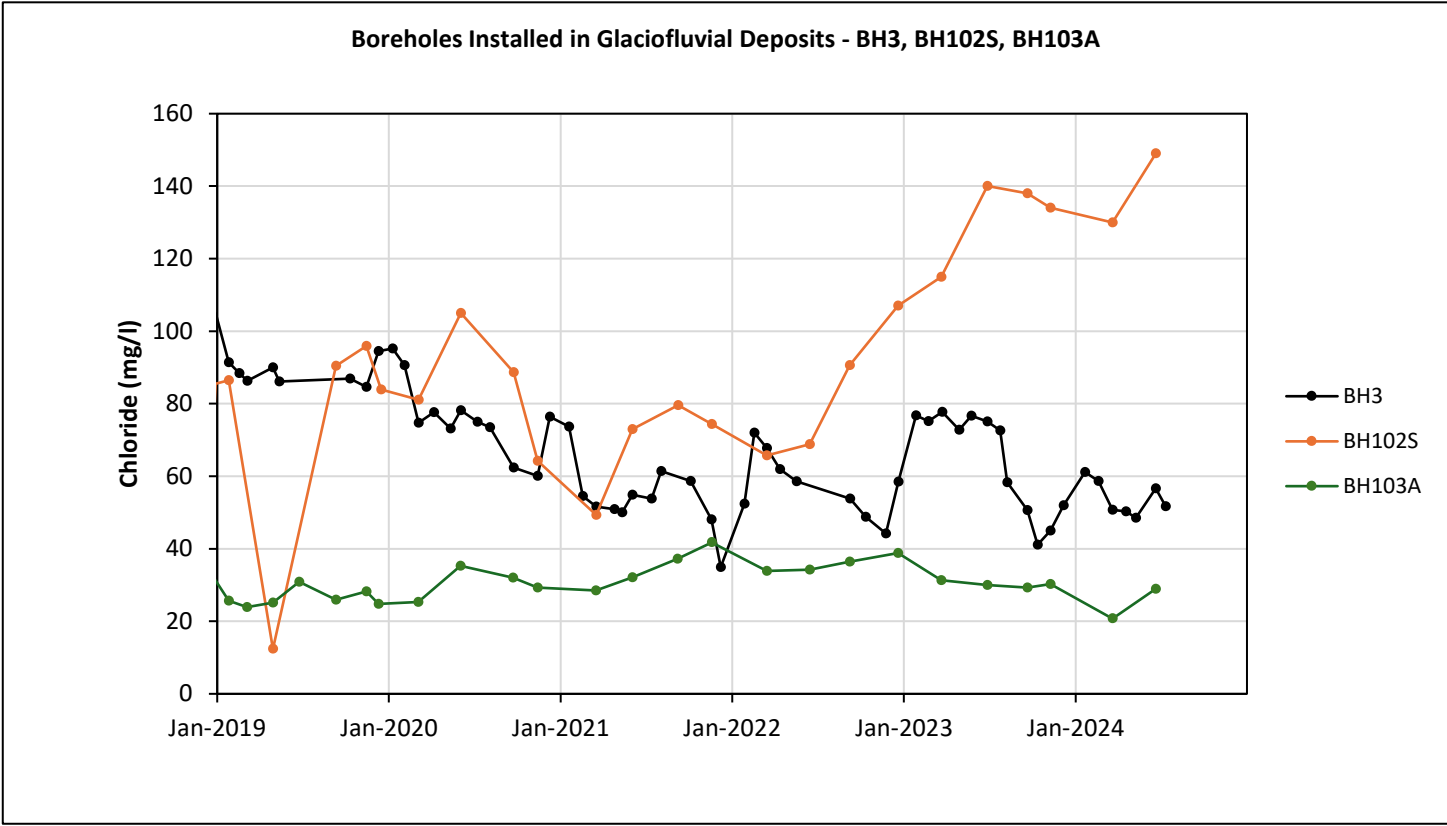
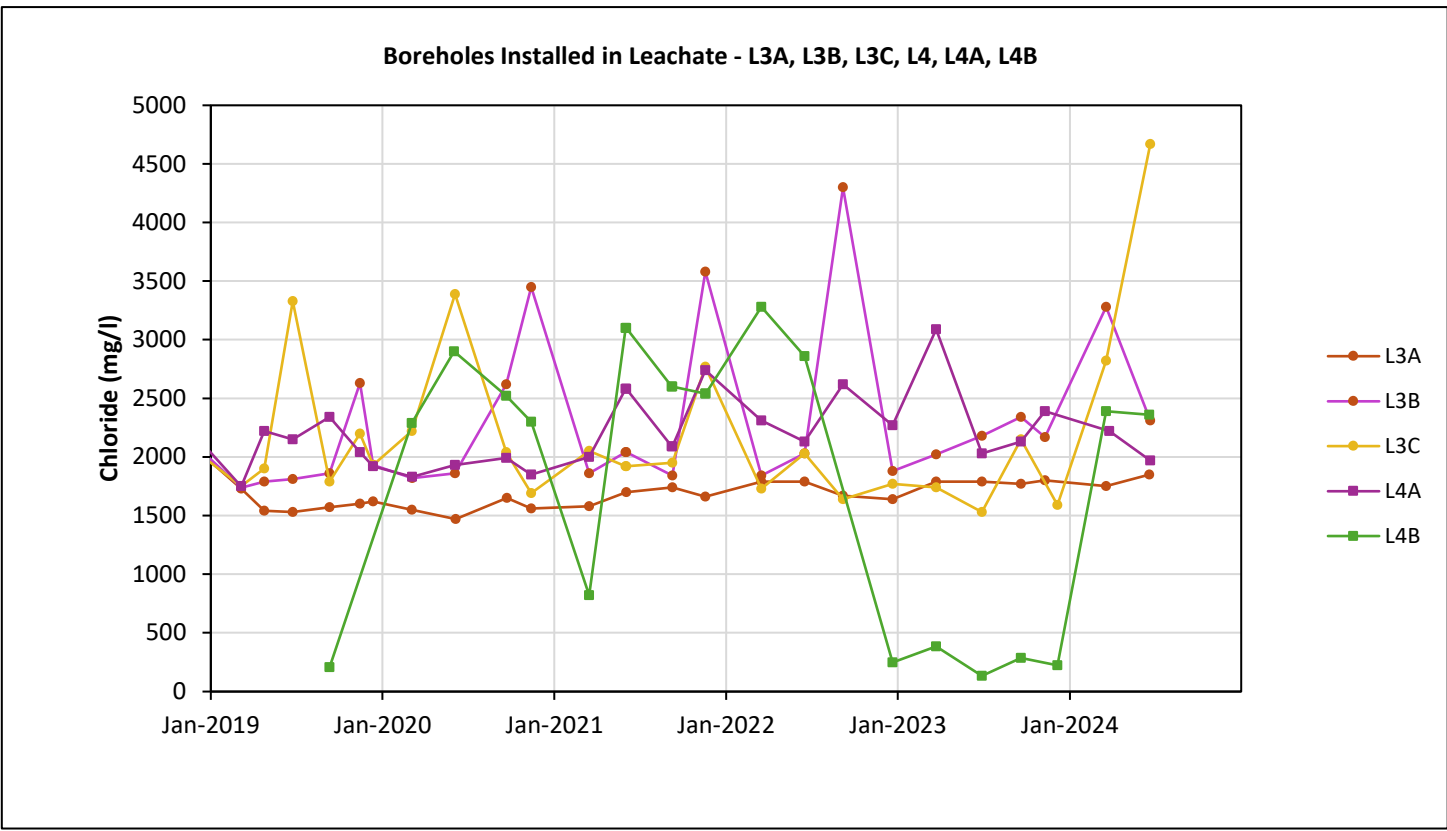
Note: The ammoniacal nitrogen compliance limit for all groundwater monitoring boreholes is 9mg/l. Ammoniacal nitrogen concentrations recorded at 0.2mg/l correspond to LOD.

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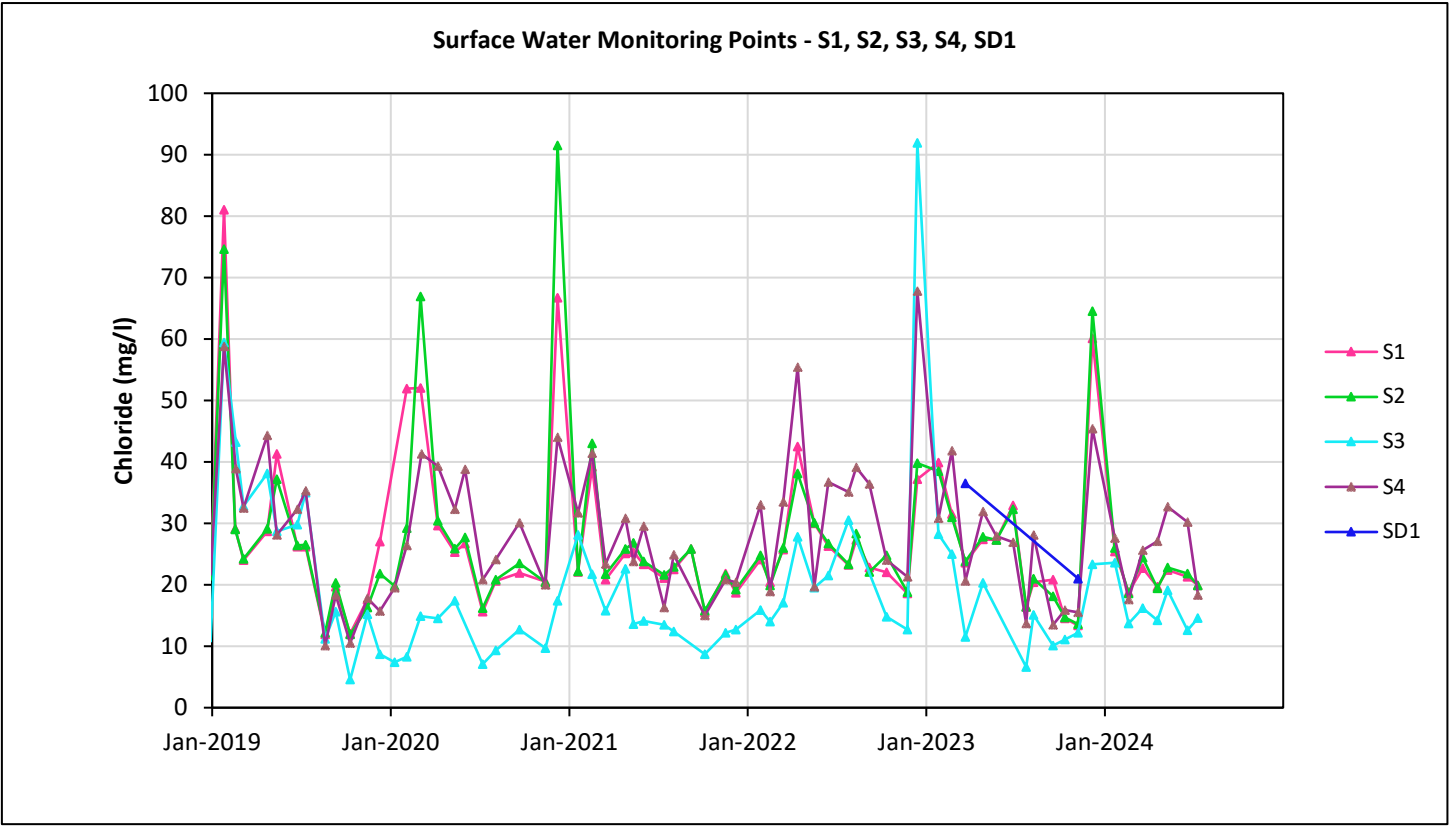




Note: The ammoniacal nitrogen compliance limit for all groundwater monitoring boreholes is 9mg/l. Ammoniacal nitrogen concentrations recorded at 0.2mg/l correspond to LOD.

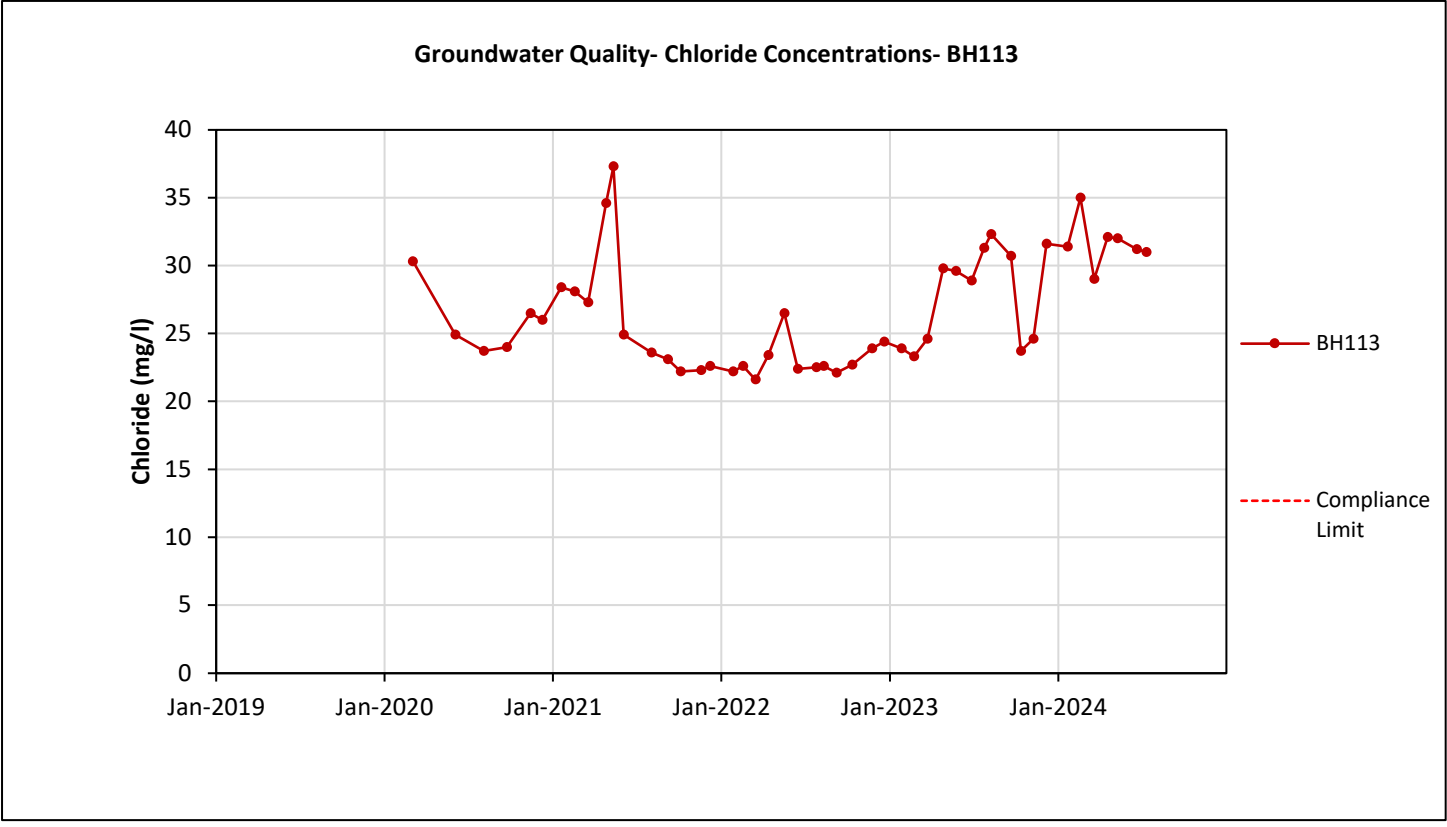
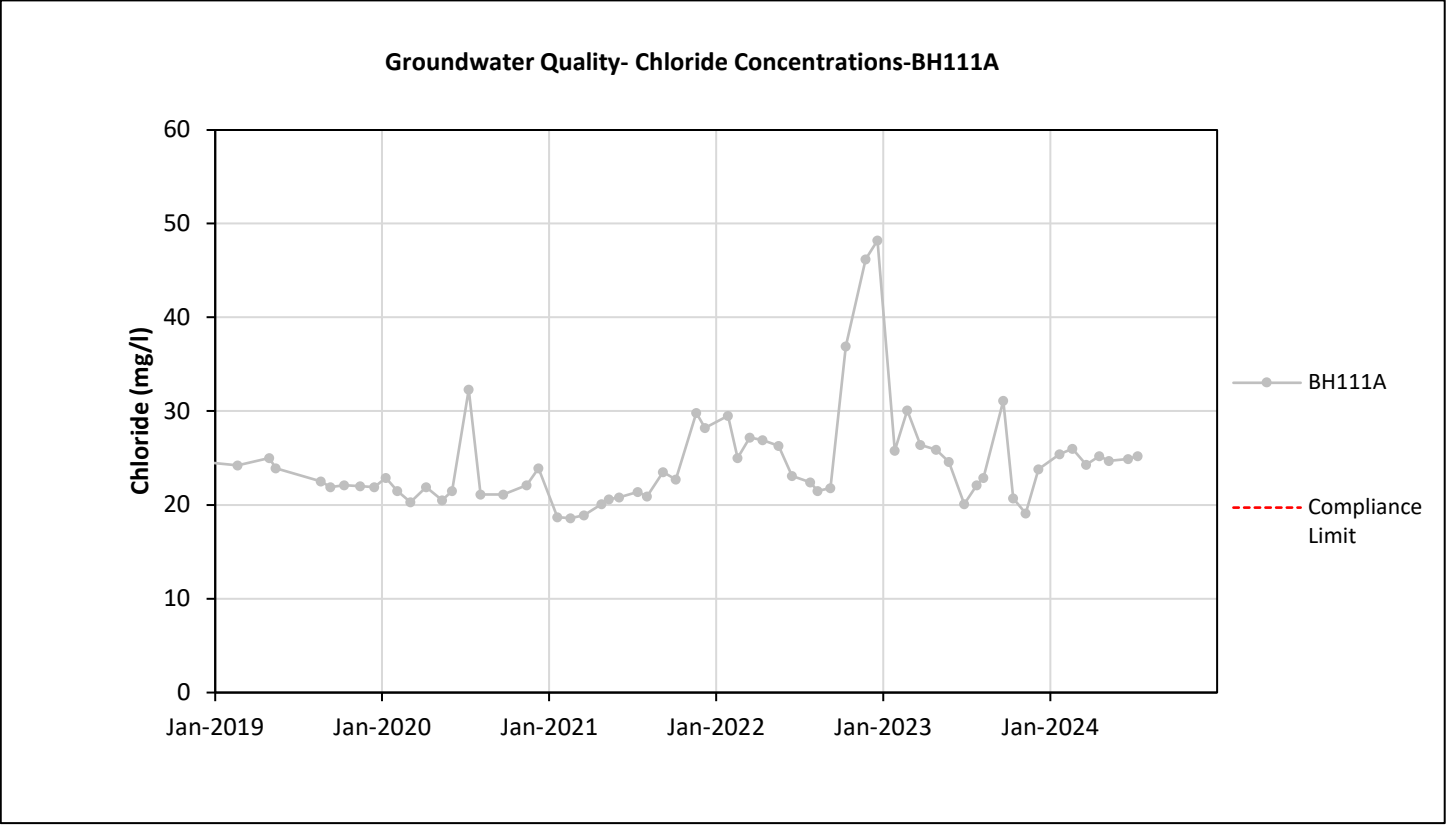
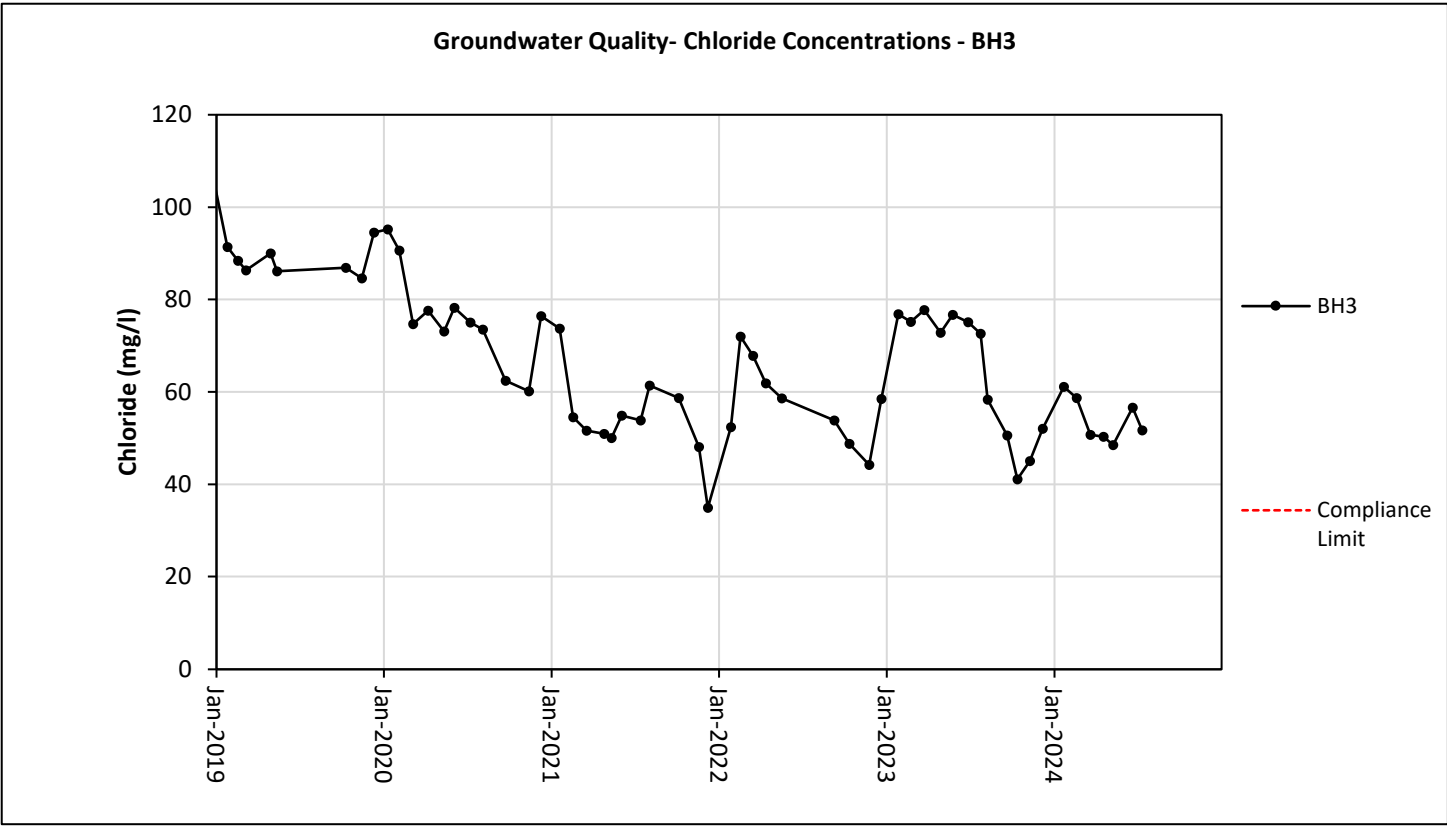
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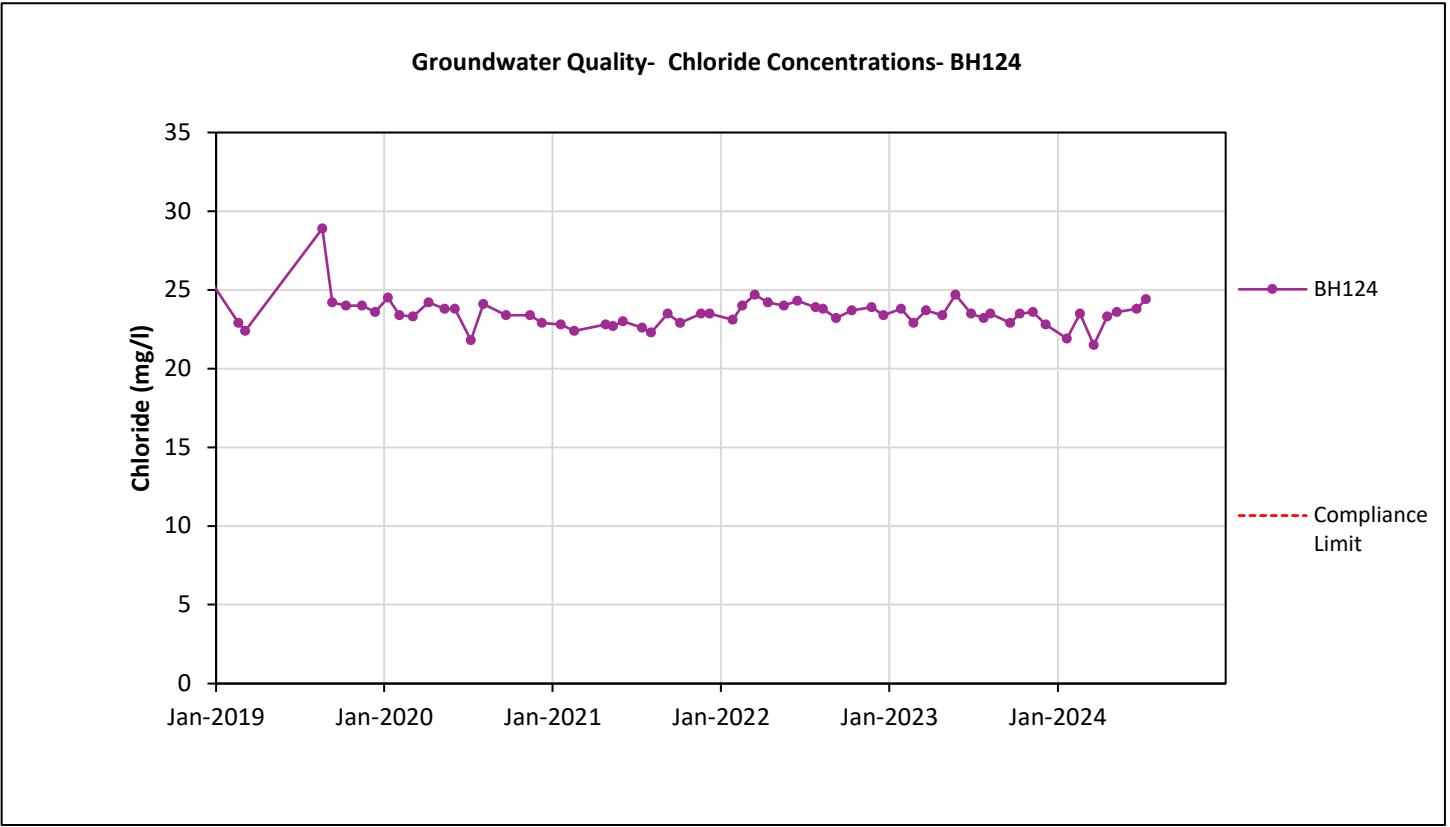
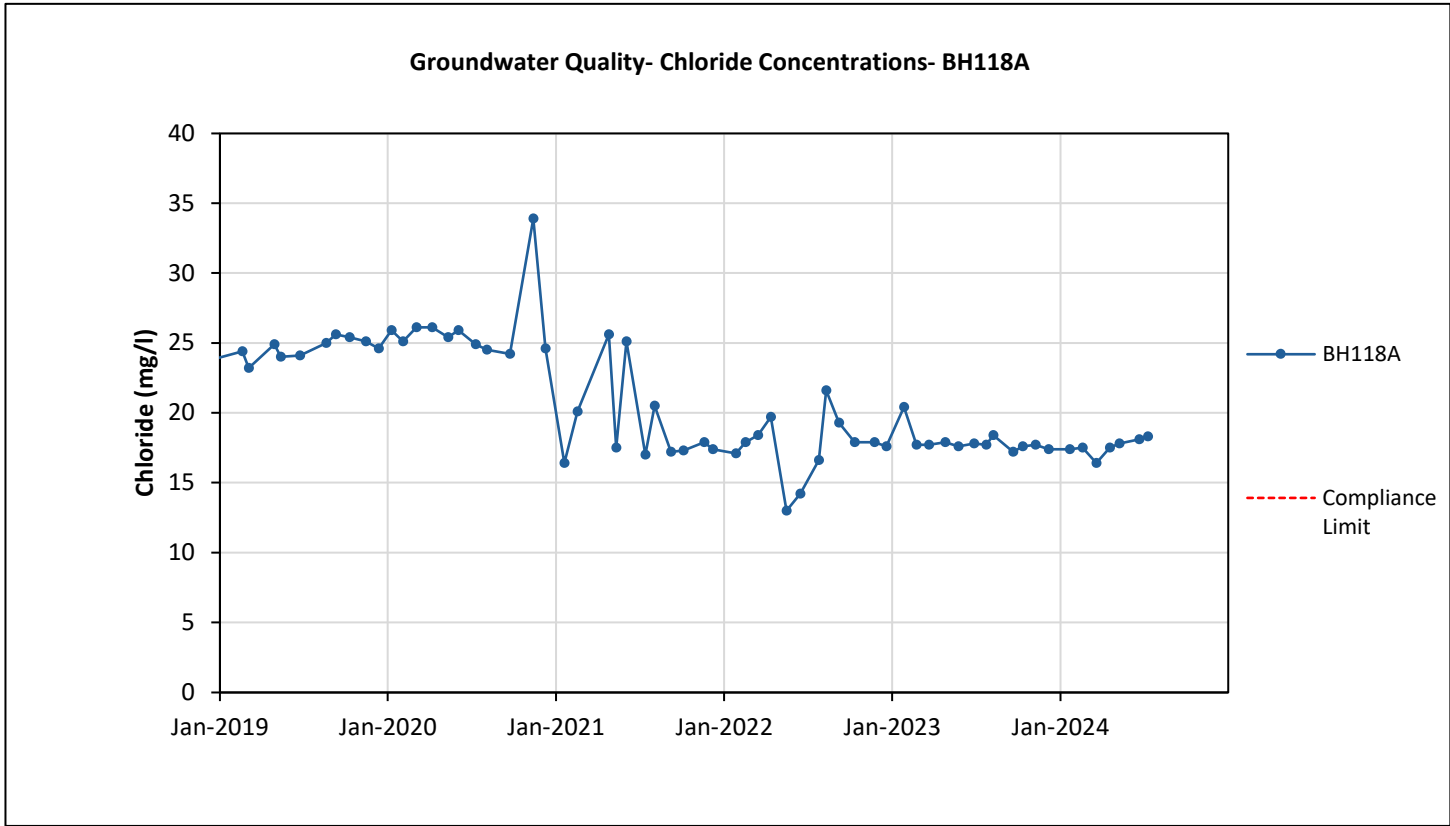


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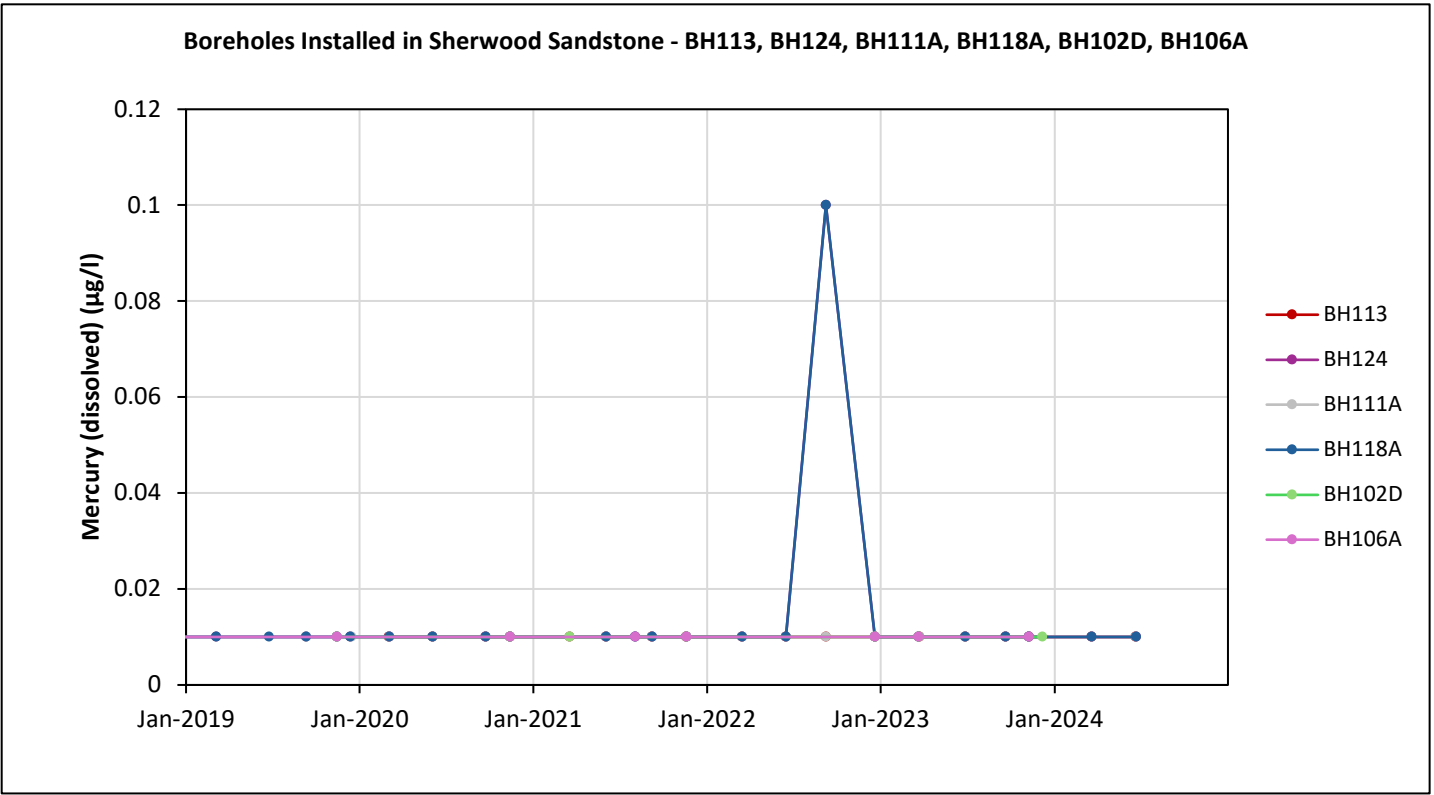
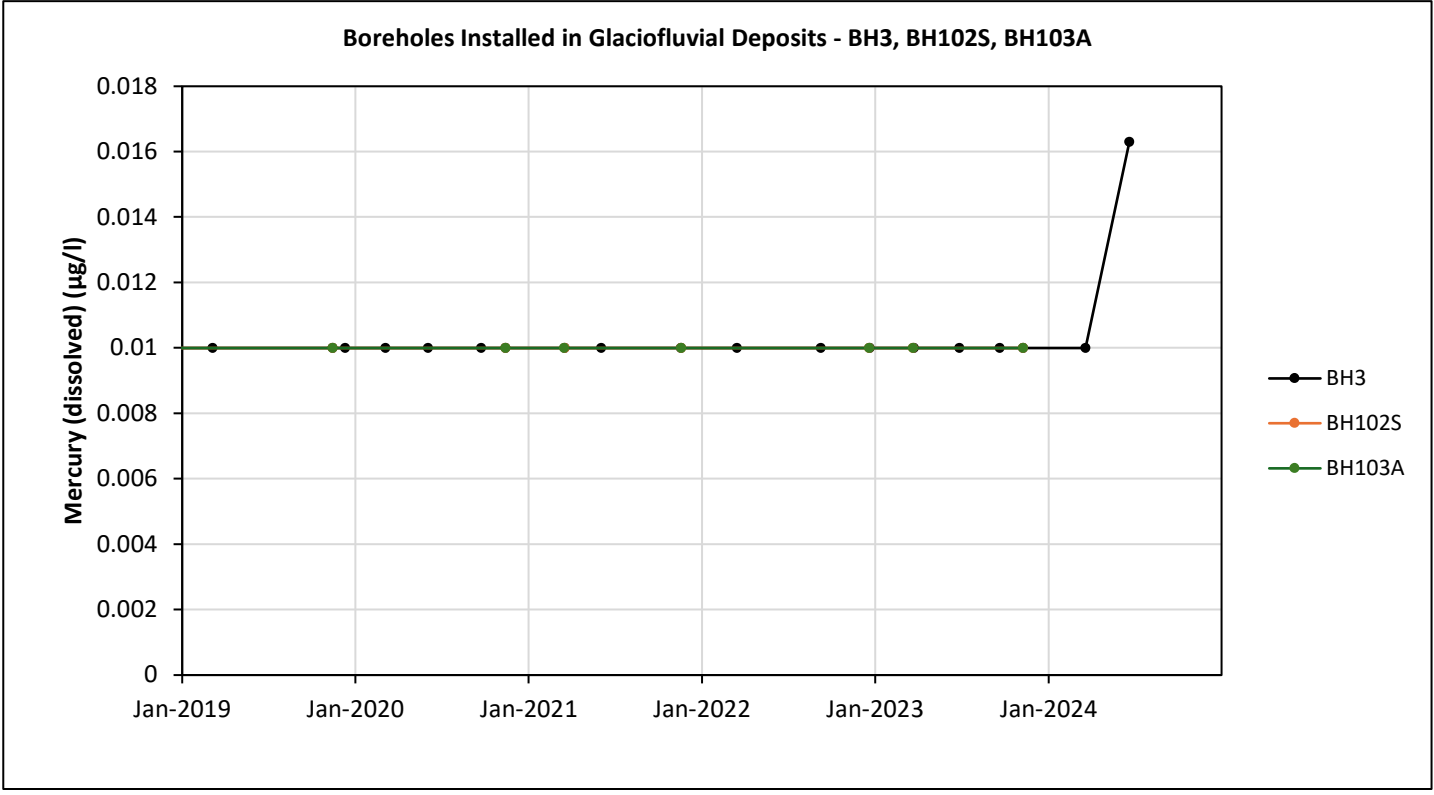
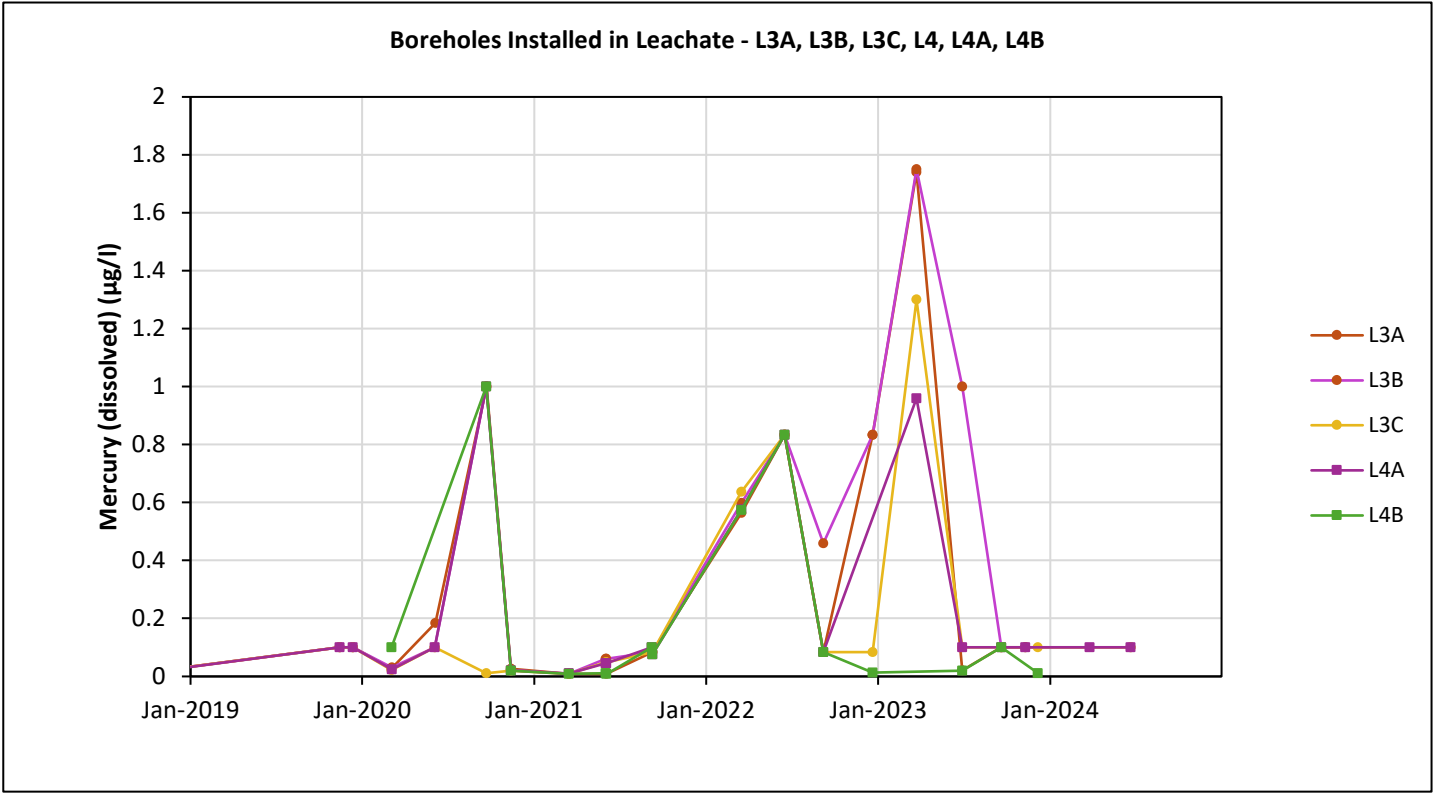
Note: The chloride compliance limit is 250mg/l.

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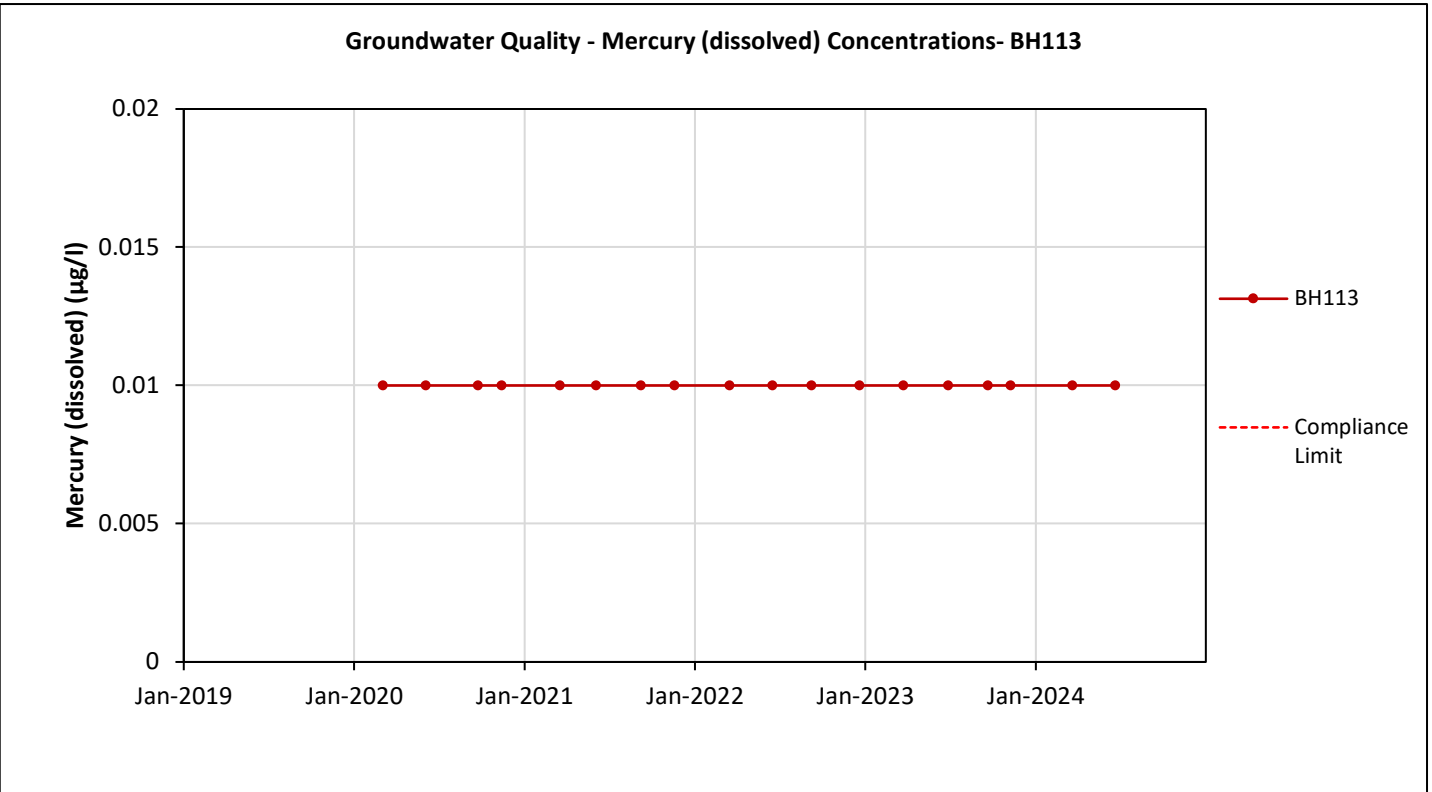
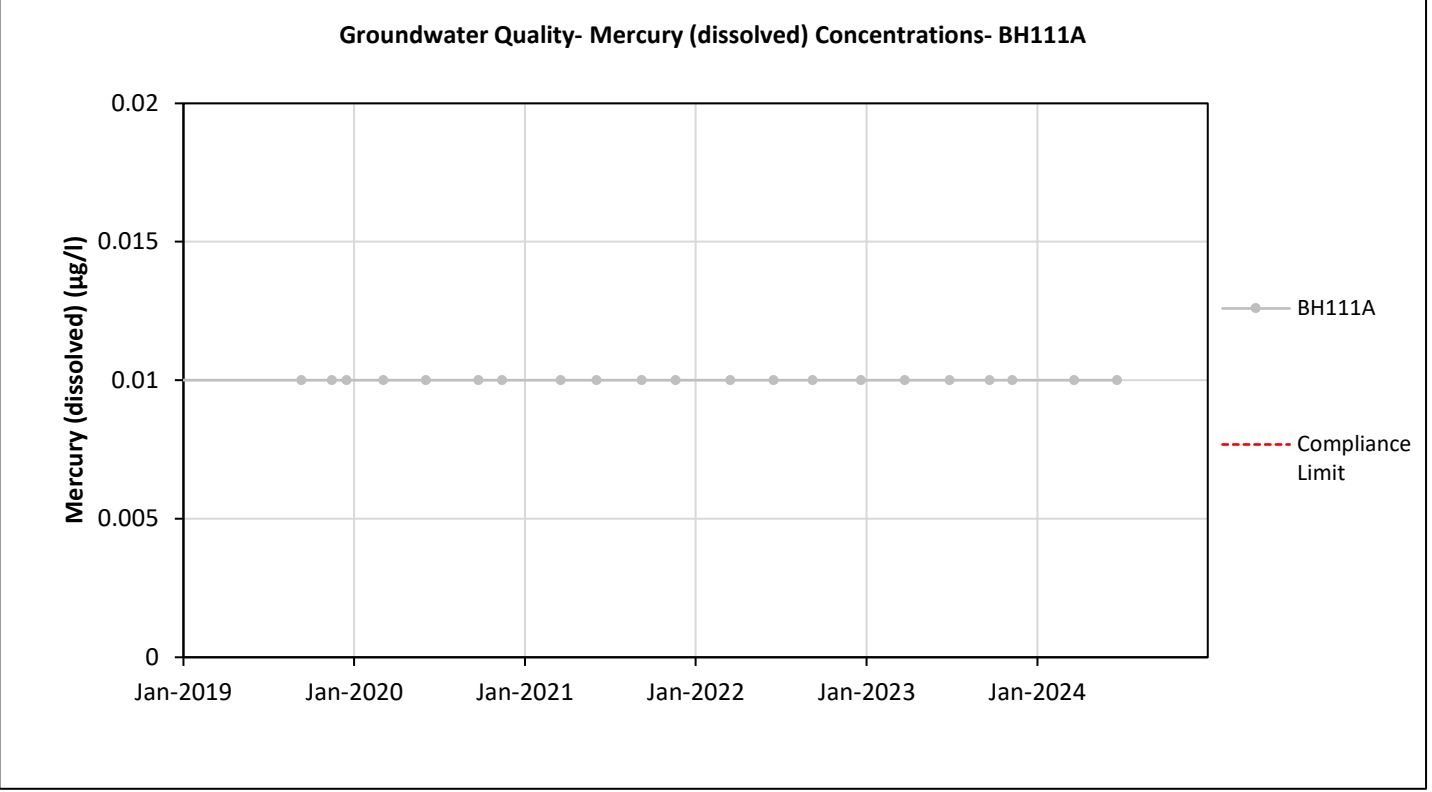
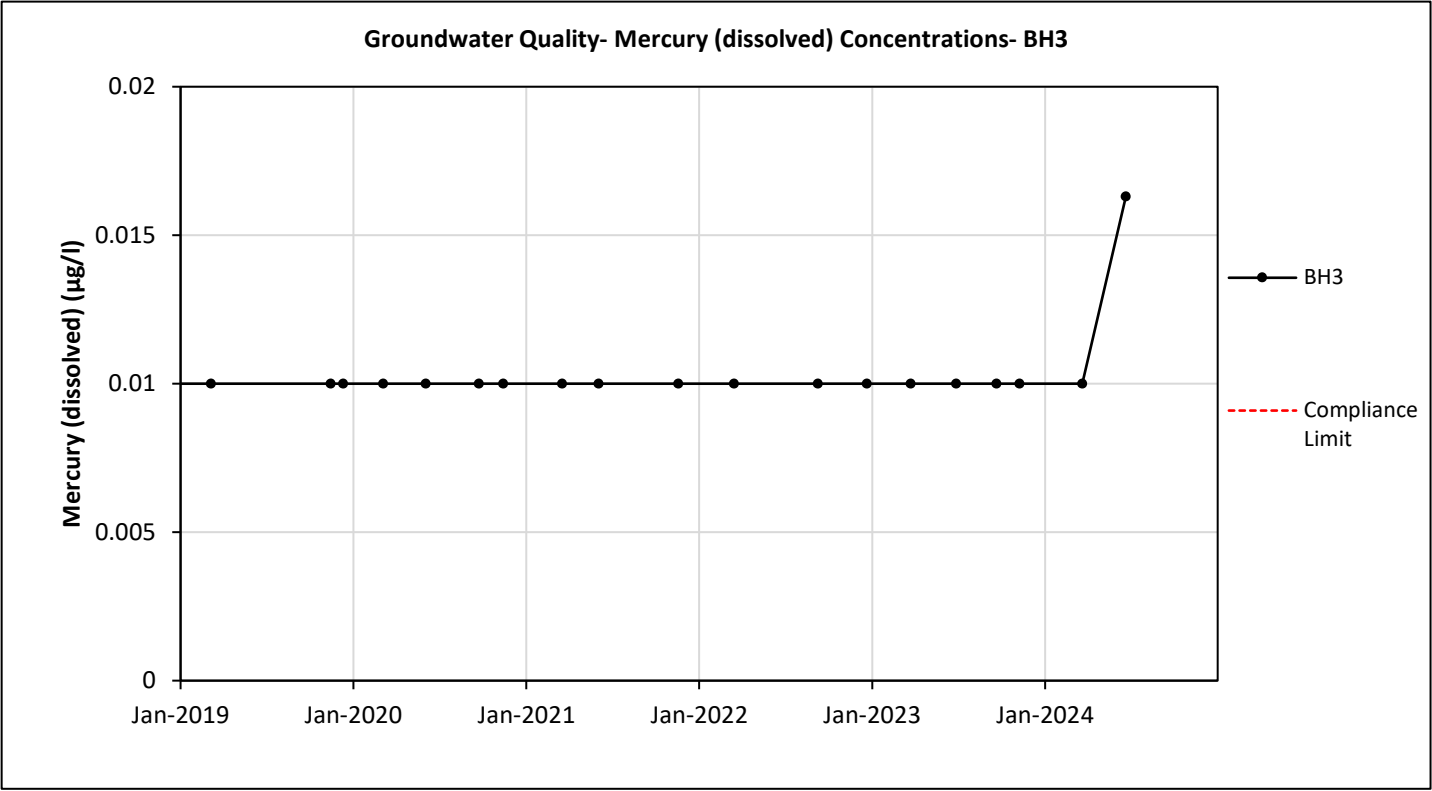
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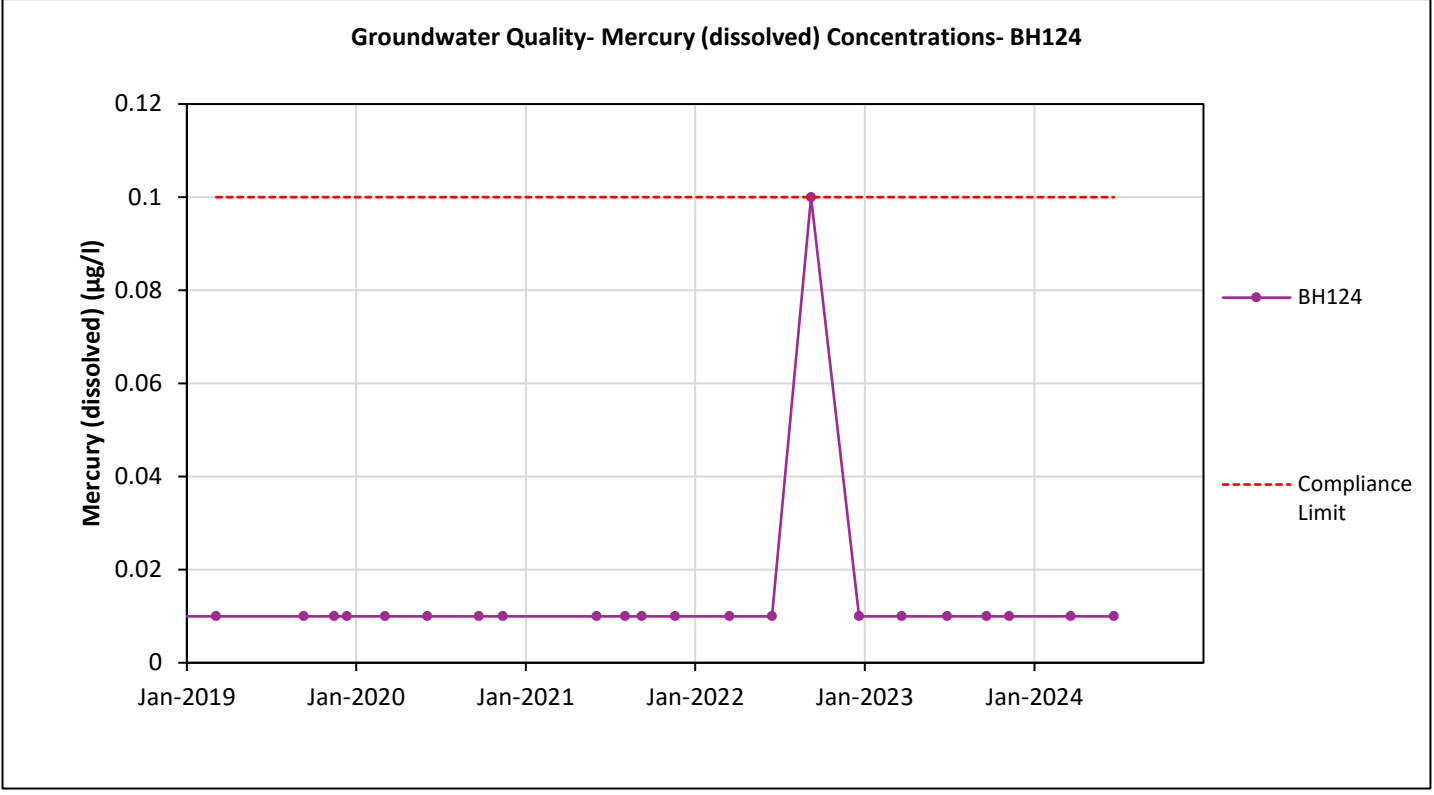
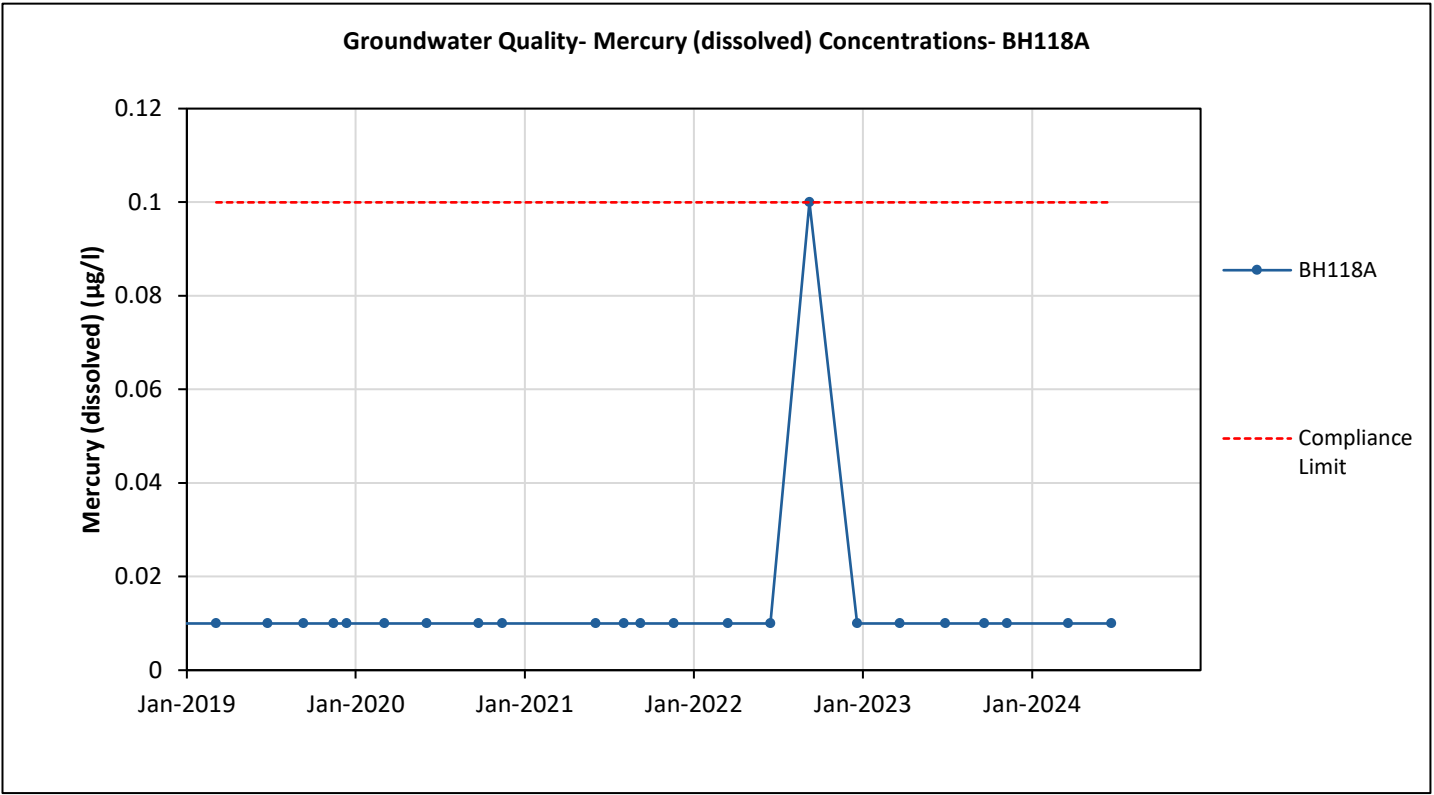
Note: Mercury concentrations recorded at 0.01µg/l, 0.1µg/l and 1µg/l correspond to LOD.

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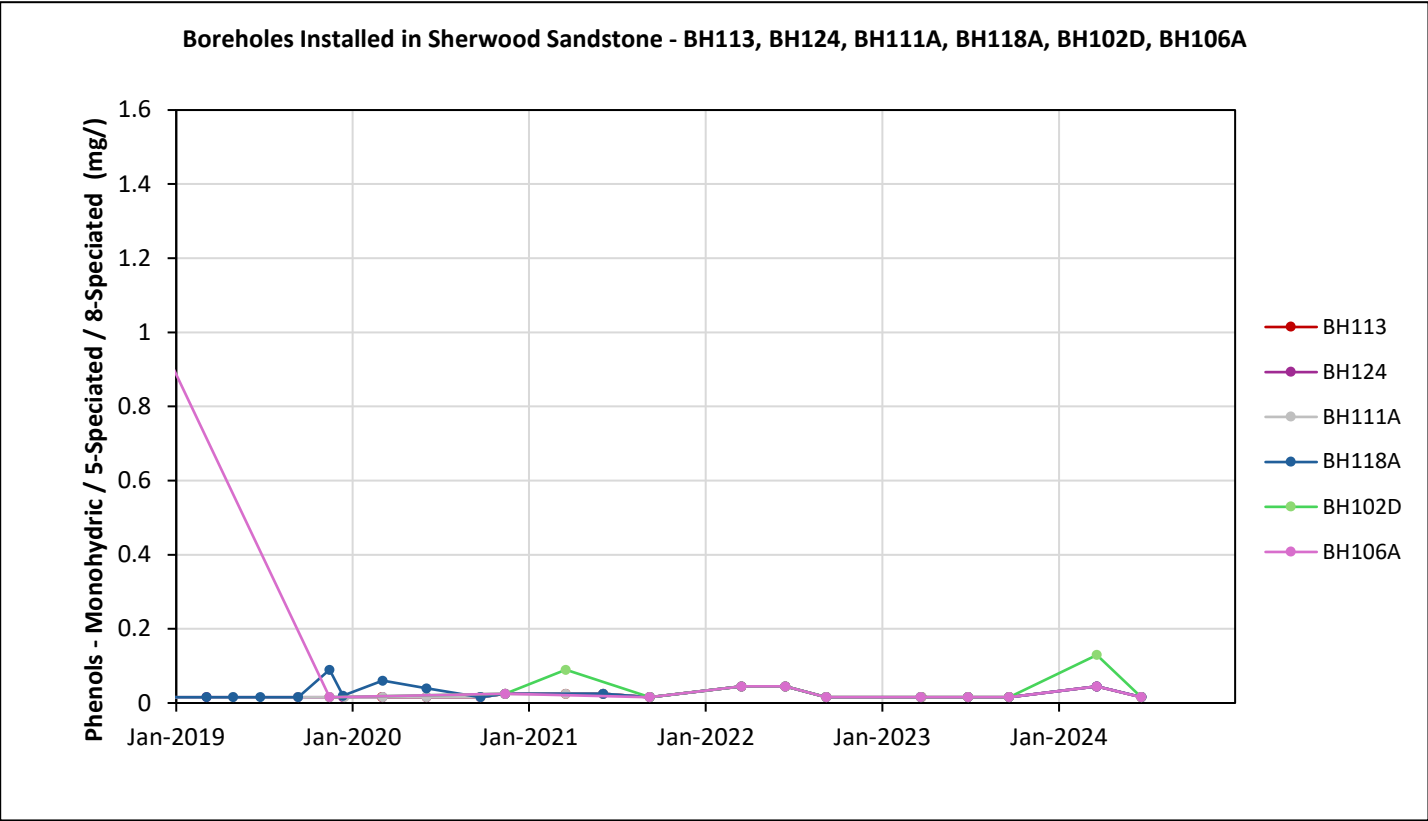
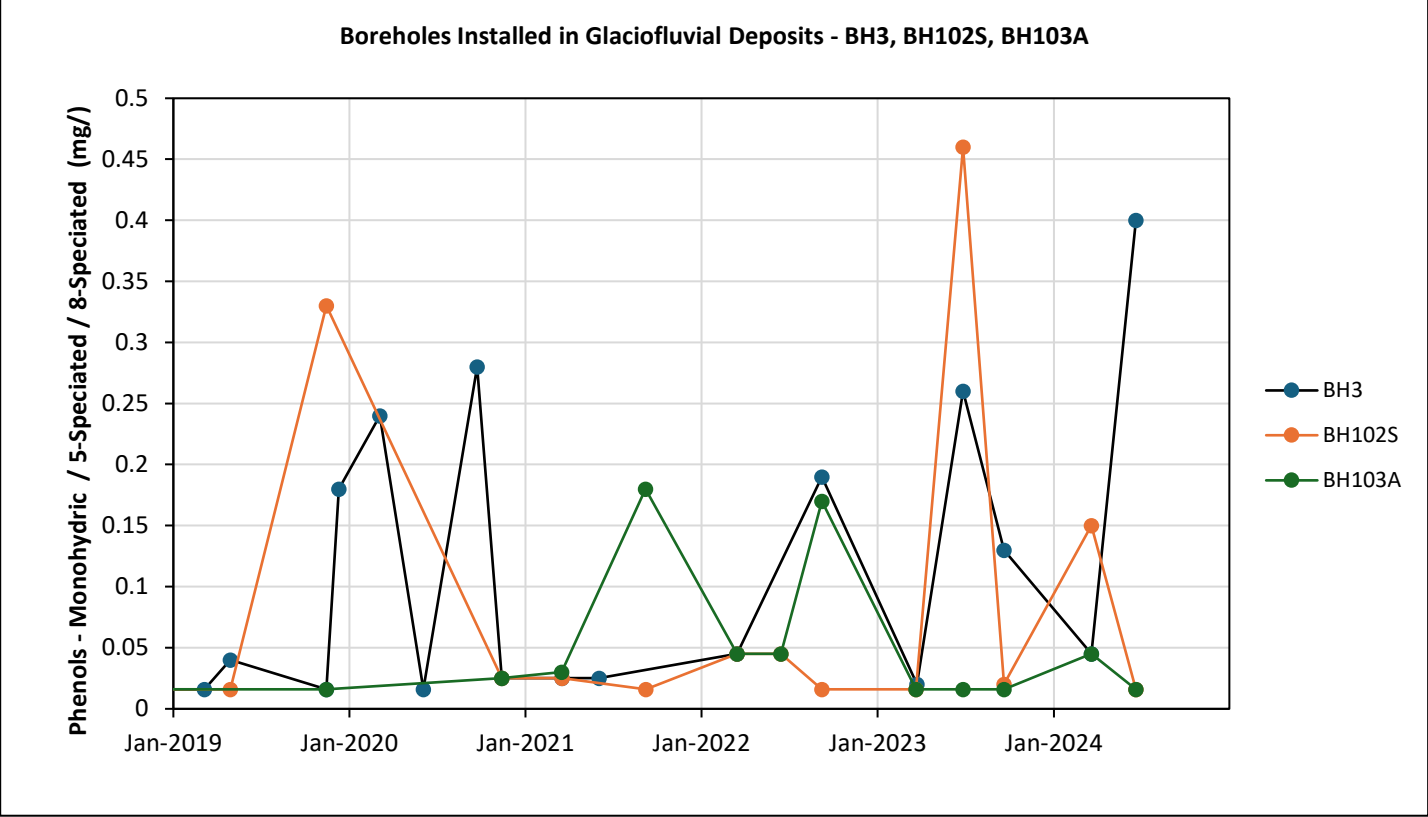
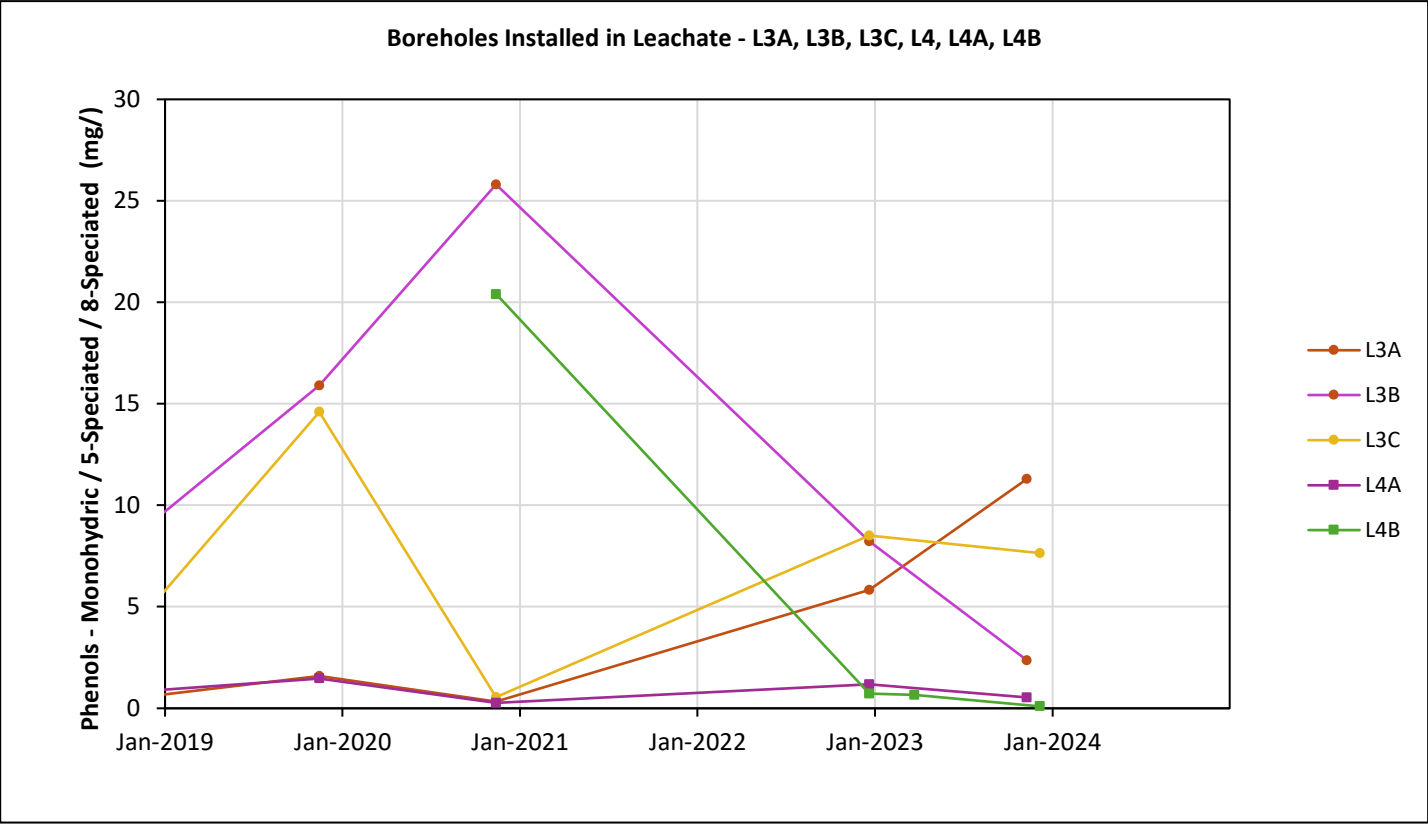
Note: The mercury compliance limit is 0.1µg/l. Mercury concentrations recorded at 0.01µg/l, 0.1µg/l and 1µg/l correspond to LOD.

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A5.6	KT	AS	Dec-24



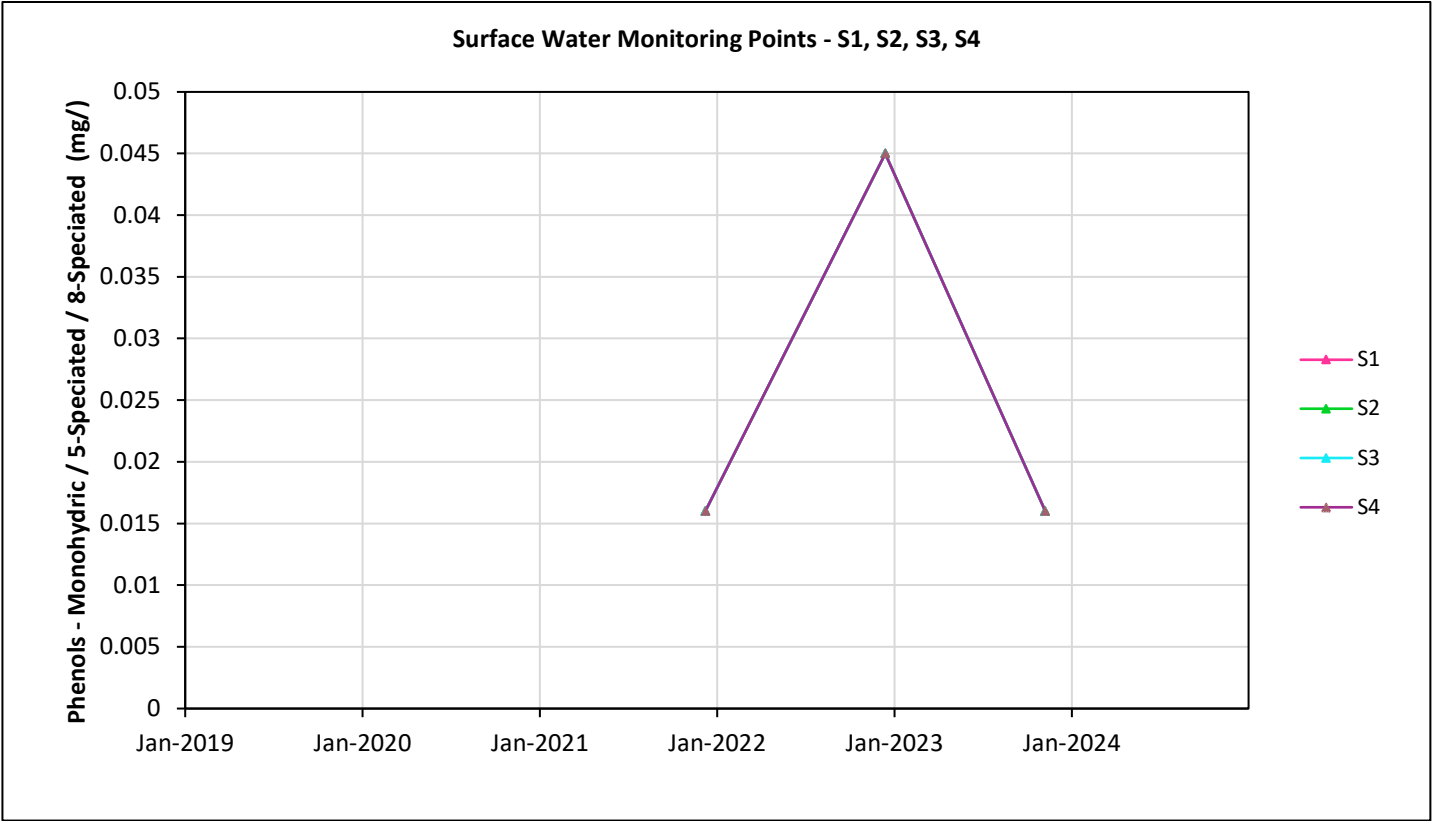
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CLIENT	QUERCIA LIMITED		
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FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.6	KT	AS	Dec-24



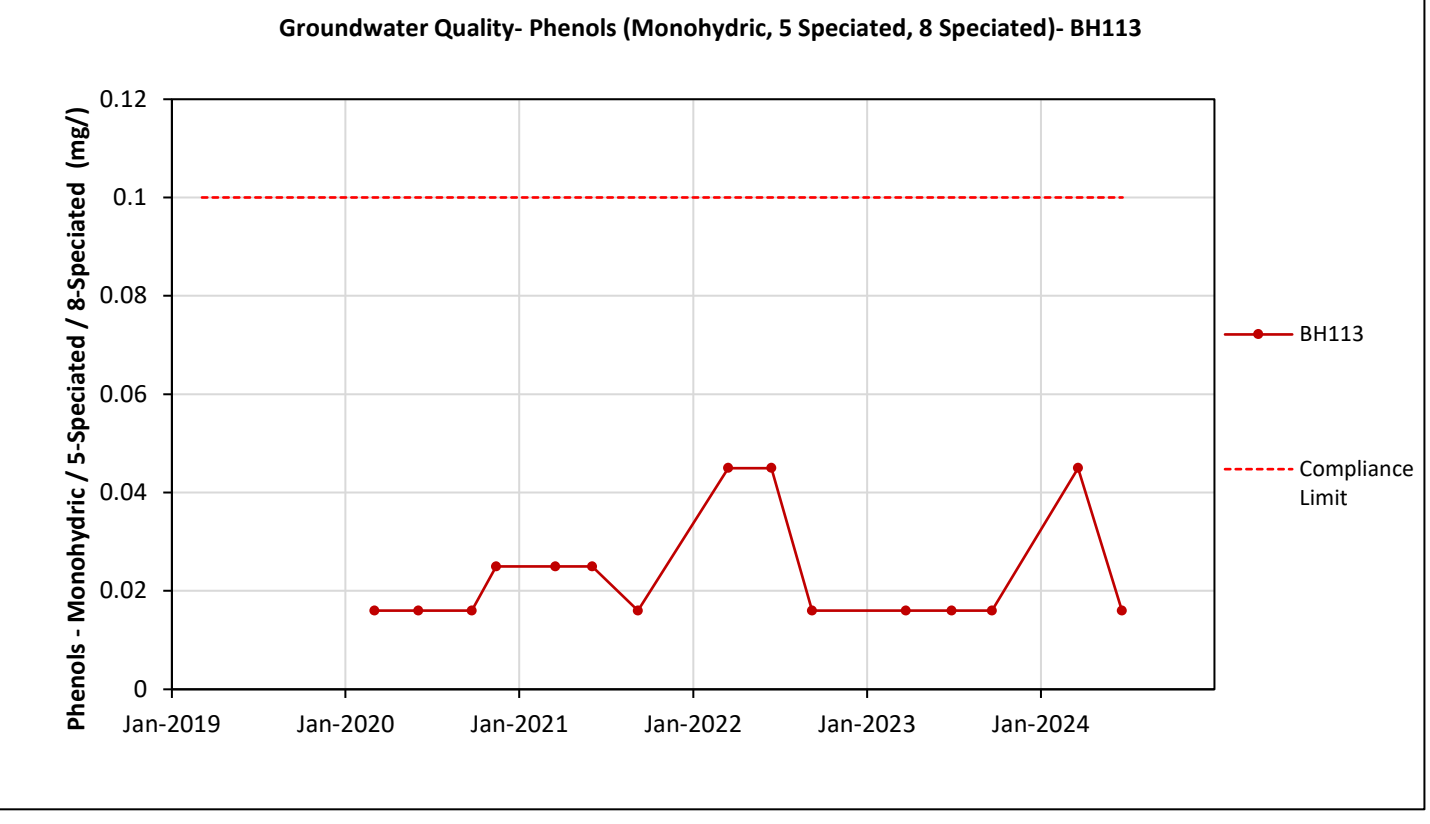
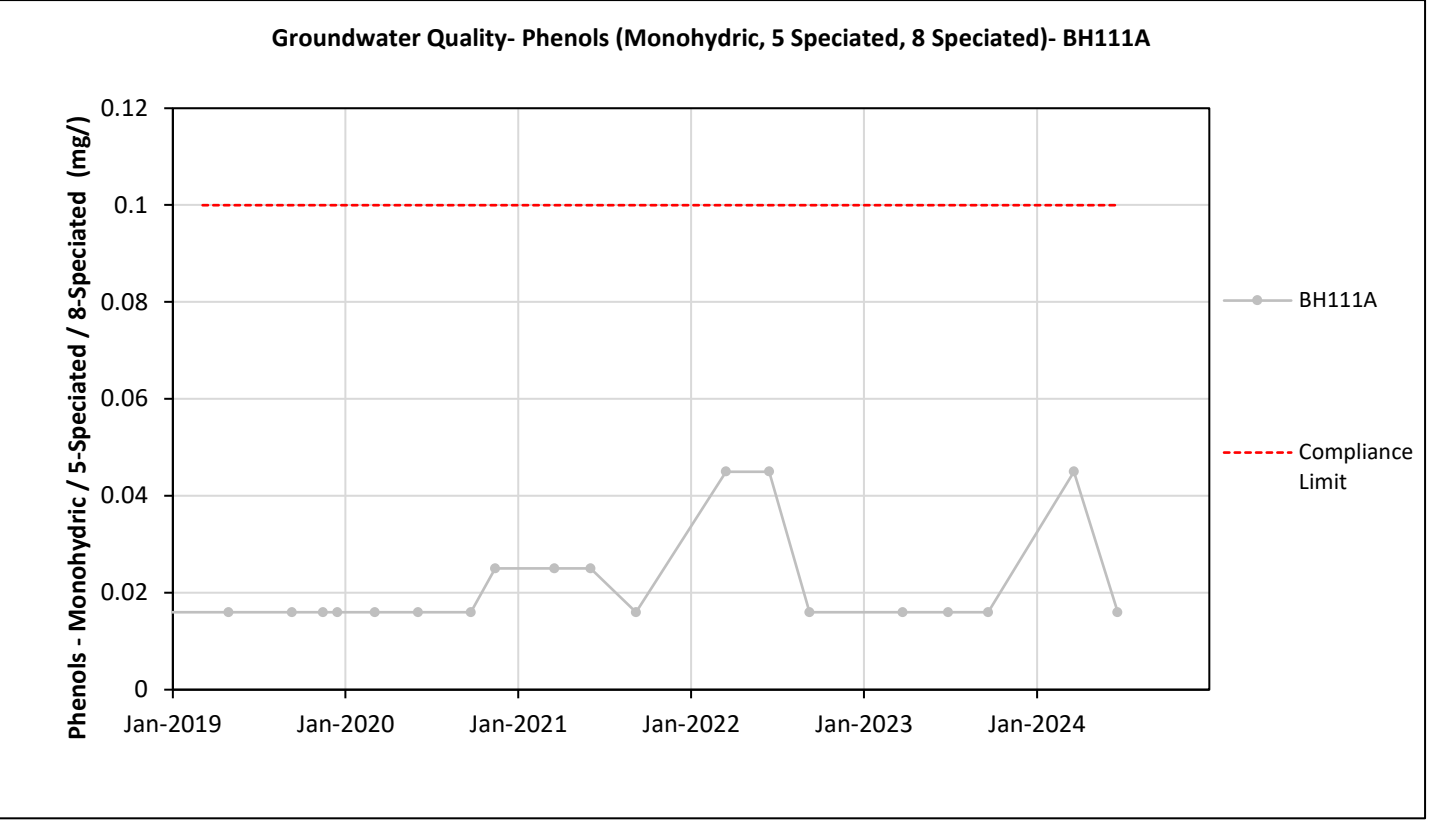
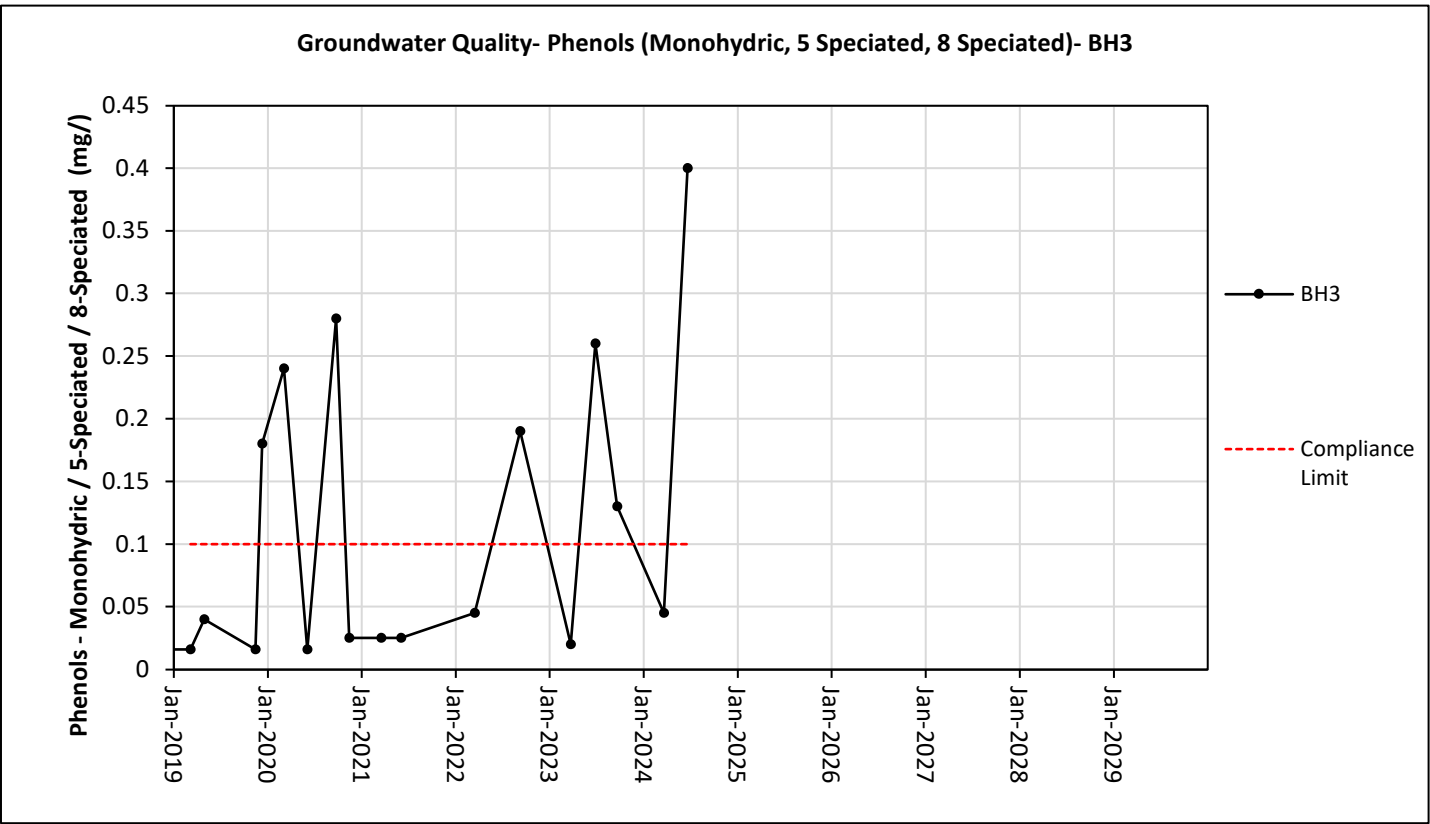
Note: Total Detected Monohydric Phenols, Total Detected 5-Speciated Phenols and Total Detected 8-Speciated Phenols concentrations recorded at 0.016mg/l, 0.025mg/l and 0.045mg/l correspond to analytical limits of detection and therefore do not represent true Total Detected Monohydric Phenols, Total Detected 5-Speciated Phenols and Total Detected 8-Speciated Phenols concentrations.

<div><div>PART OF</div><div></div></div>			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.7	KT	AS	Dec-24



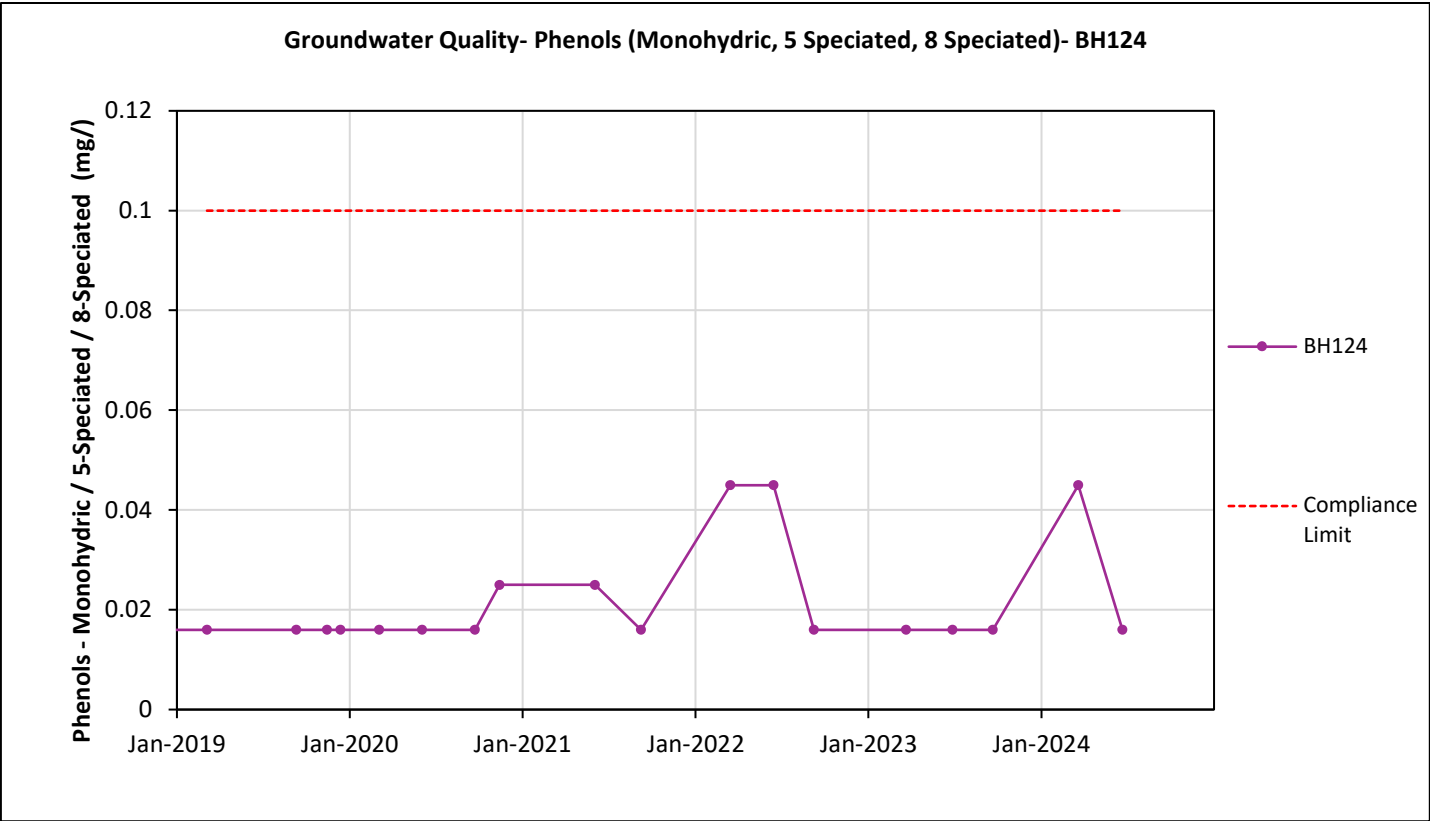
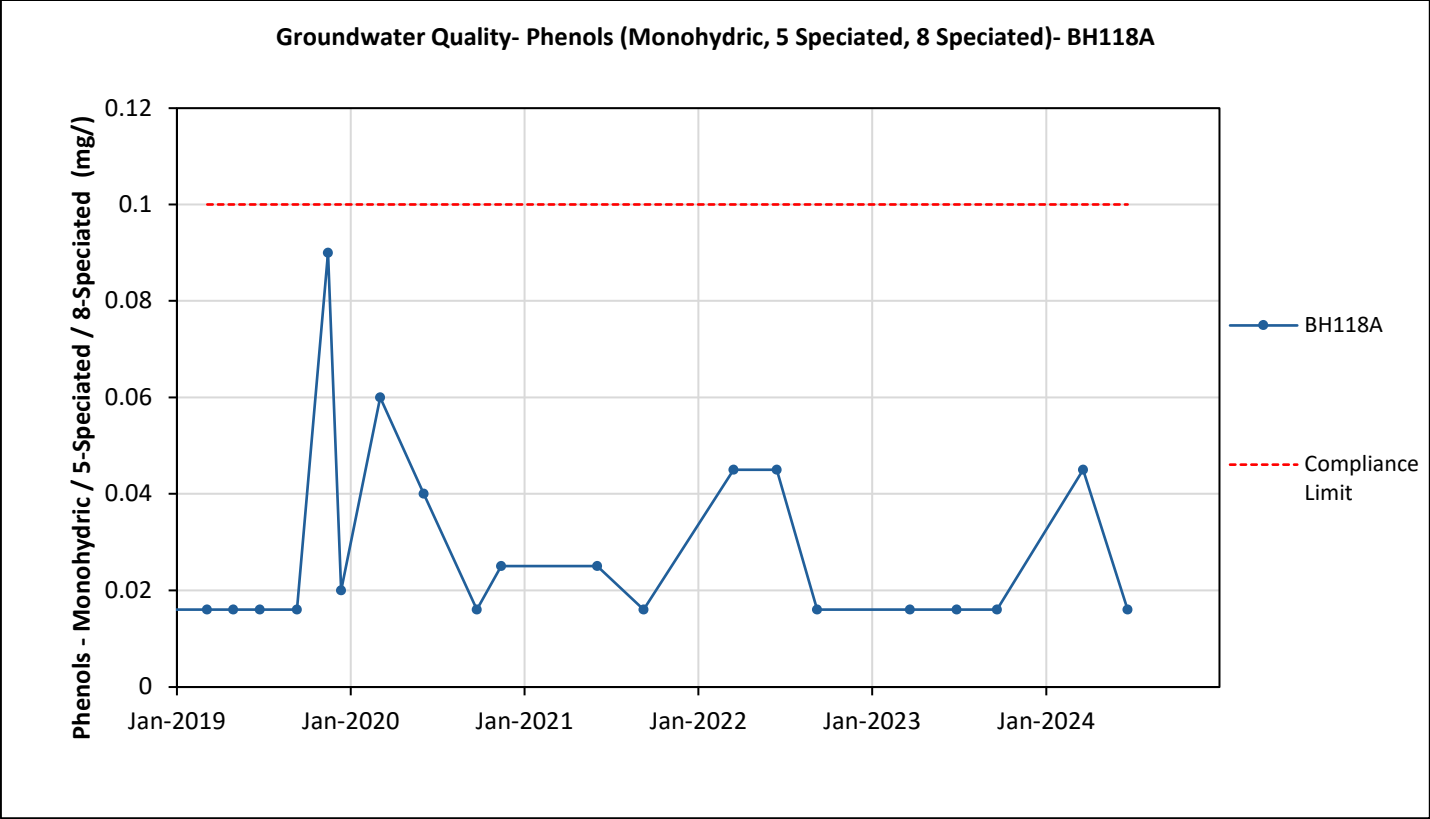
Note: Total Detected Monohydric Phenols, Total Detected 5-Speciated Phenols and Total Detected 8-Speciated Phenols concentrations recorded at 0.016mg/l, 0.025mg/l and 0.045mg/l correspond to analytical limits of detection and therefore do not represent true Total Detected Monohydric Phenols, Total Detected 5-Speciated Phenols and Total Detected 8-Speciated Phenols concentrations.

<div><div></div><div><div>PART OF</div><div></div></div></div>			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.7	KT	AS	Dec-24



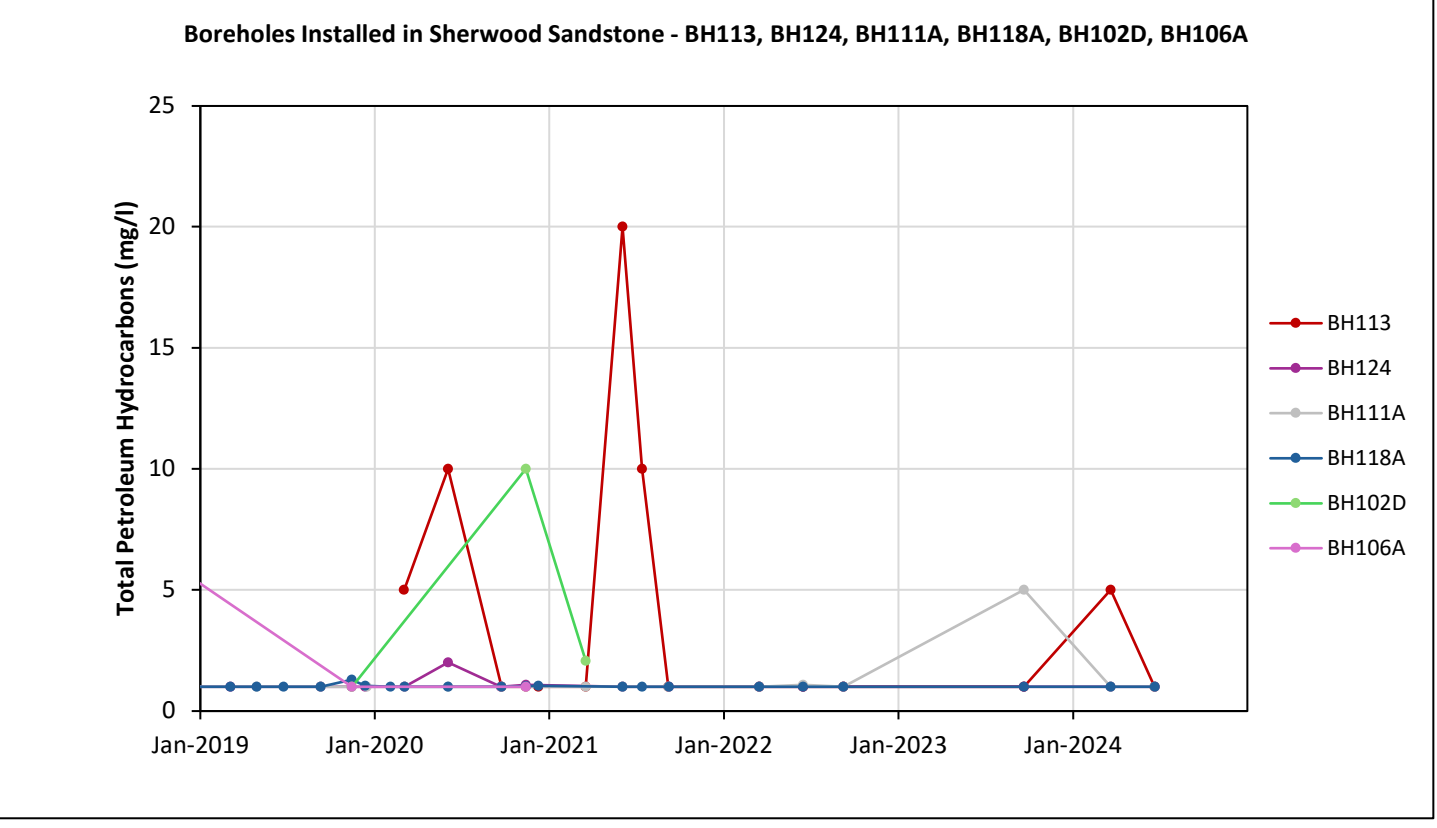
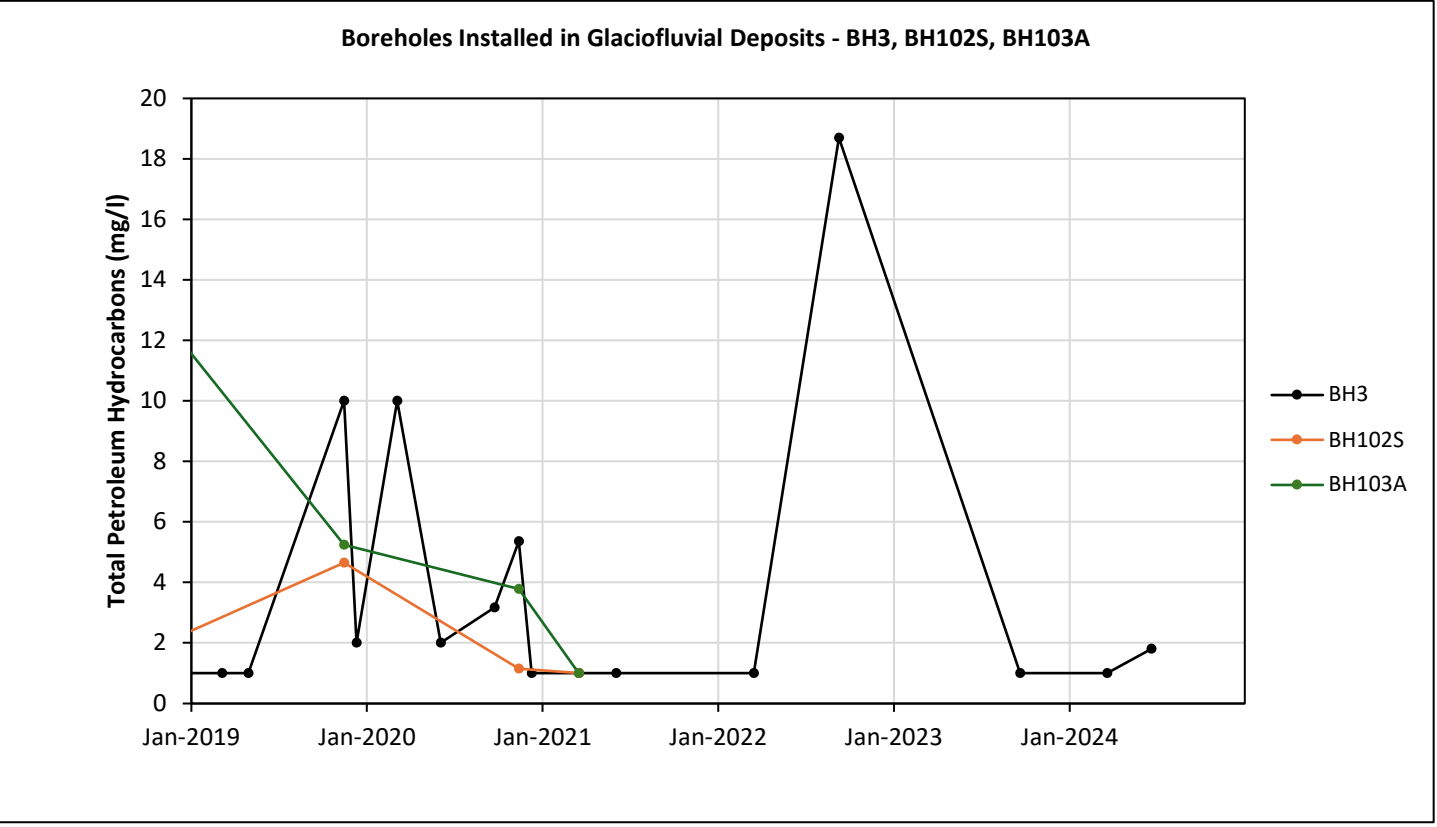
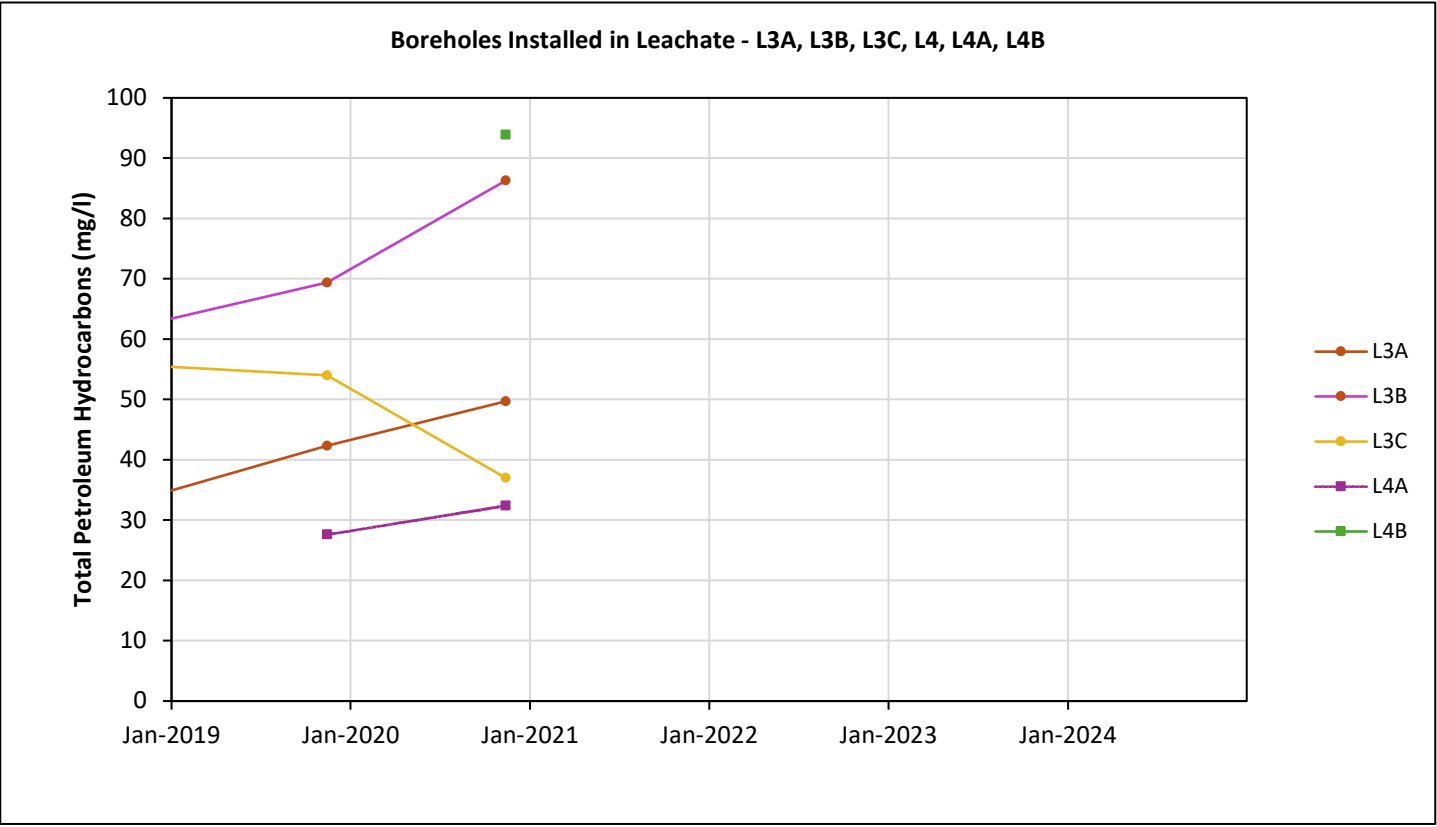
Note: Total Detected Monohydric Phenols, Total Detected 5-Speciated Phenols and Total Detected 8-Speciated Phenols concentrations recorded at 0.016mg/l, 0.025mg/l and 0.045mg/l correspond to LOD.

<div><div></div><div><div>PART OF</div></div></div>			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.8	KT	AS	Dec-24



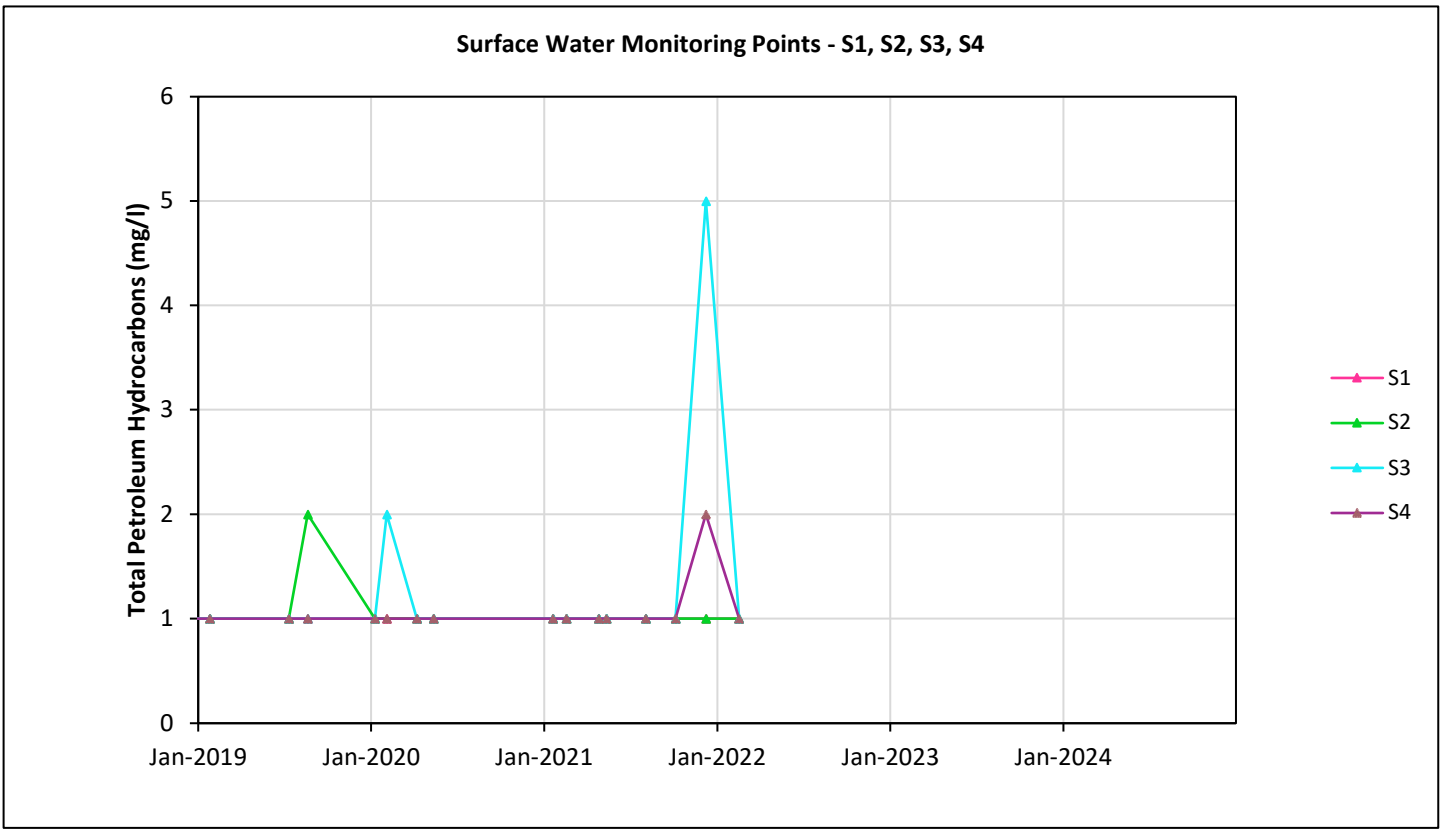
Note: Total Detected Monohydric Phenols, Total Detected 5-Speciated Phenols and Total Detected 8-Speciated Phenols concentrations recorded at 0.016mg/l, 0.025mg/l and 0.045mg/l correspond to LOD.

<div><div></div><div><div>PART OF</div><div></div></div></div>			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.8	KT	AS	Dec-24



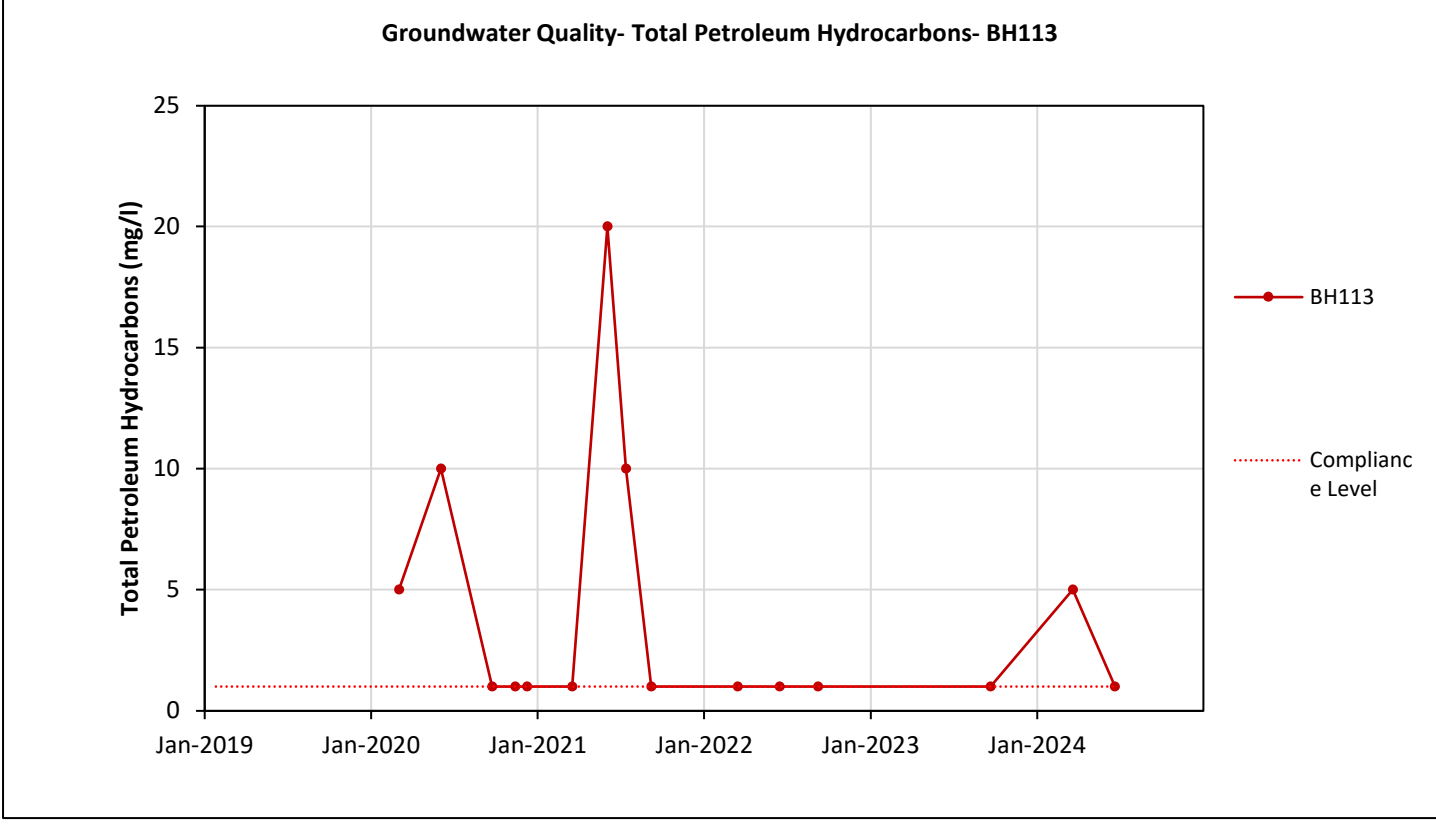
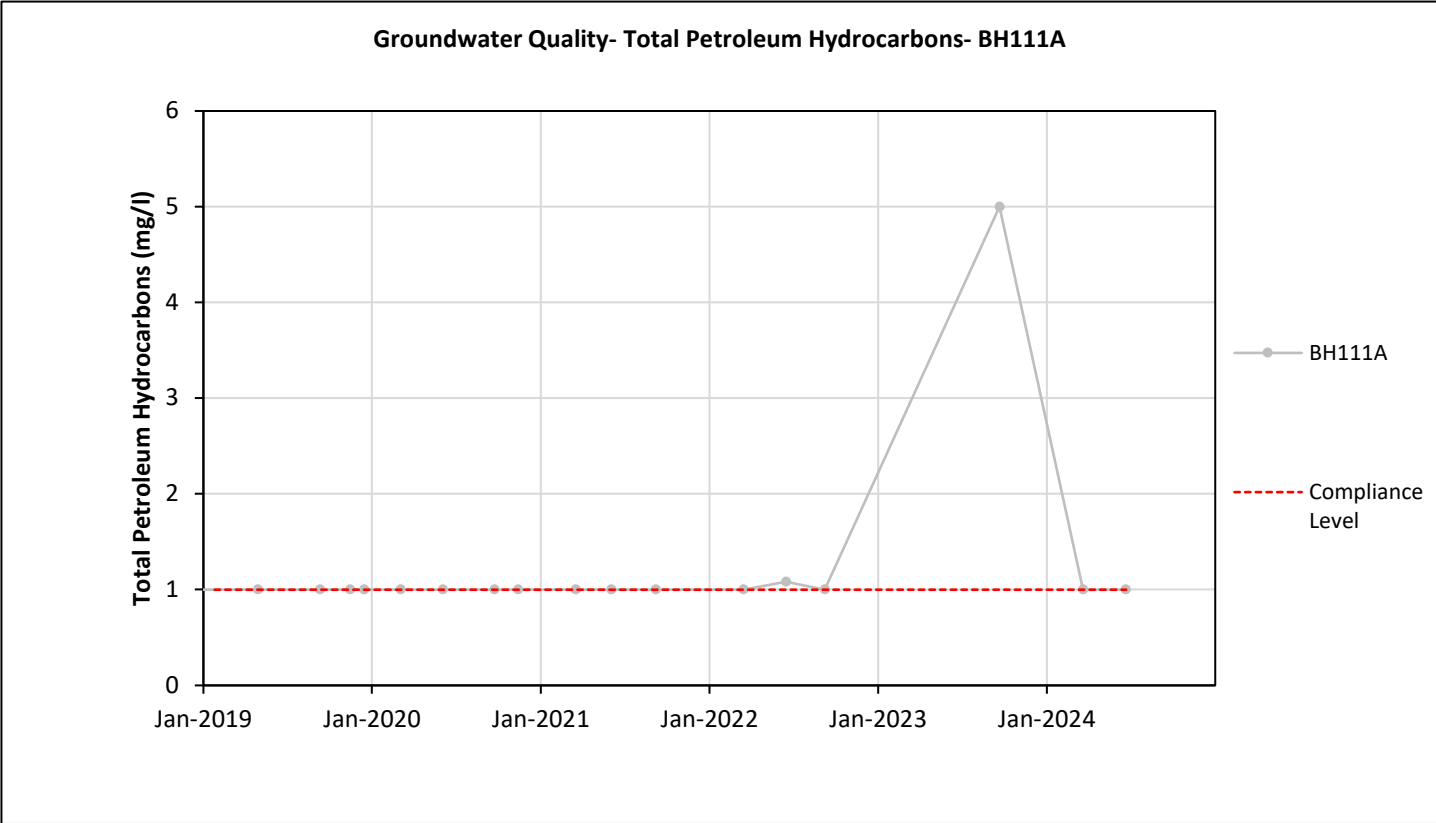
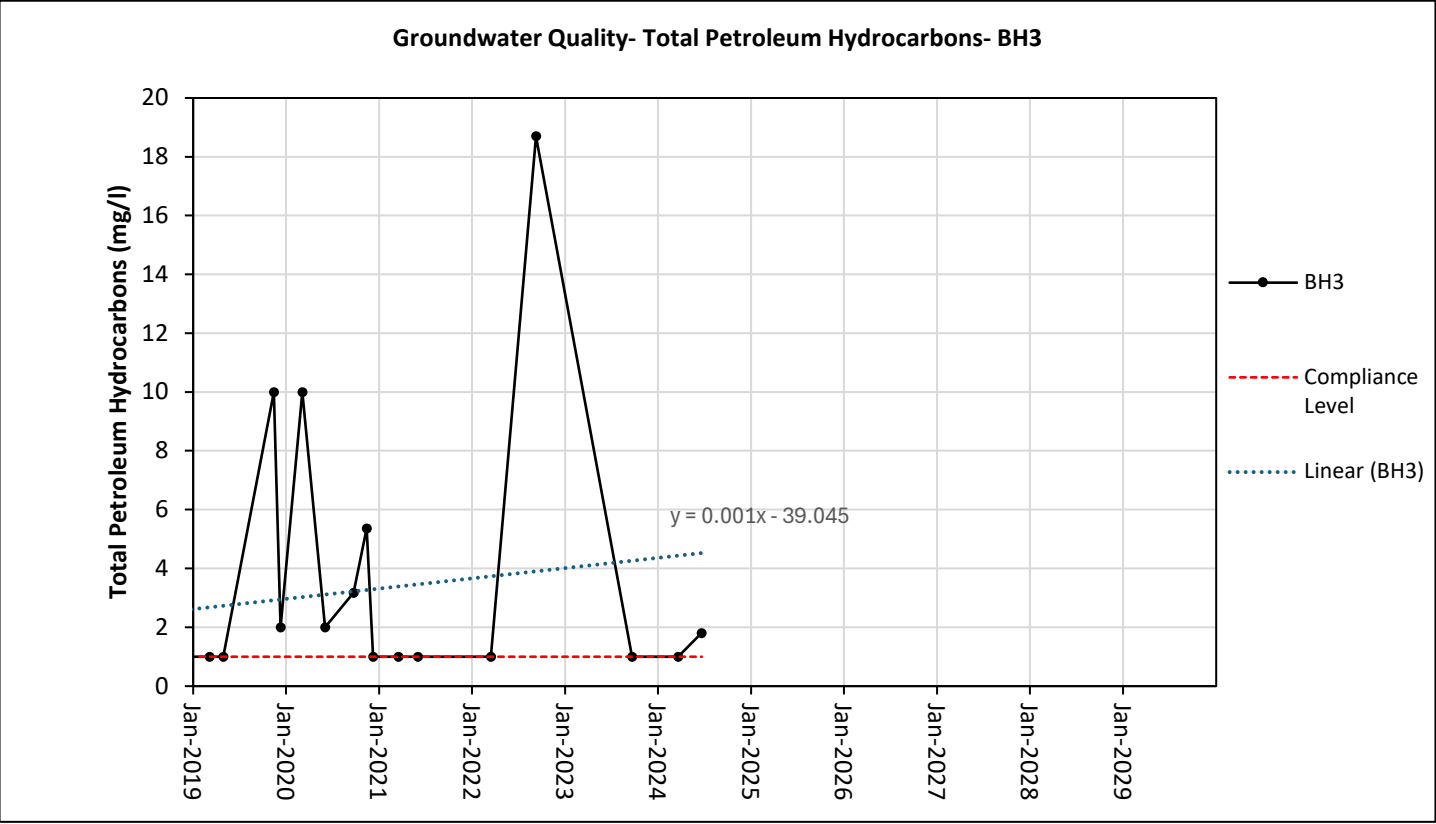
Note: TPH concentrations recorded at 1mg/l, 2mg/l, 5mg/l, 10mg/l and 20mg/l correspond to analytical limits of detection and therefore do not represent true TPH concentrations.

<div><div>PART OF</div><div></div></div>			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.9	KT	AS	Dec-24



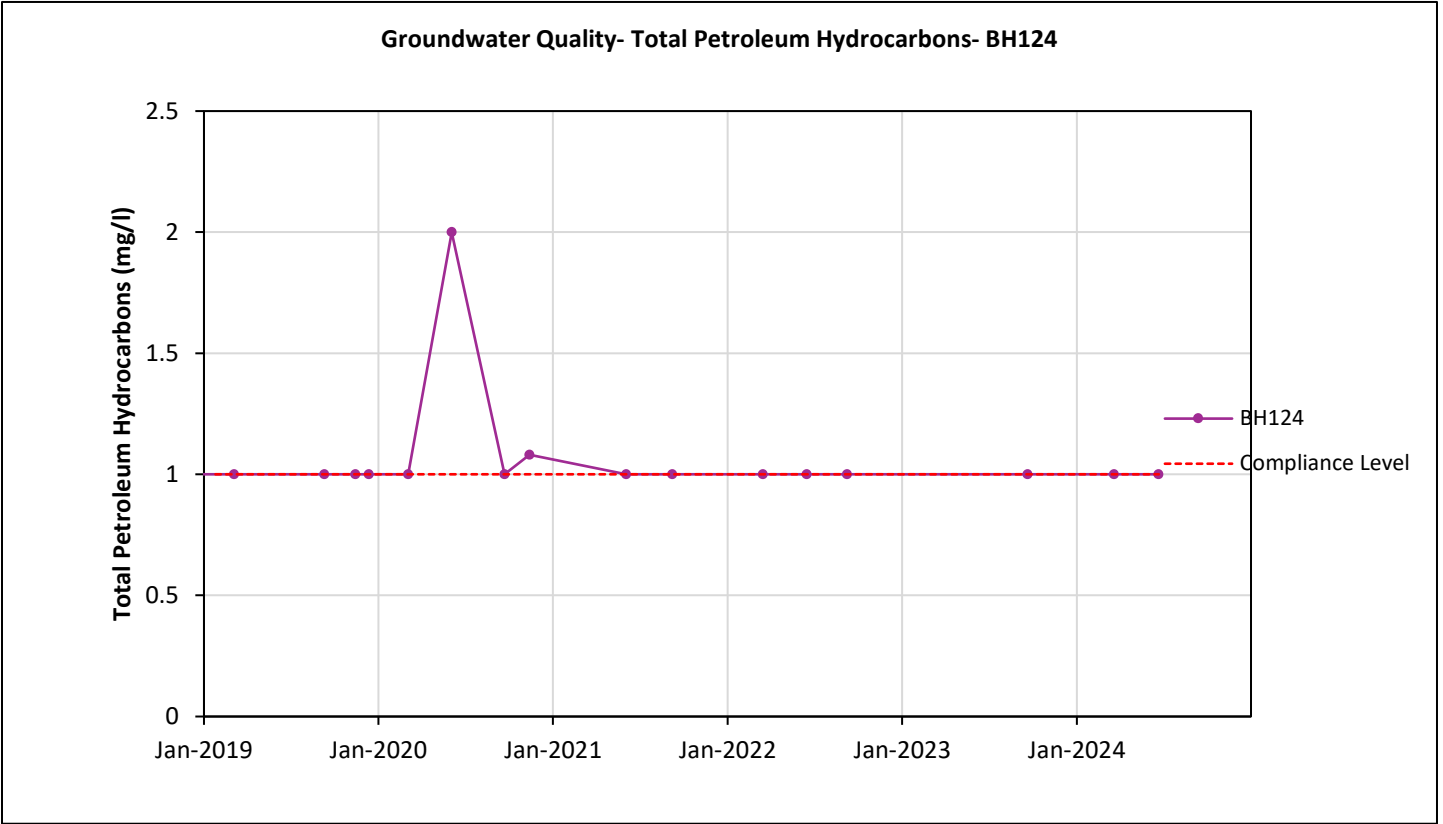
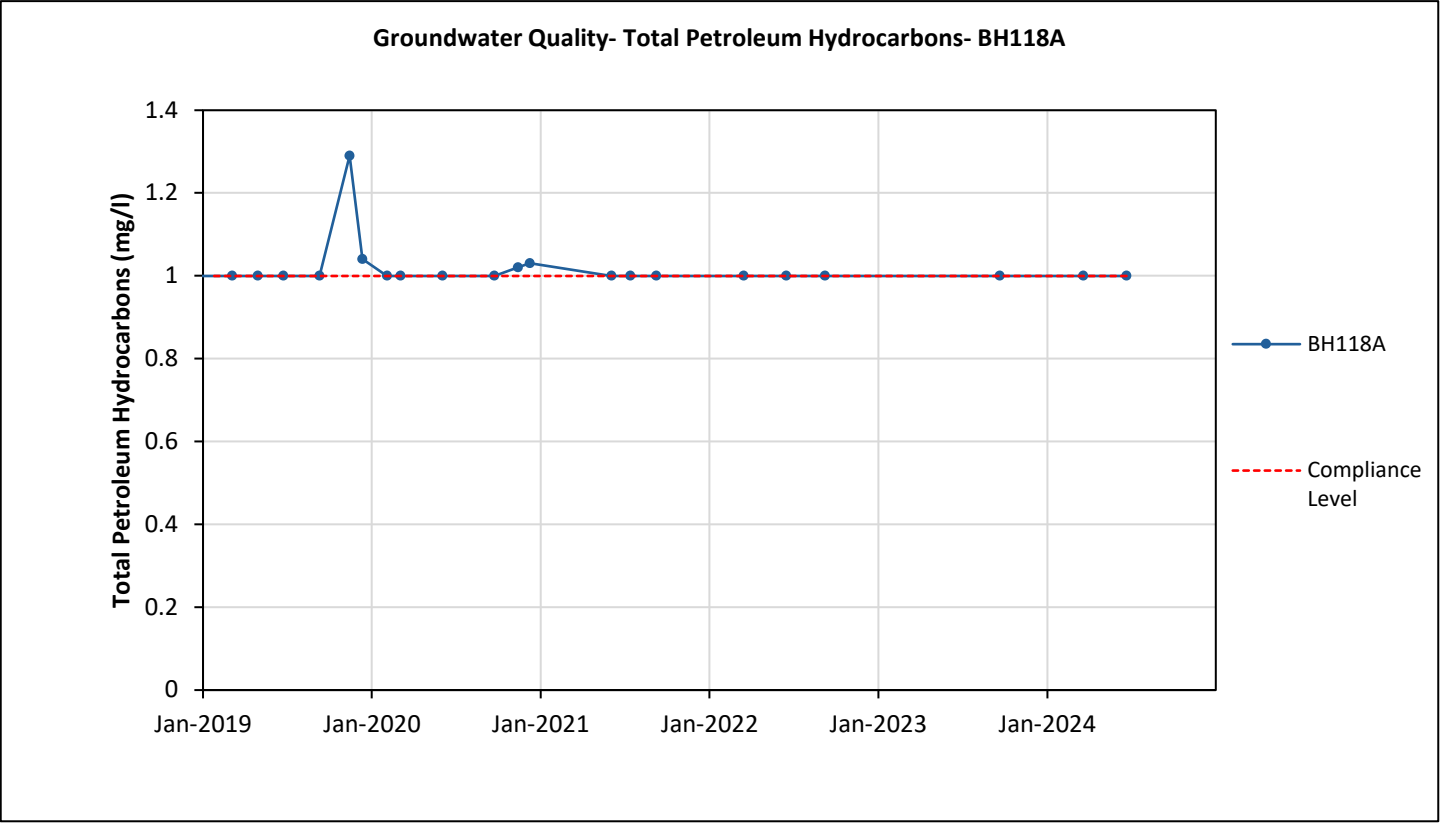
Note: TPH concentrations recorded at 1mg/l, 2mg/l, 5mg/l, 10mg/l and 20mg/l correspond to analytical limits of detection and therefore do not represent true TPH concentrations.

<div><div>PART OF</div><div></div></div>			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.9	KT	AS	Dec-24



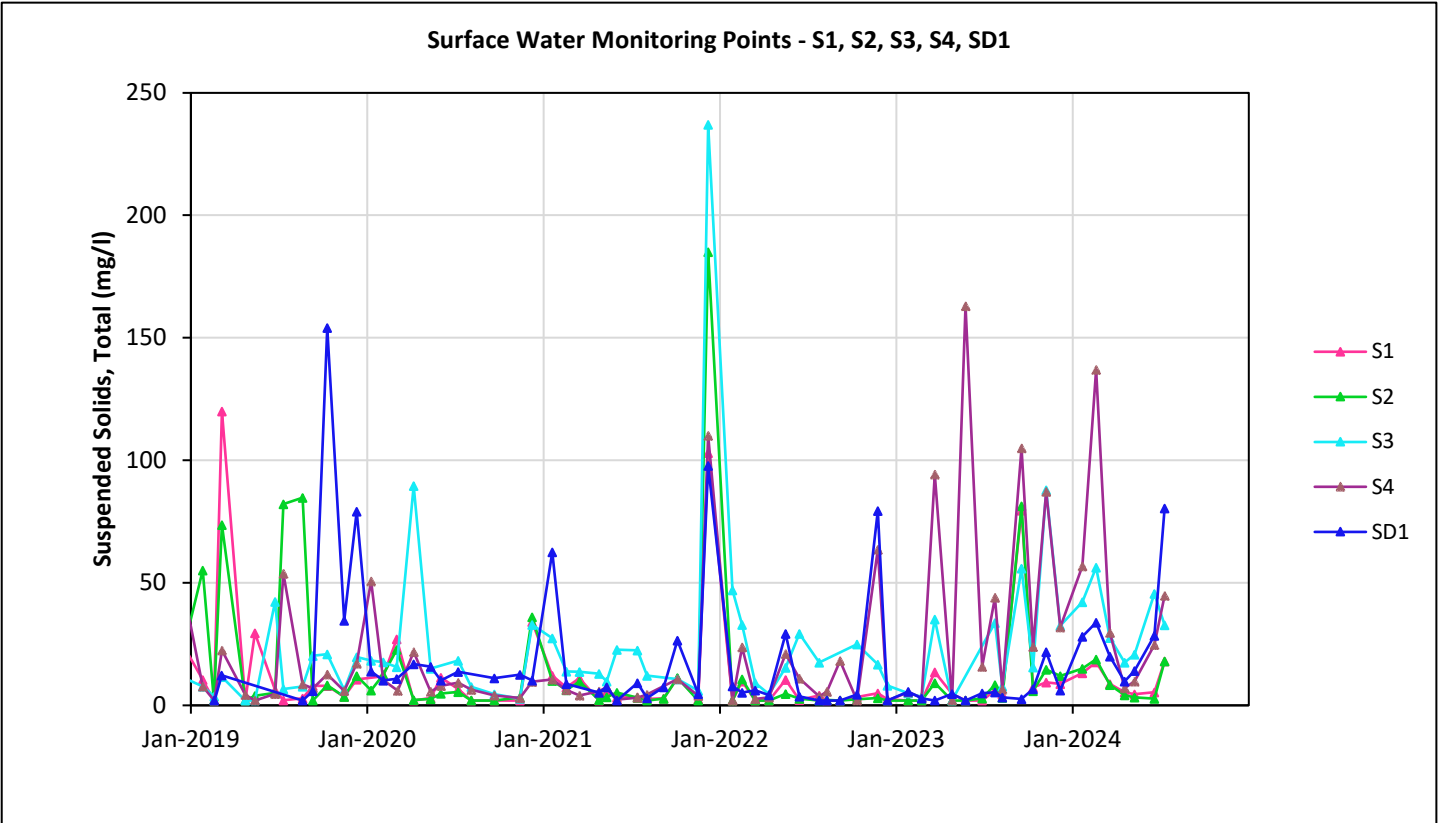
Note: TPH concentrations recorded at 1mg/l, 2mg/l, 5mg/l, 10mg/l and 20mg/l correspond to analytical limits of detection and therefore do not represent true TPH concentrations.



<div><div></div><div><div>PART OF</div></div></div>			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.10	KT	AS	Dec-24

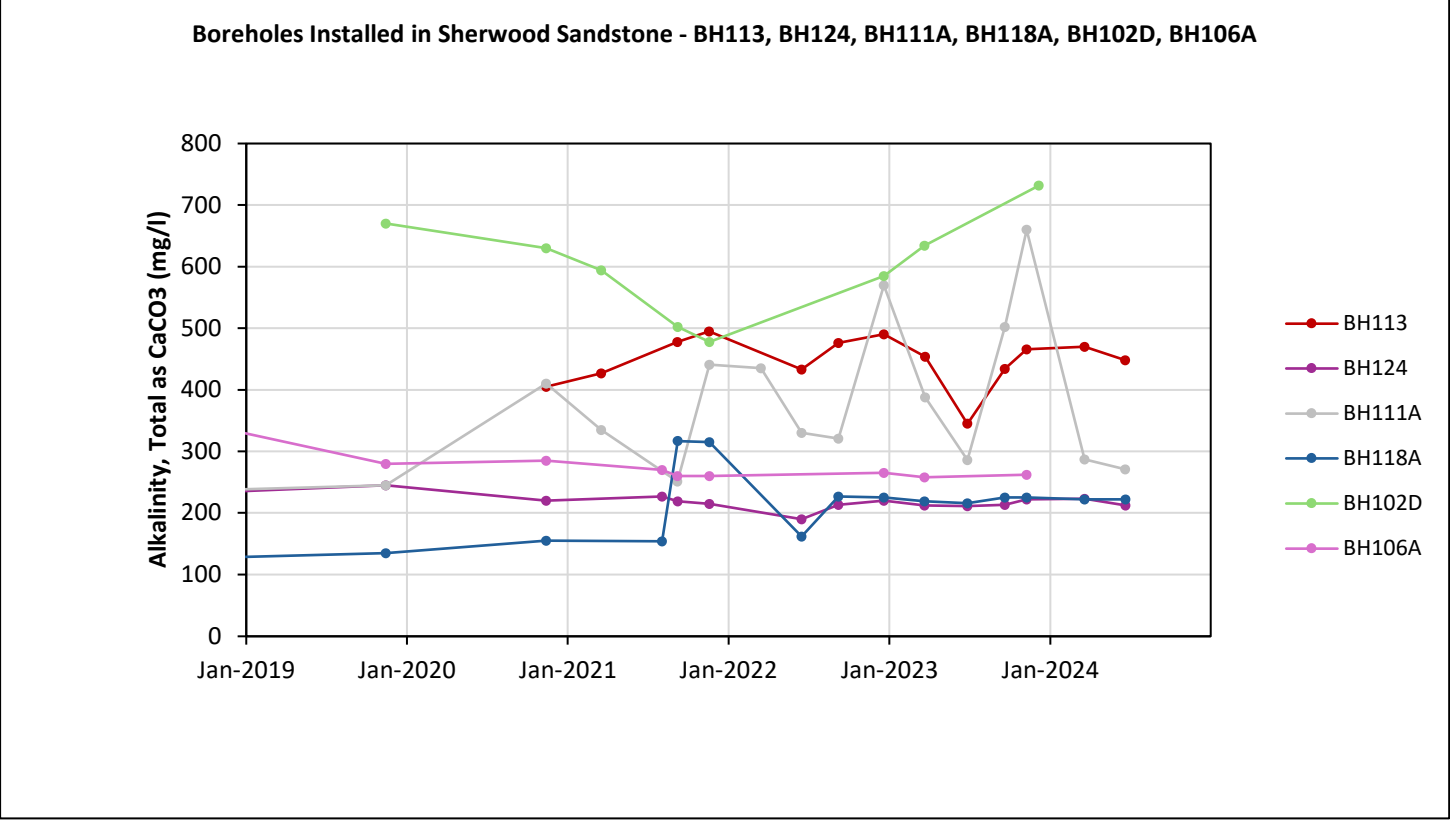
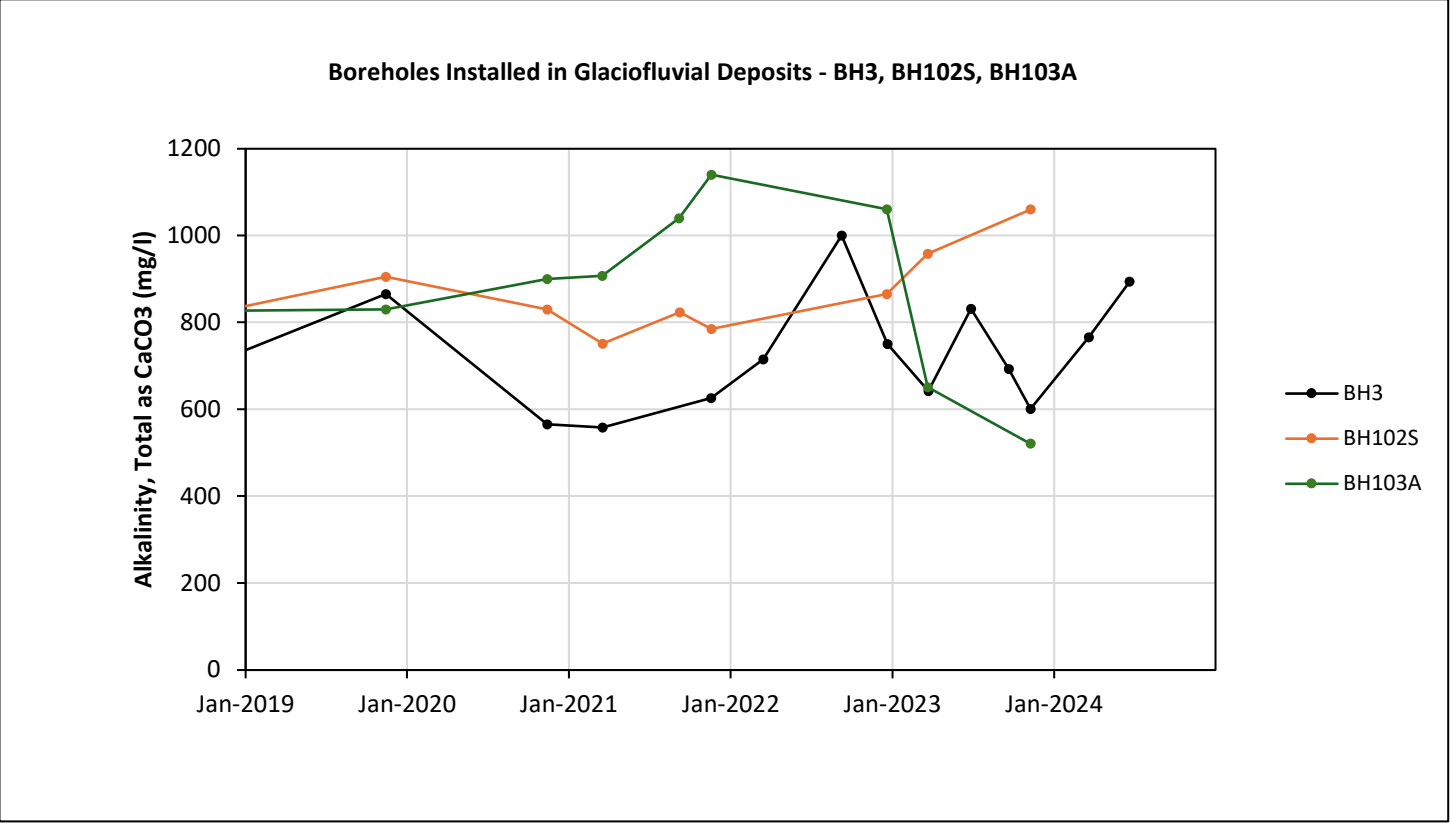
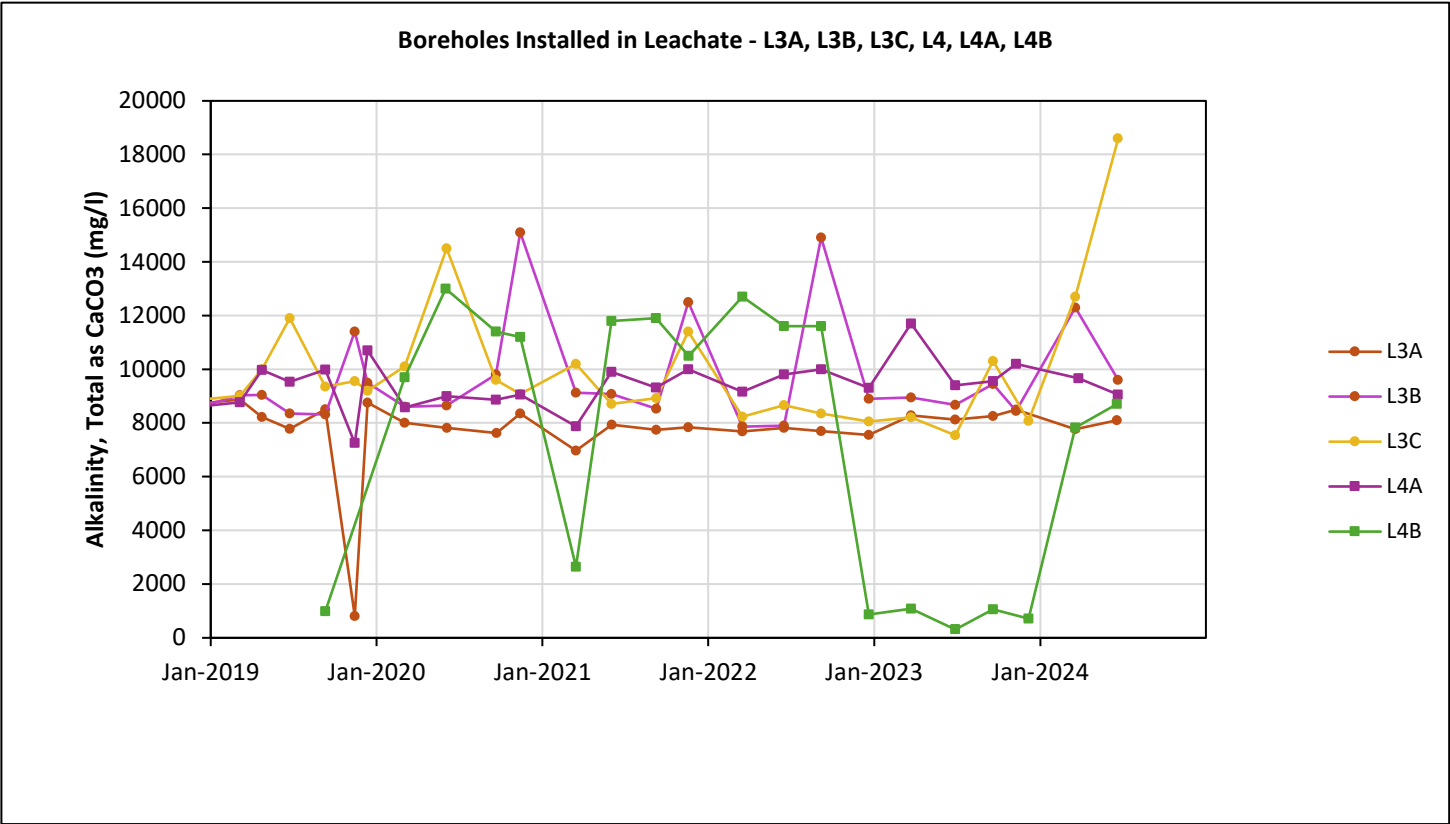


Note: TPH concentrations recorded at 1mg/l, 2mg/l, 5mg/l, 10mg/l and 20mg/l correspond to analytical limits of detection and therefore do not represent true TPH concentrations.

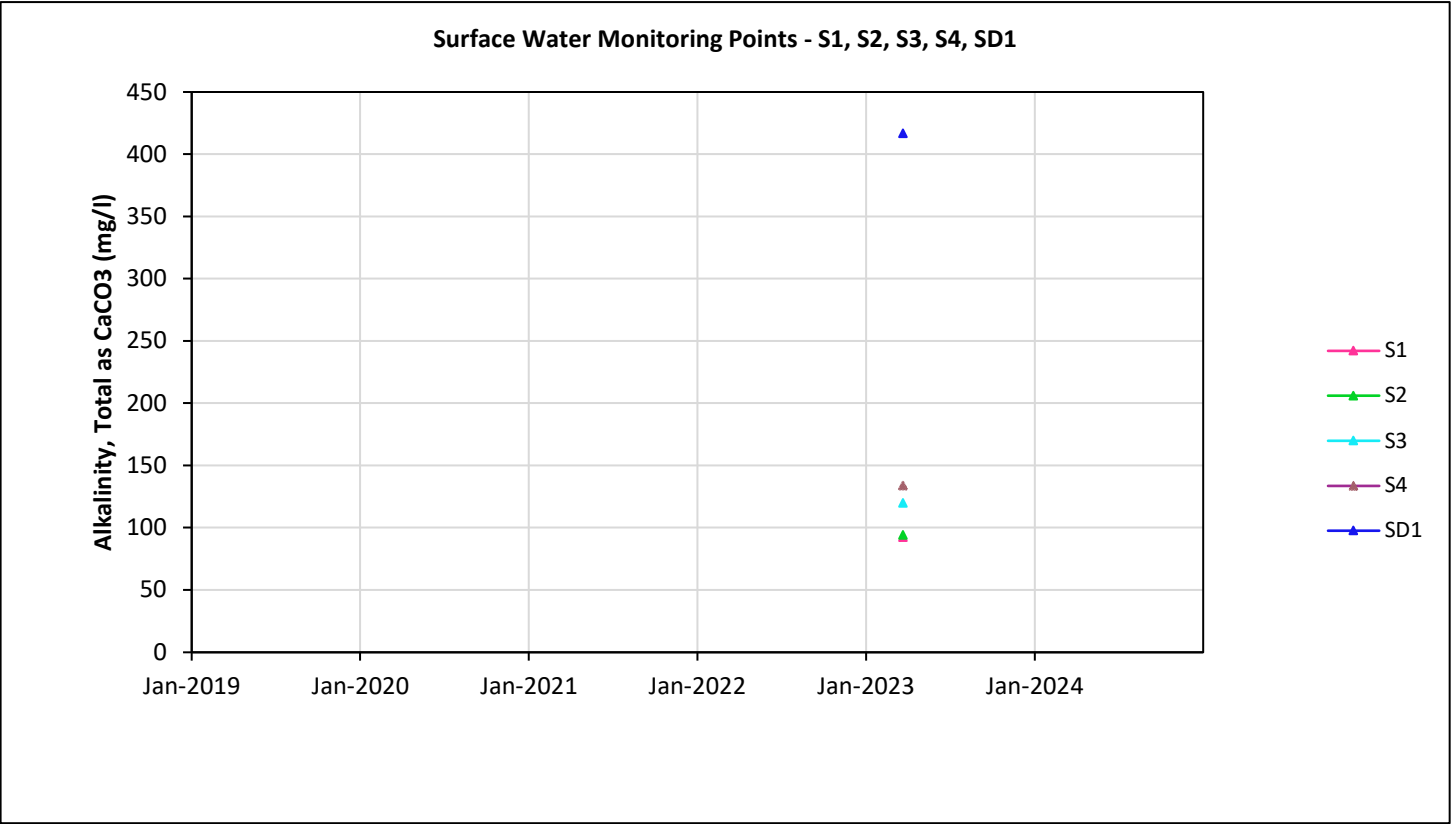
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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.10	KT	AS	Dec-24




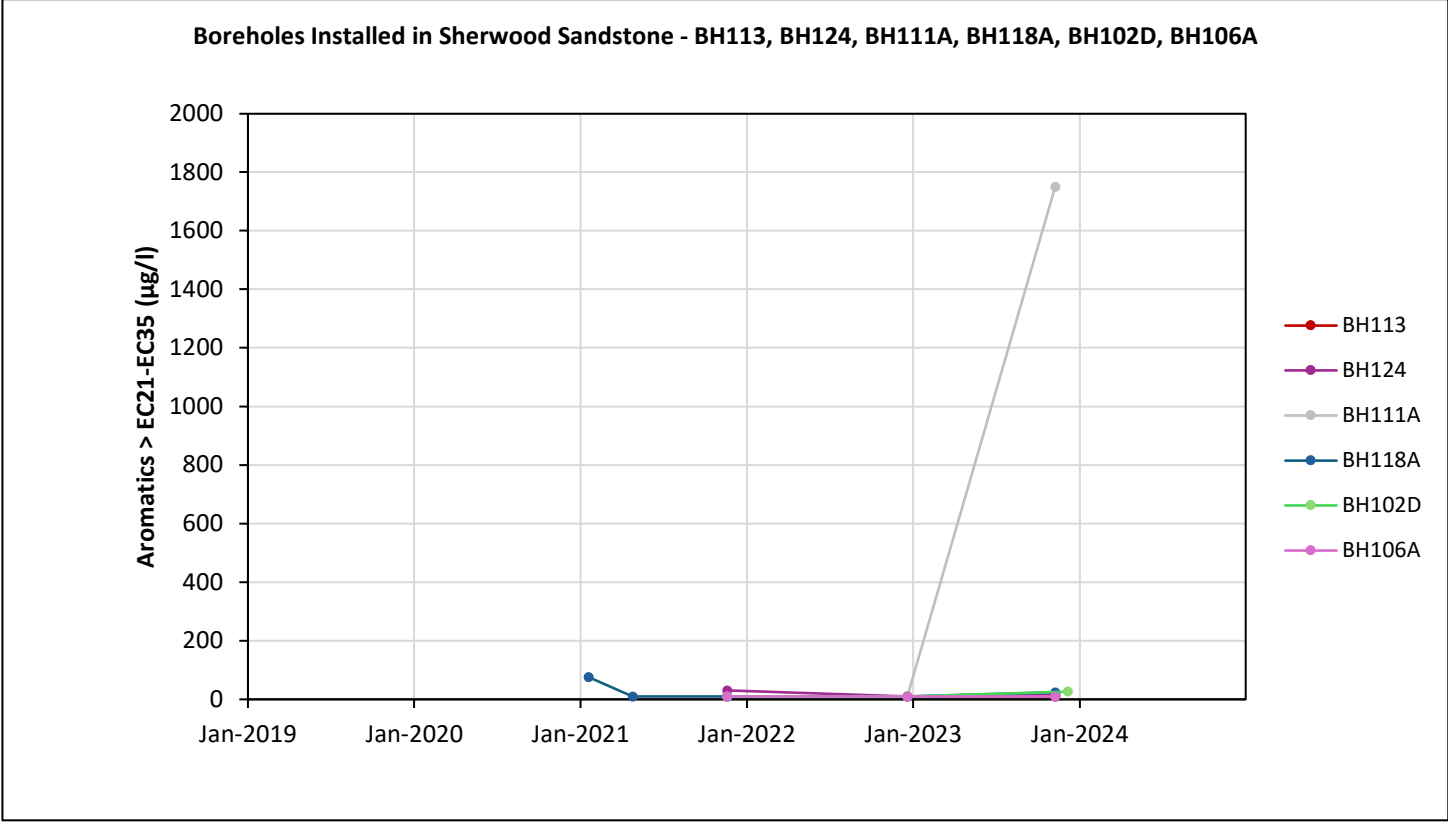
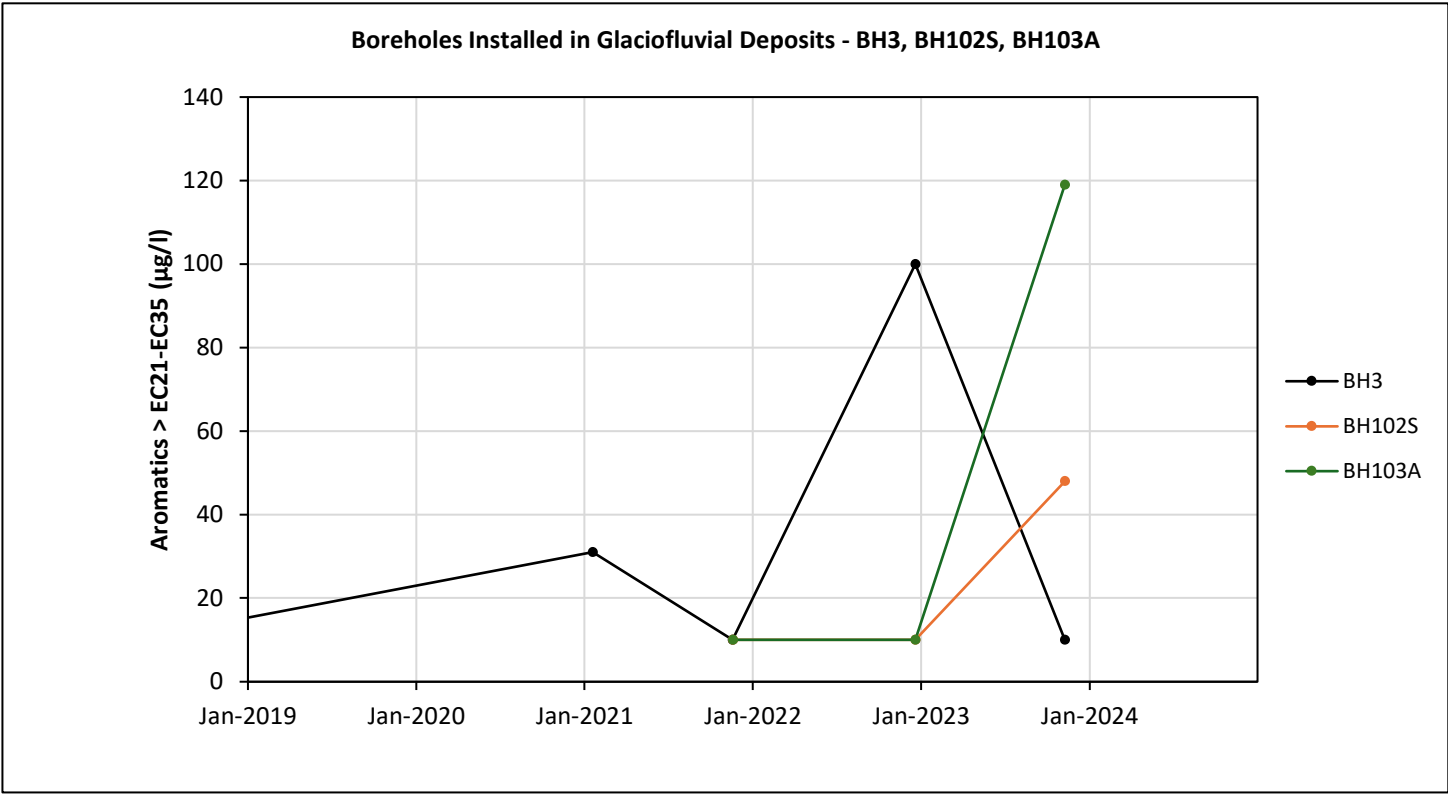
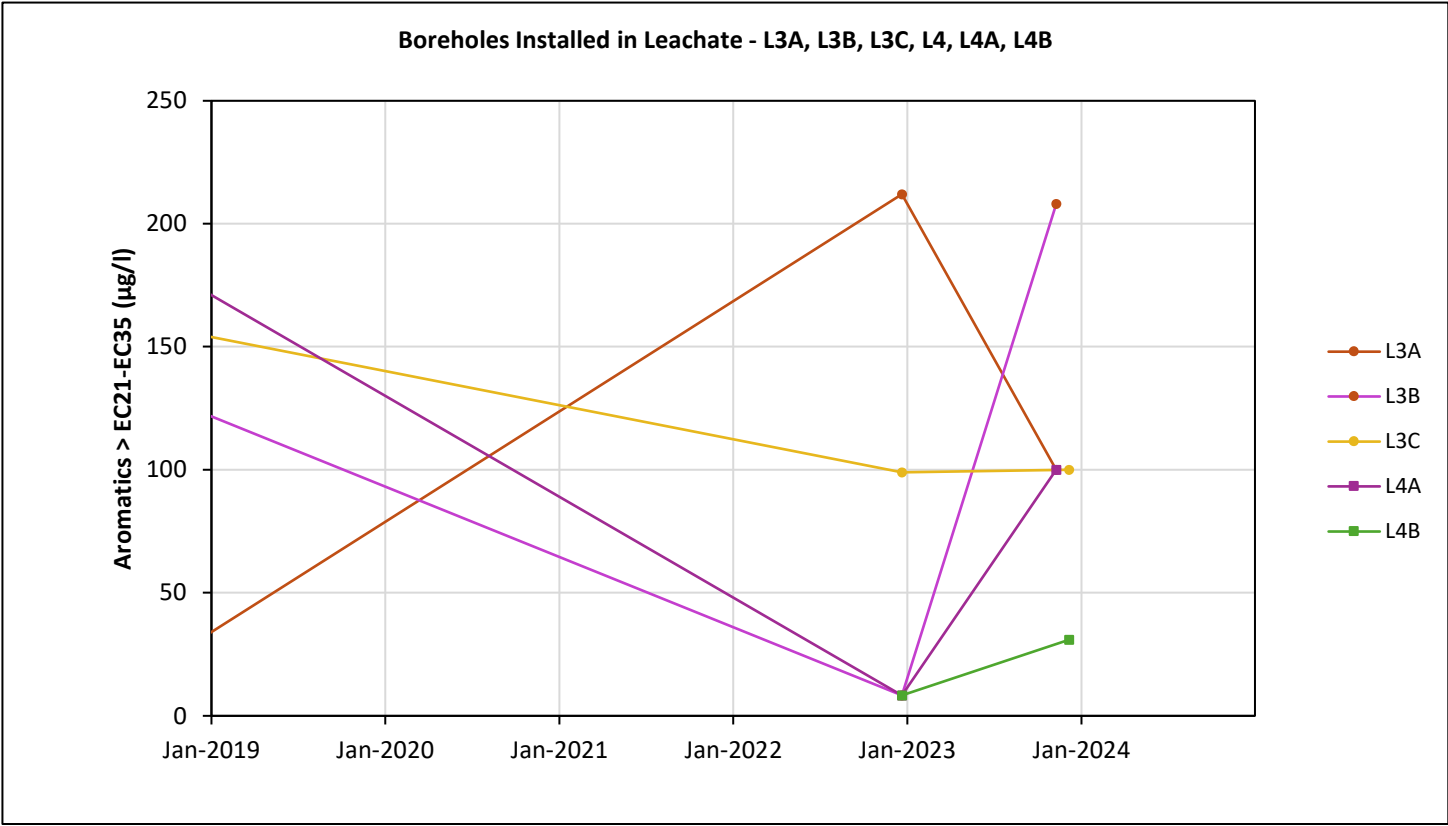
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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Groundwater, Surface Water and Leachate Quality Results		
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A5.11	KT	AS	Dec-24



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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.12	KT	AS	Dec-24

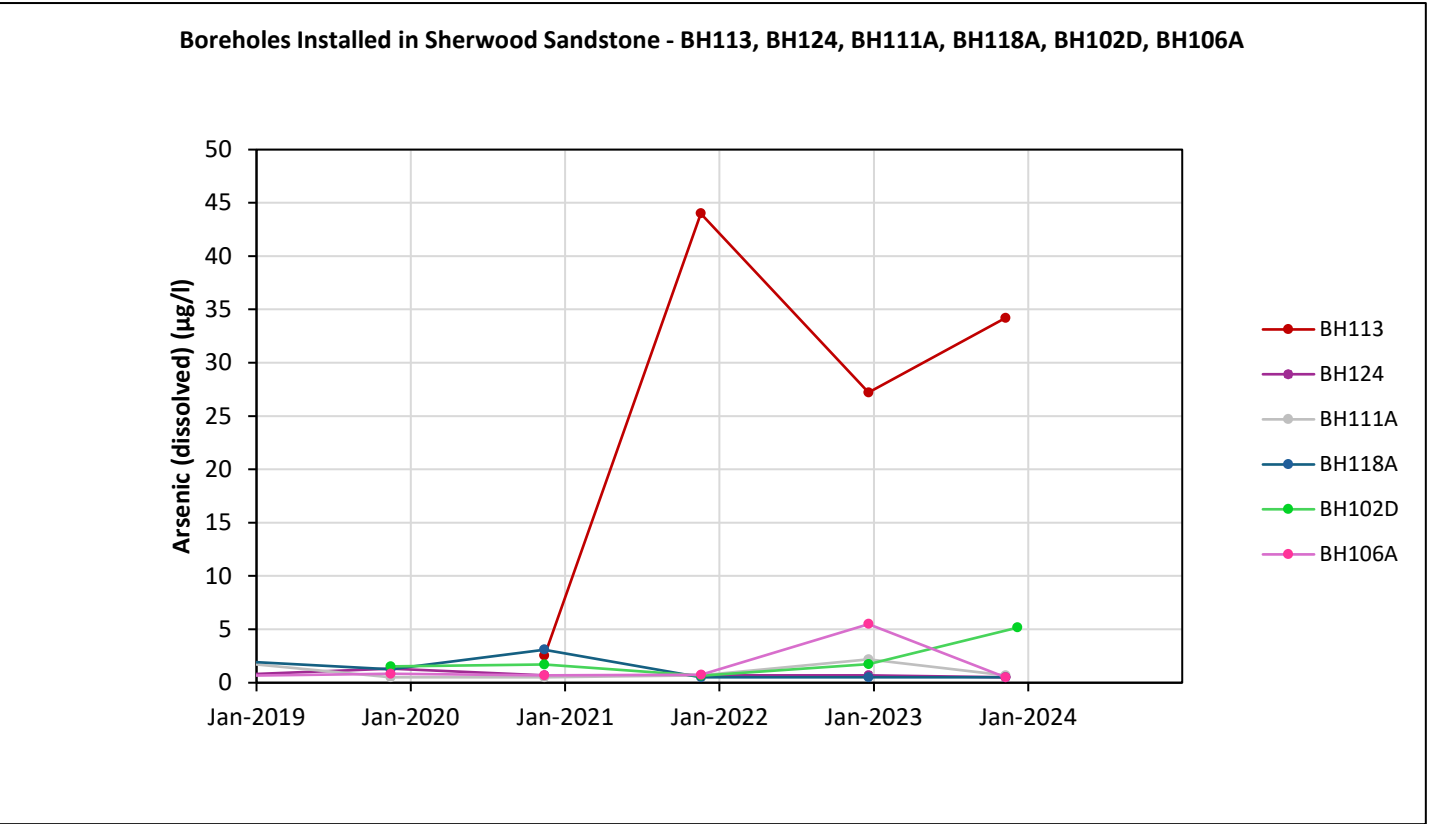
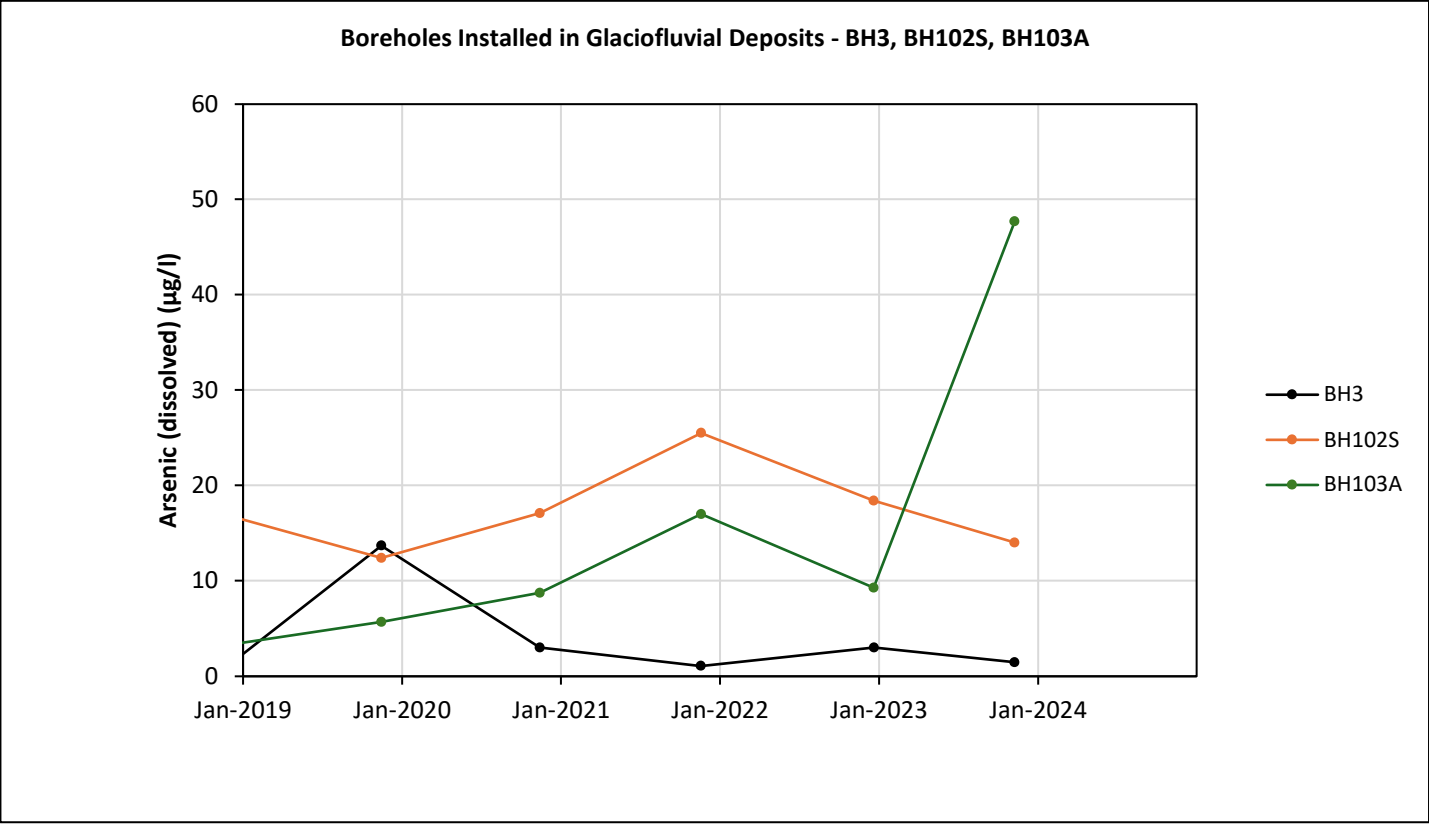
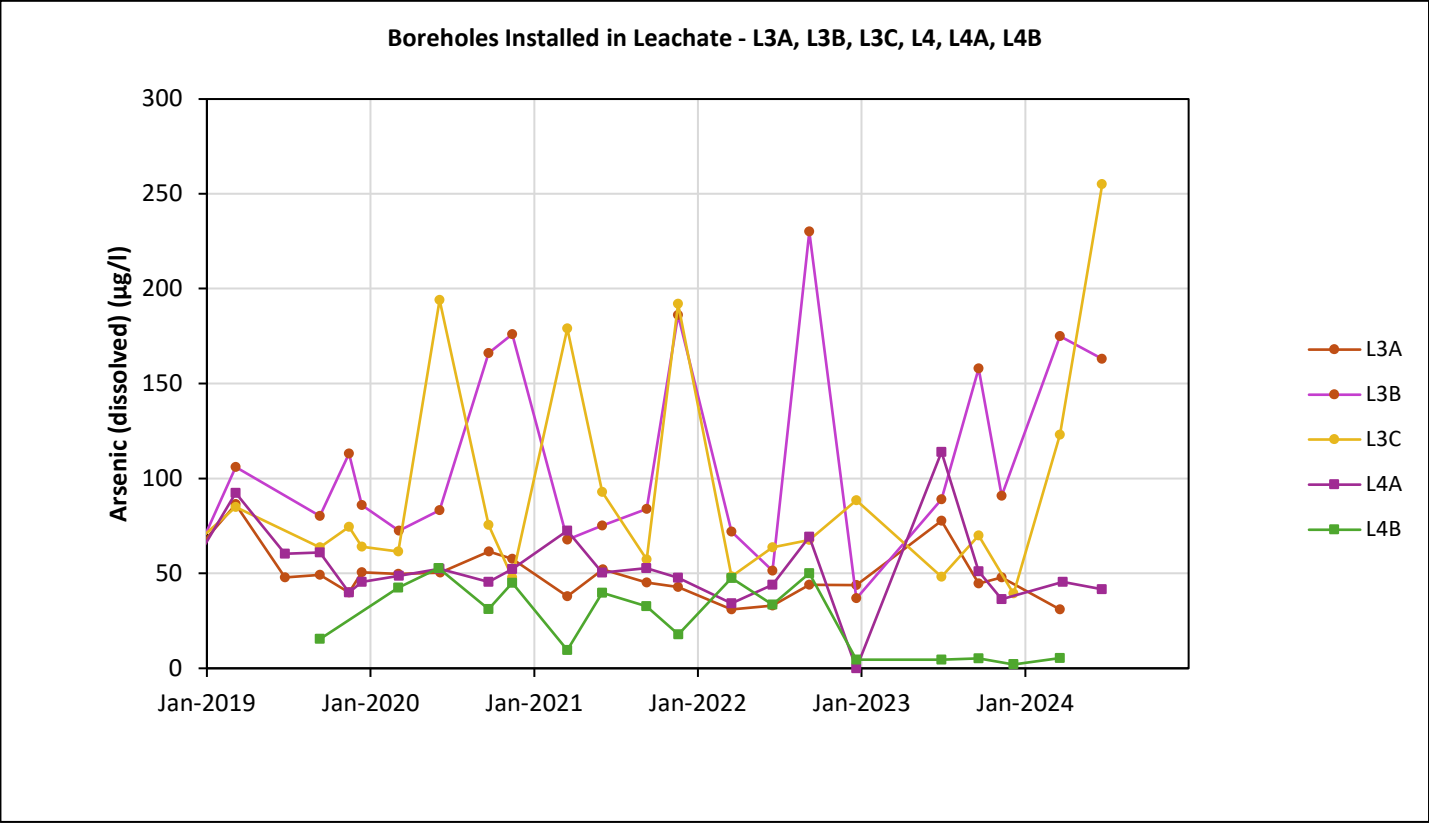


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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.12	KT	AS	Dec-24





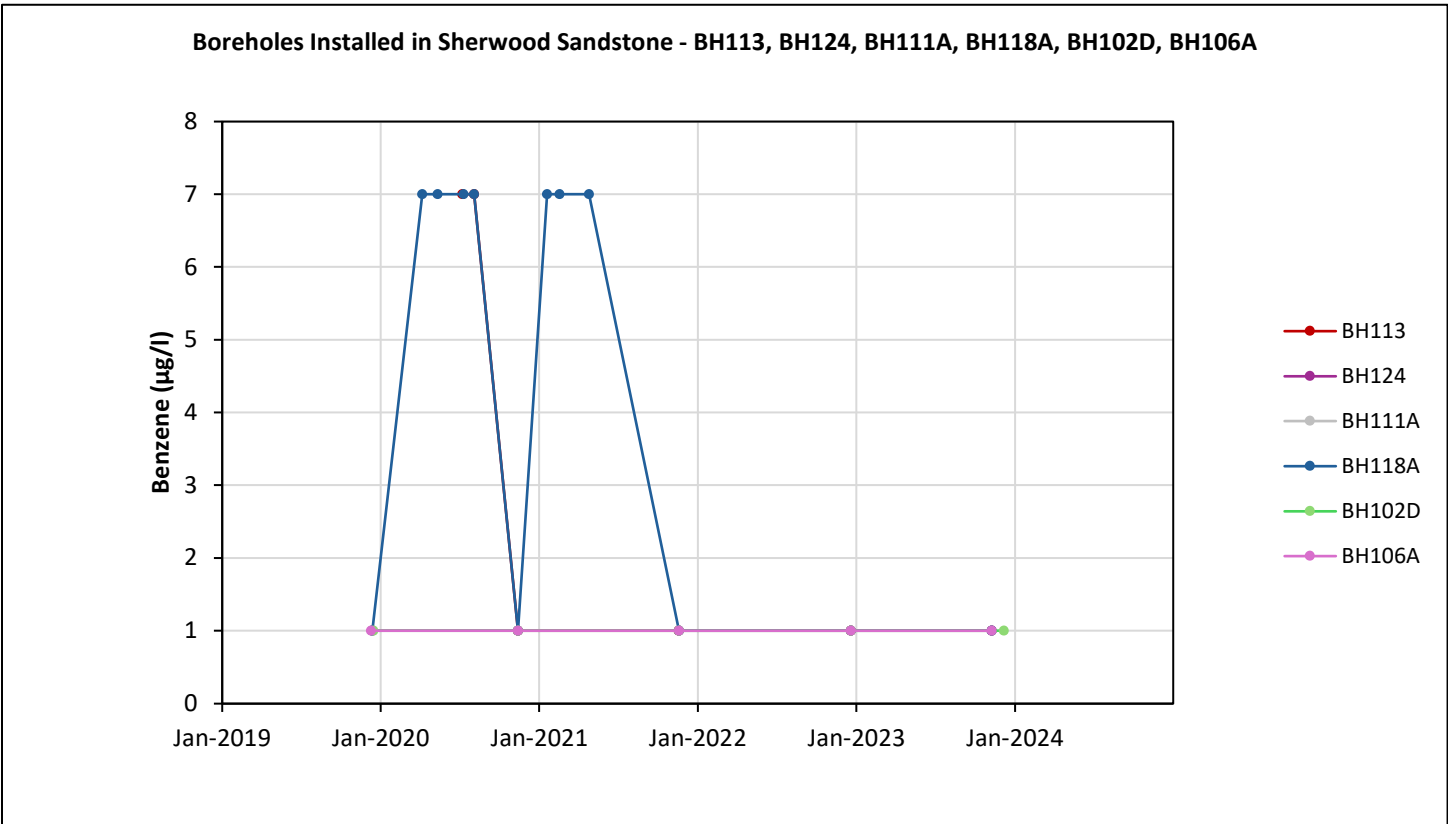
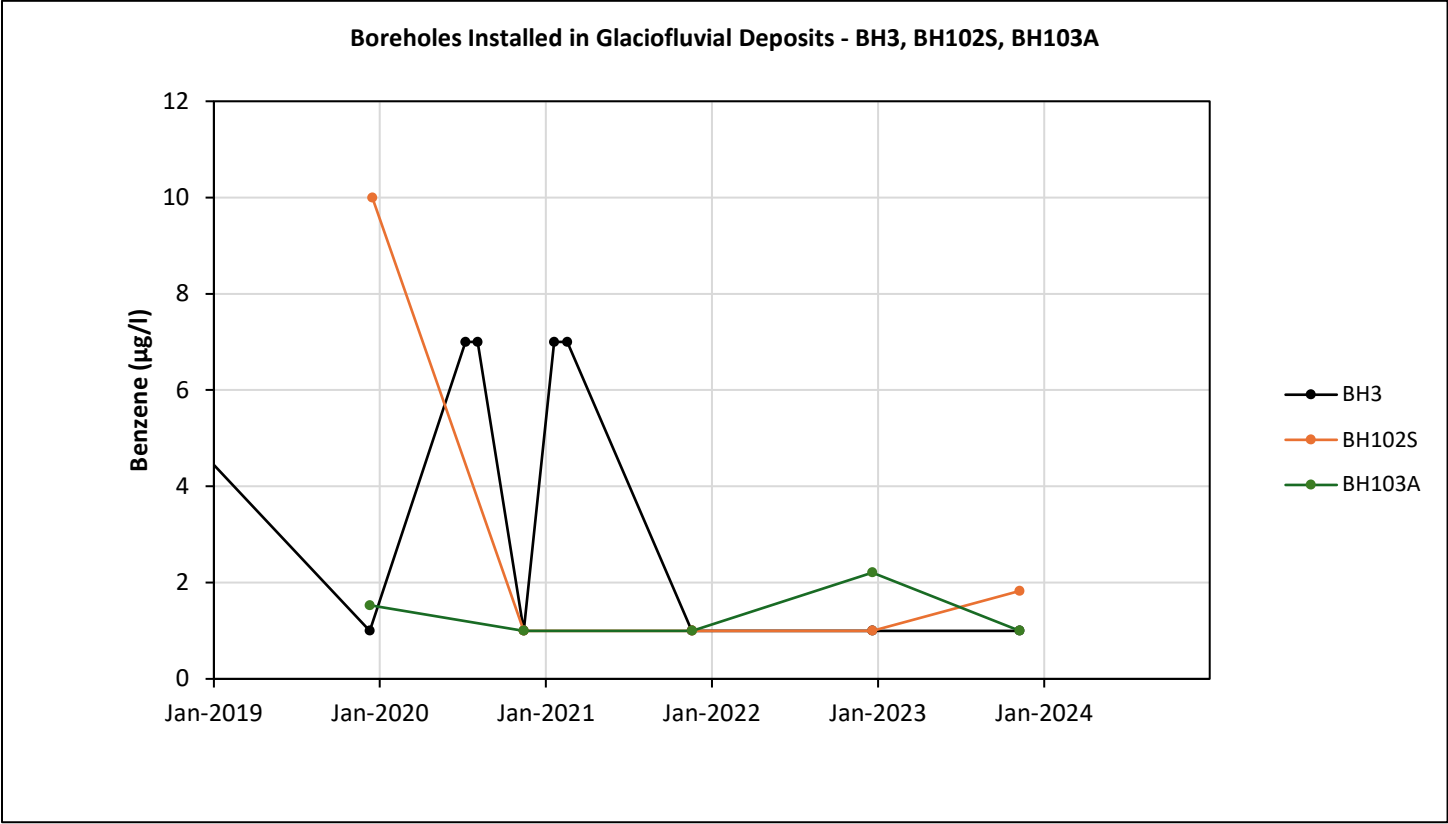
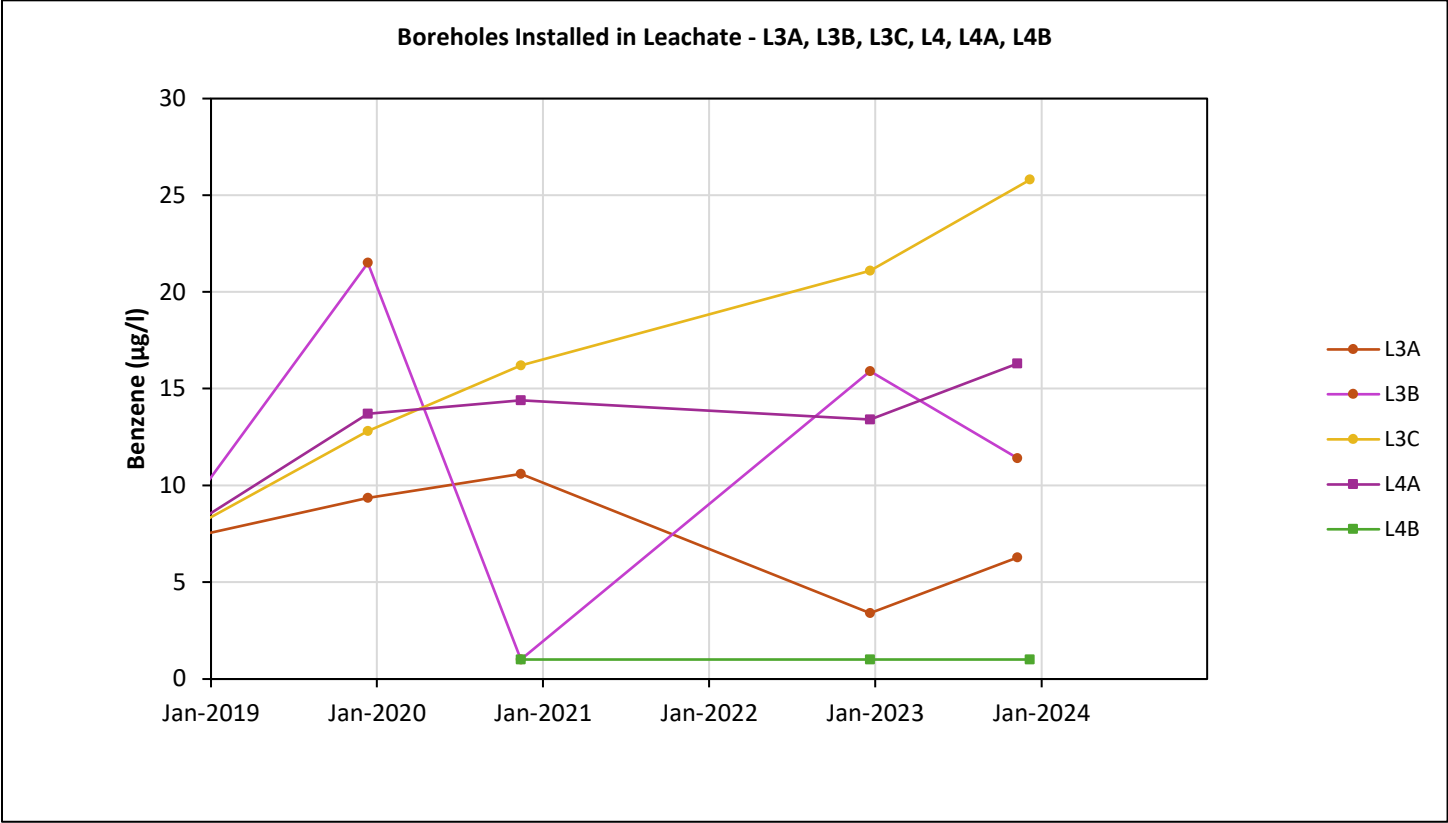
Note: Aromatics > EC21-EC35 concentrations recorded at 10µg/l and 100µg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
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FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.13	KT	AS	Dec-24



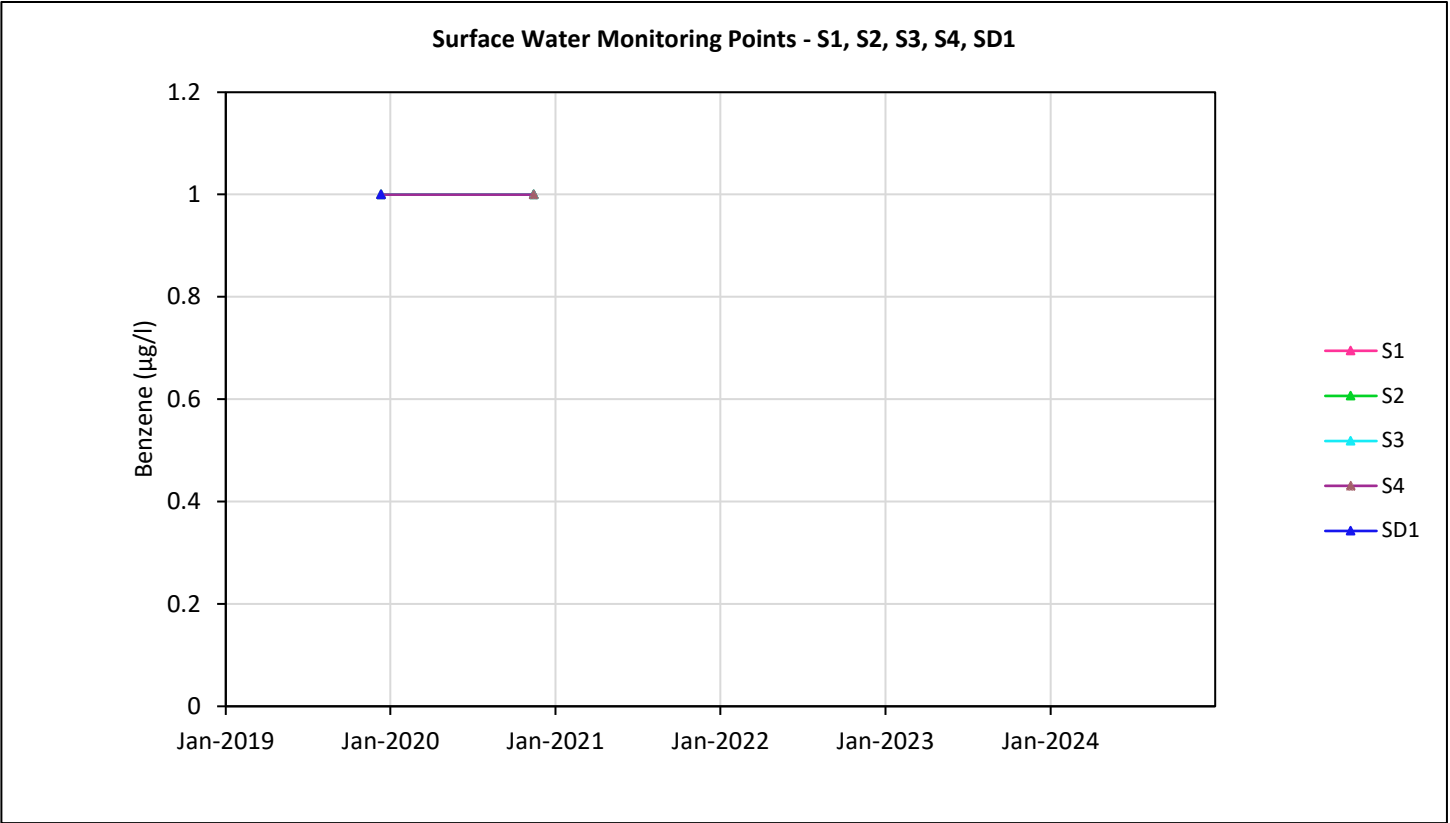
Note: Arsenic concentrations recorded at 0.5µg/l, 3µg/l and 5.5µg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
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FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
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A5.14	KT	AS	Dec-24



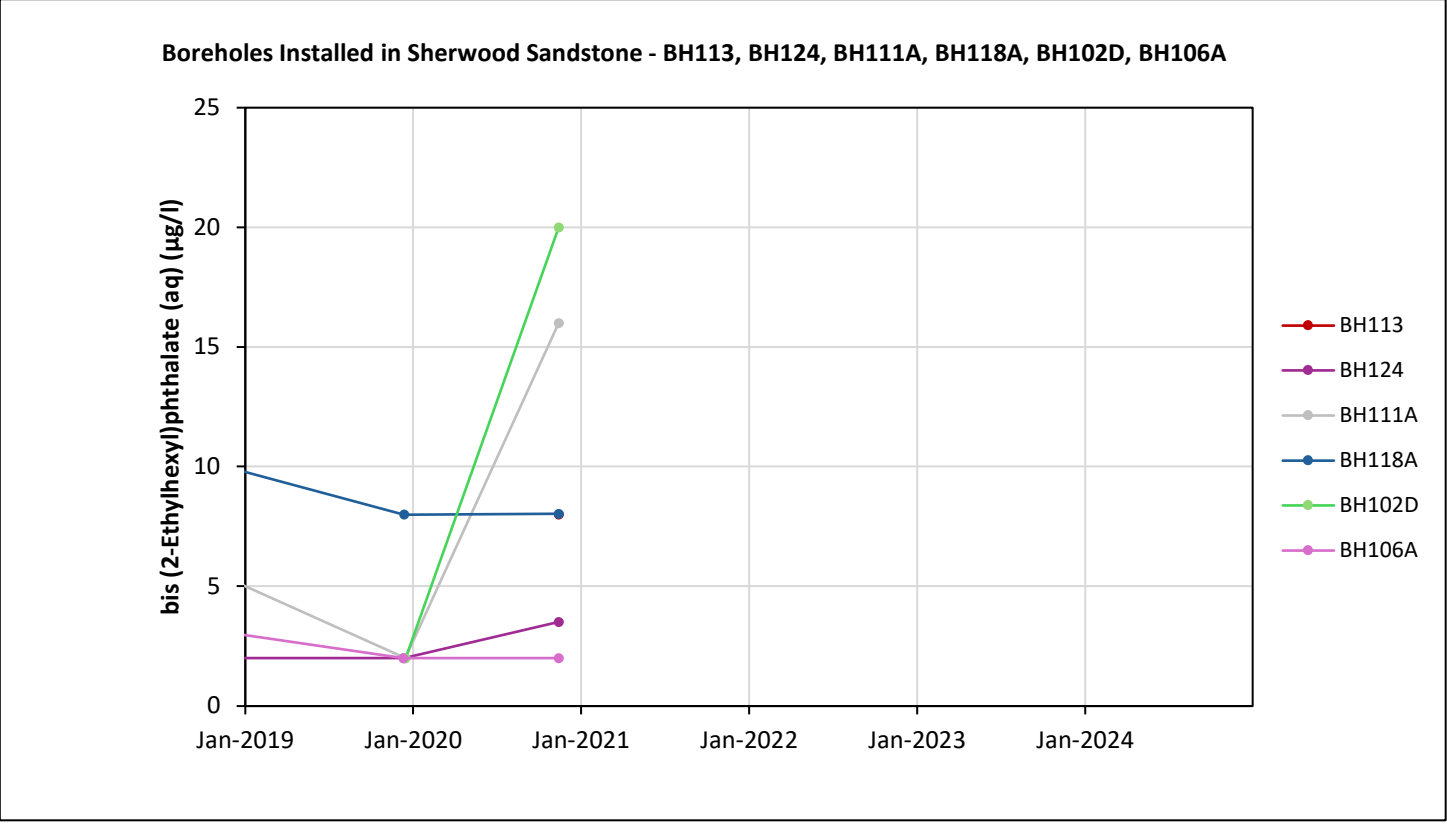
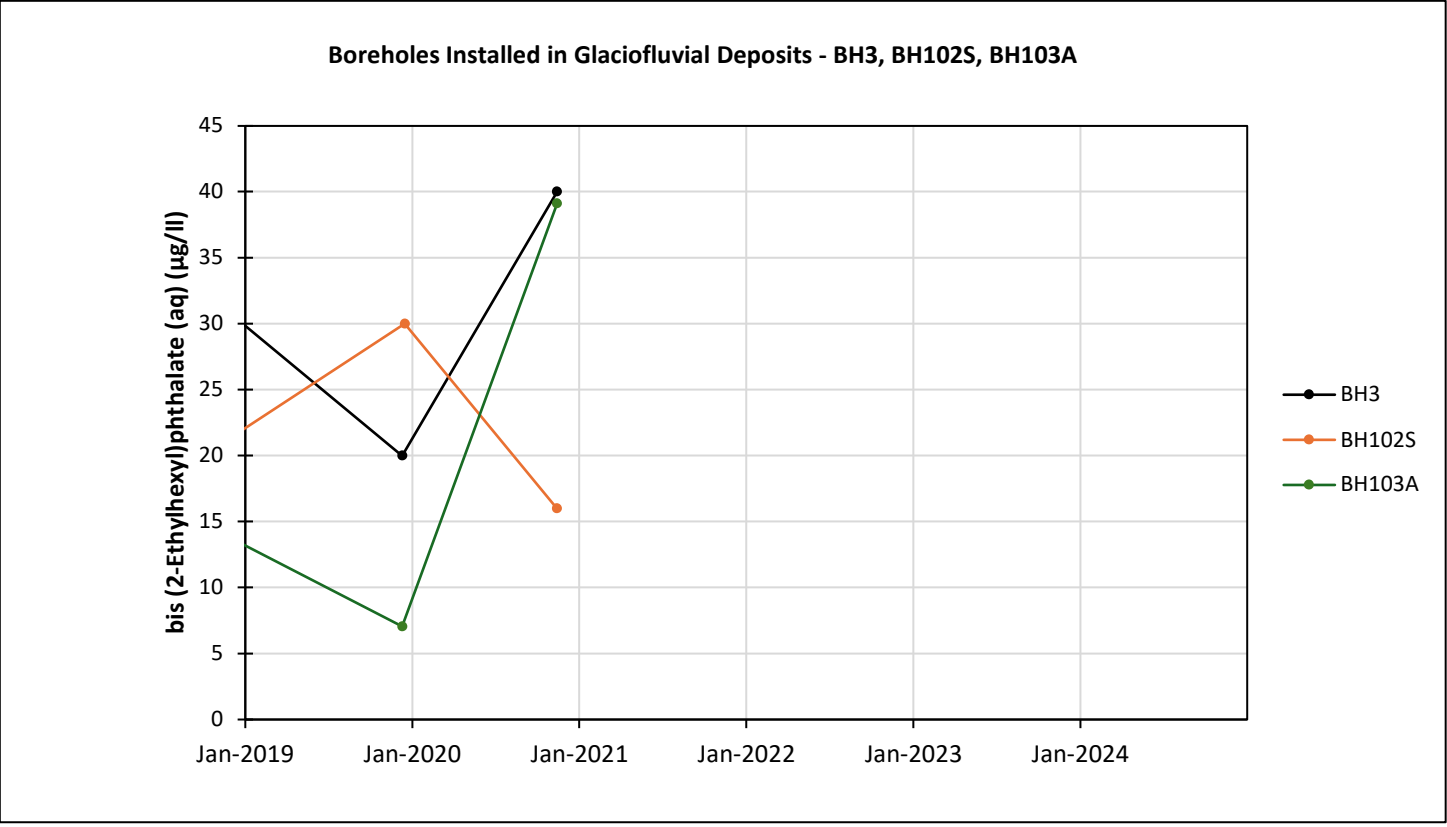
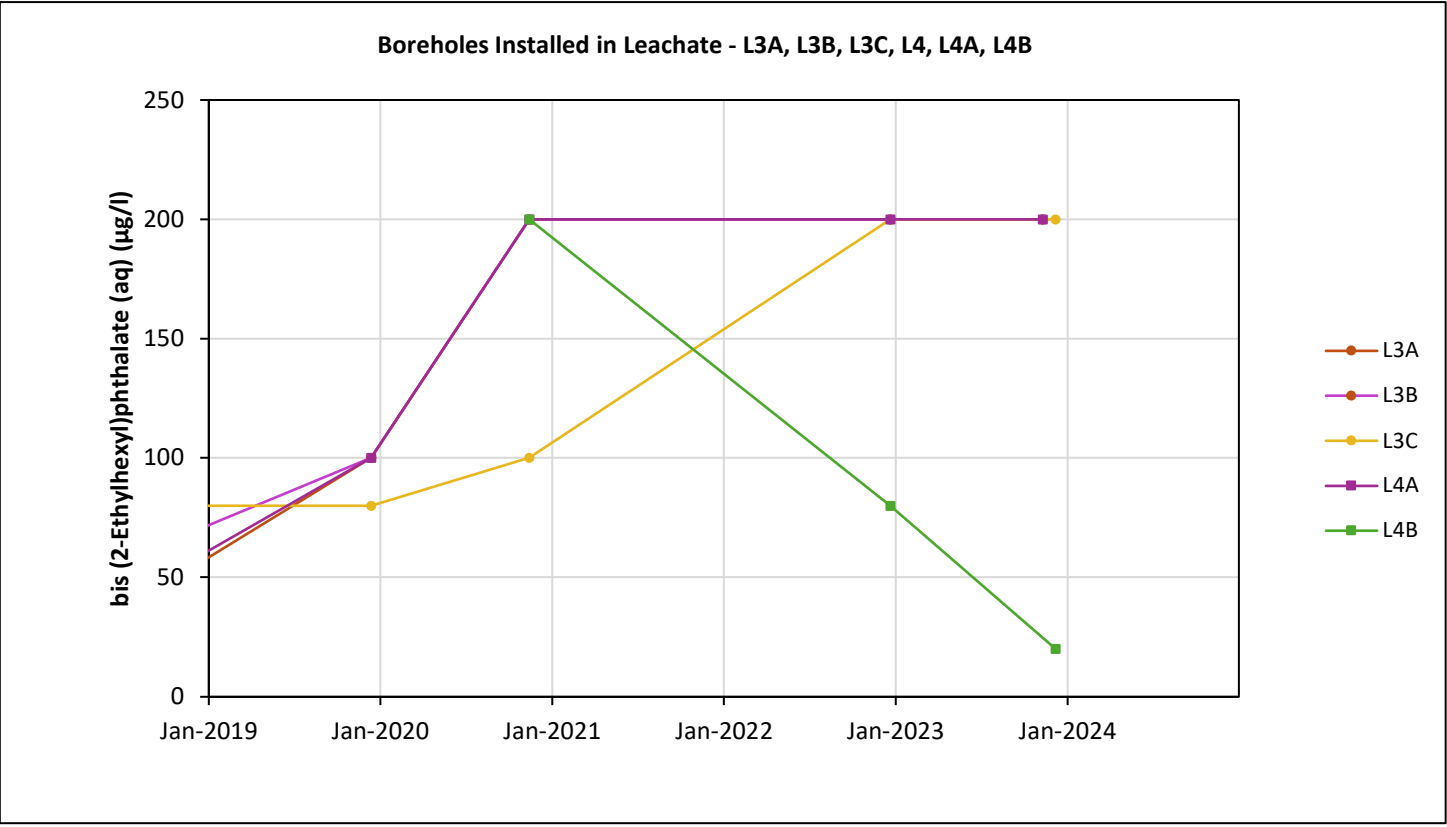
Note: Benzene concentrations recorded at 1µg/l and 7µg/l correspond to LOD.

 			
CLIENT	QUERCIA LIMITED		
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FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
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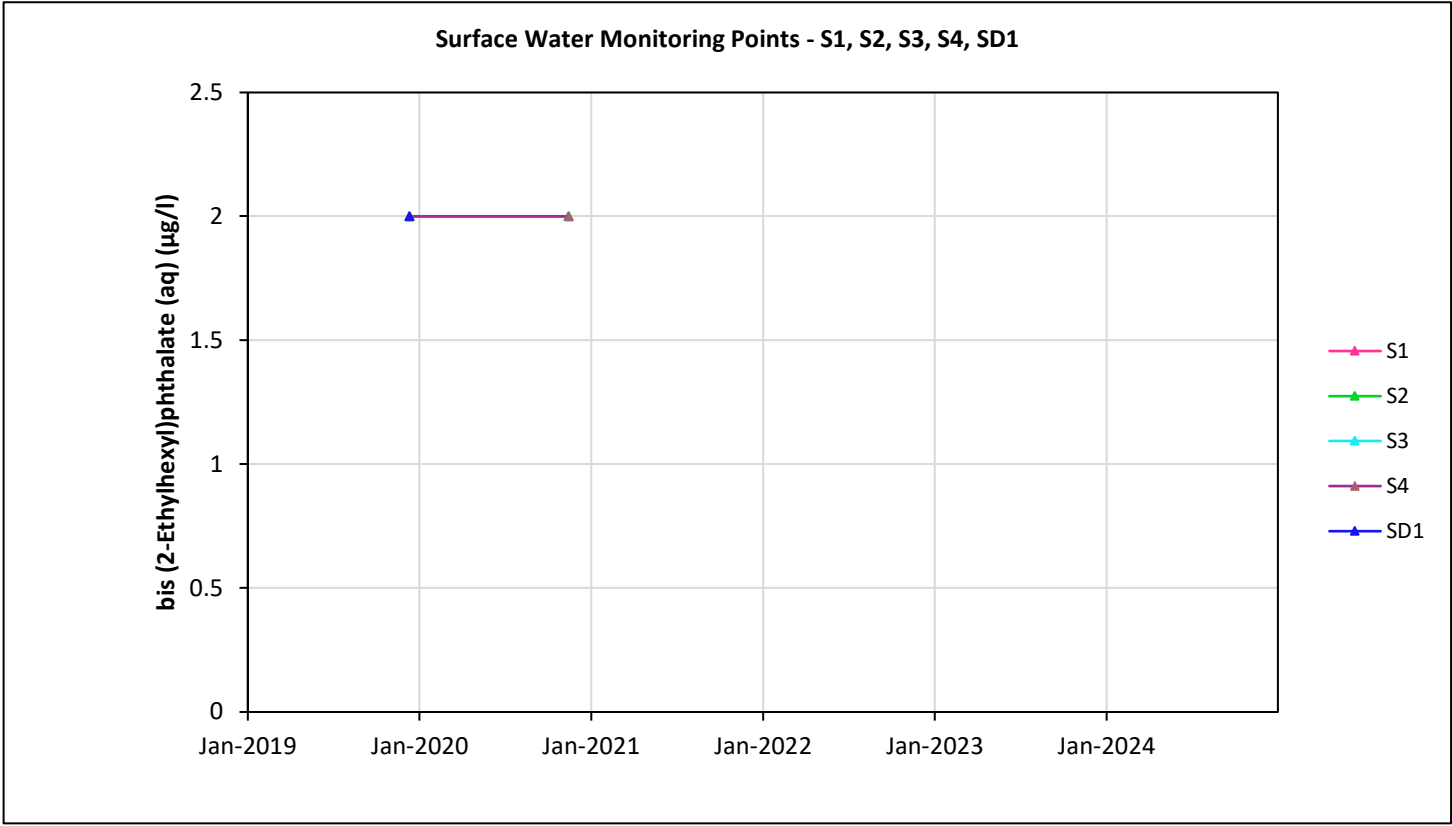
Note: Benzene concentrations recorded at 1µg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.15	KT	AS	Dec-24



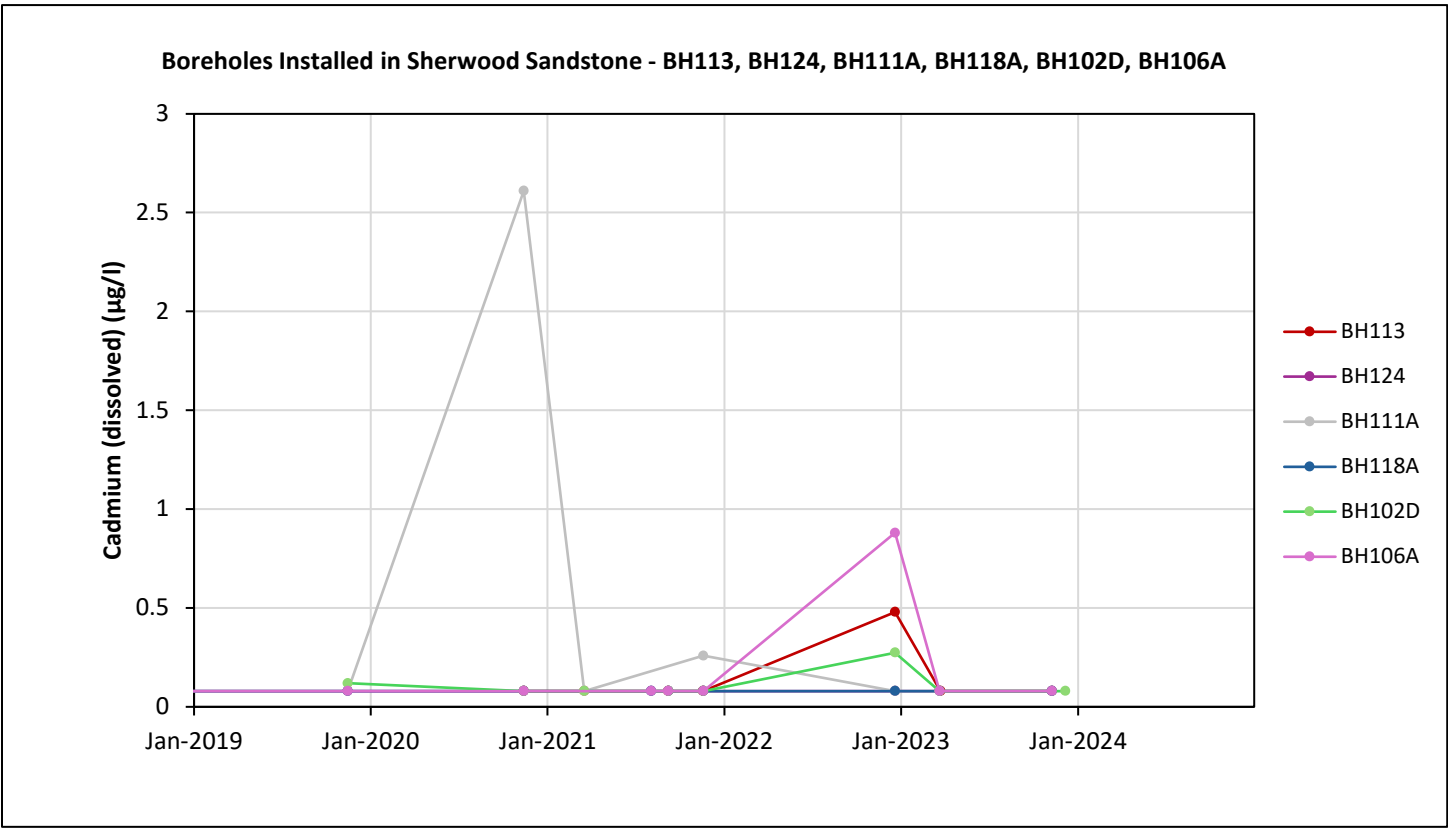
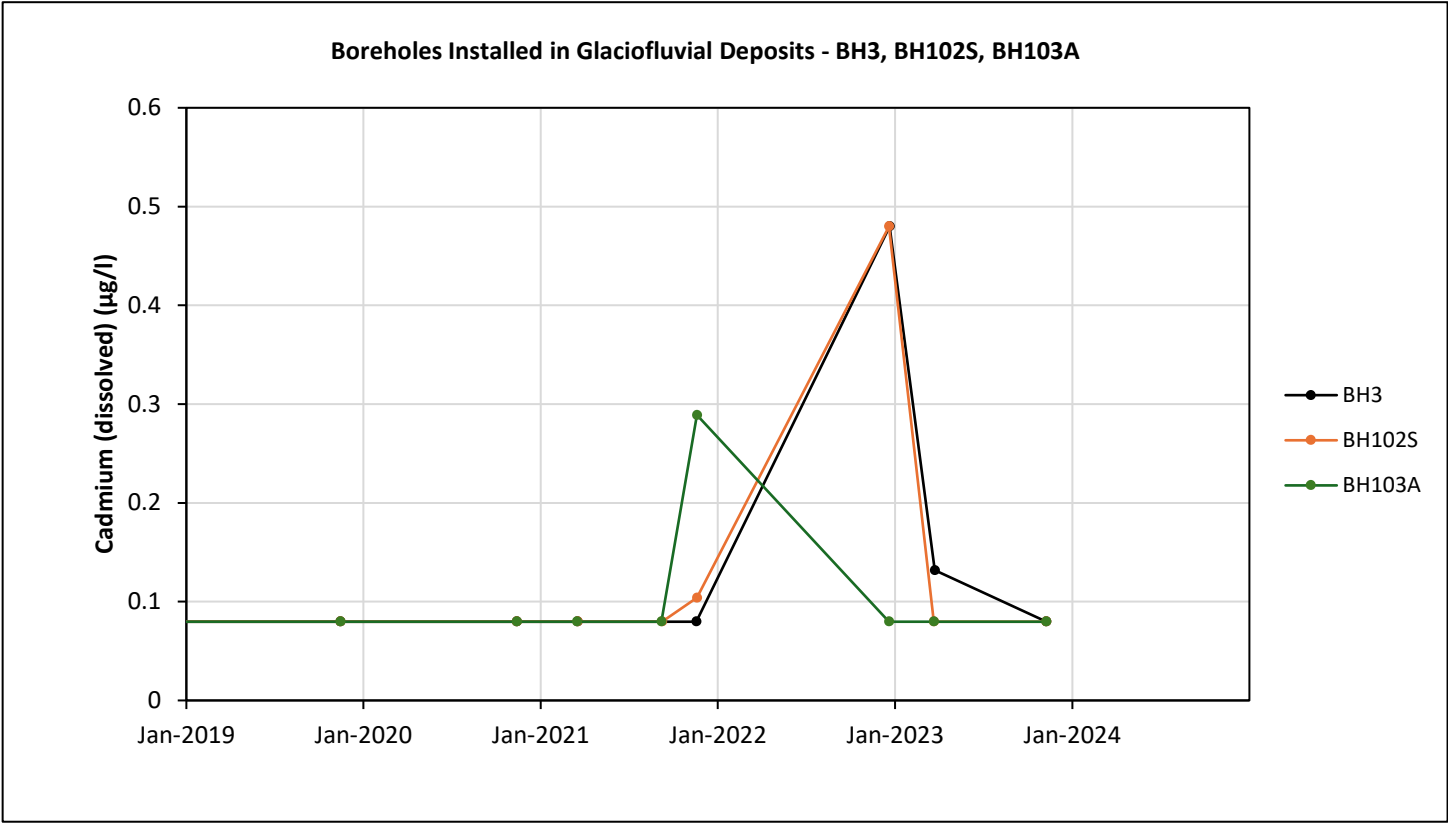
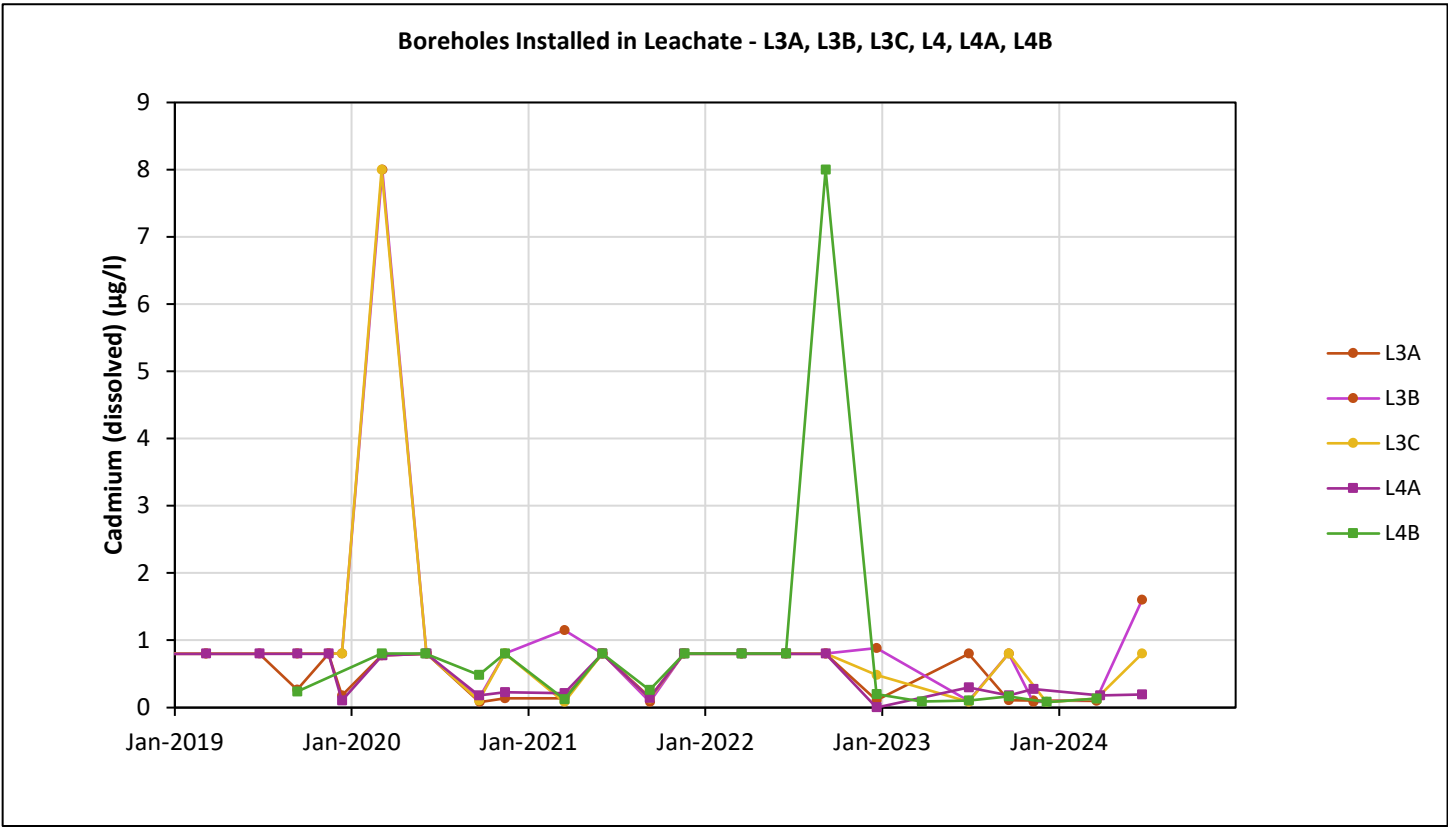
Note: bis (2-Ethylhexyl)phthalate concentrations recorded at 2µg/l, 8µg/l, 16µg/l, 20µg/l, 40µg/l, 80µg/l, 100µg/l and 200µg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
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A5.16	KT	AS	Dec-24





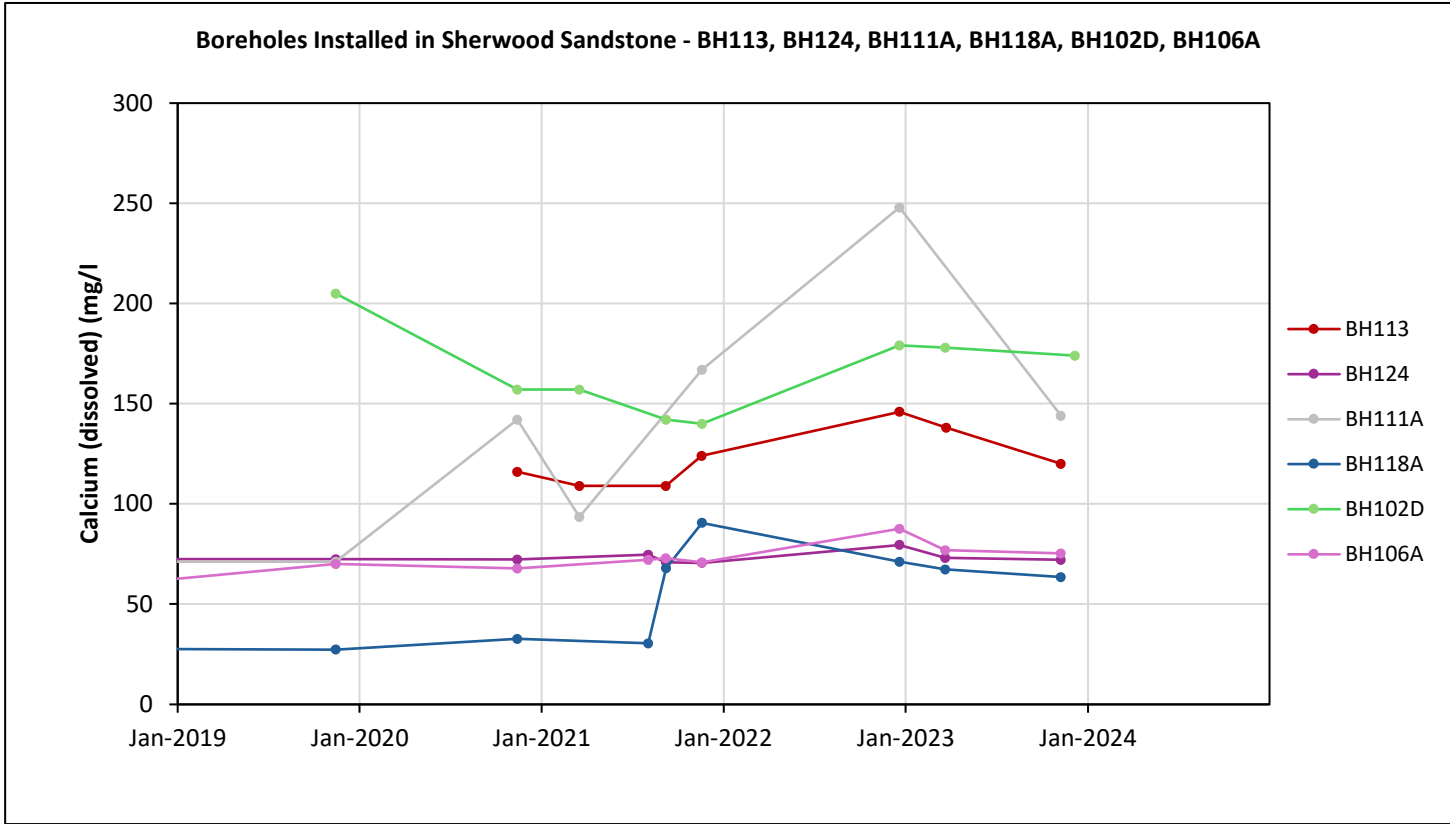
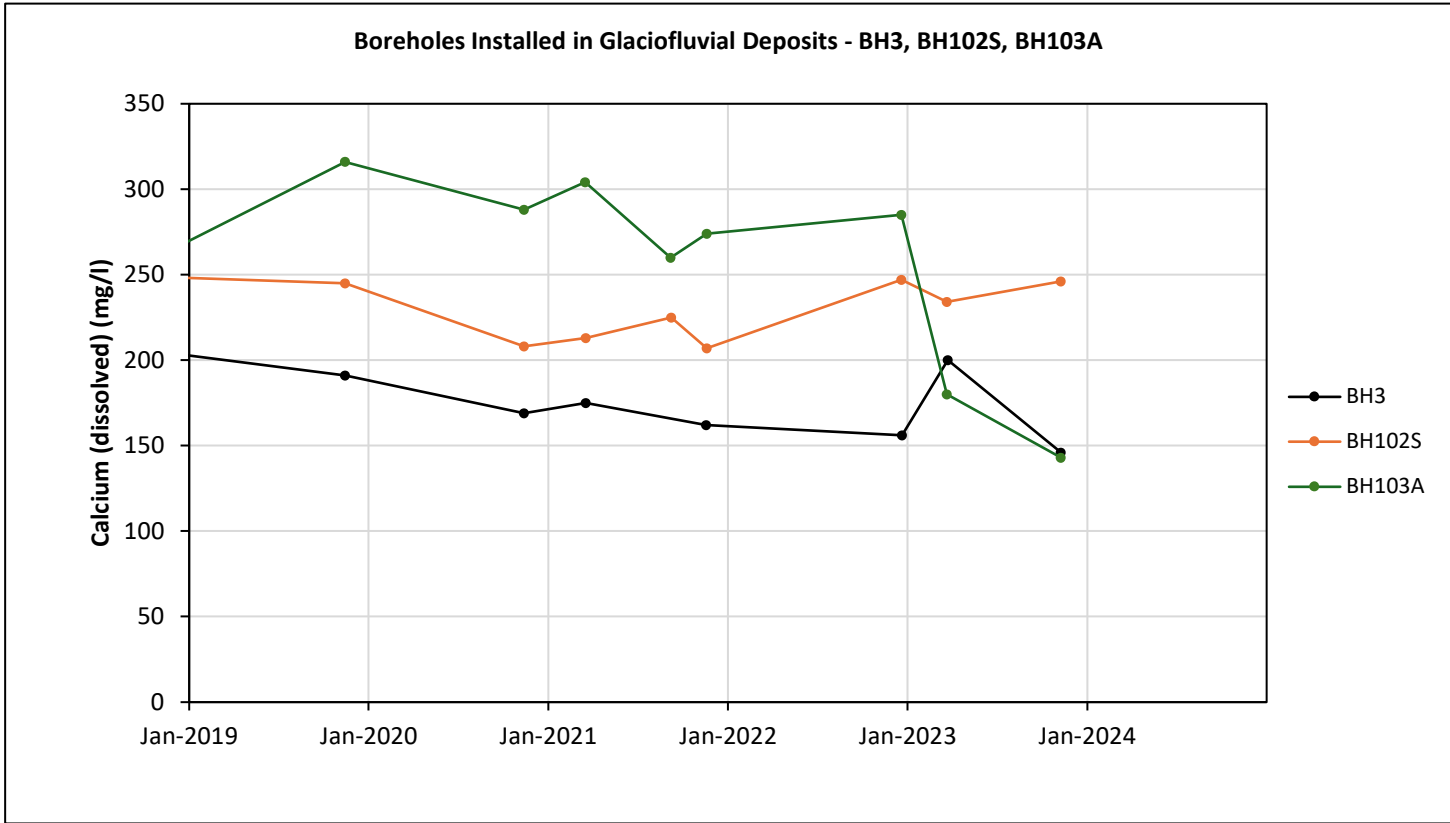
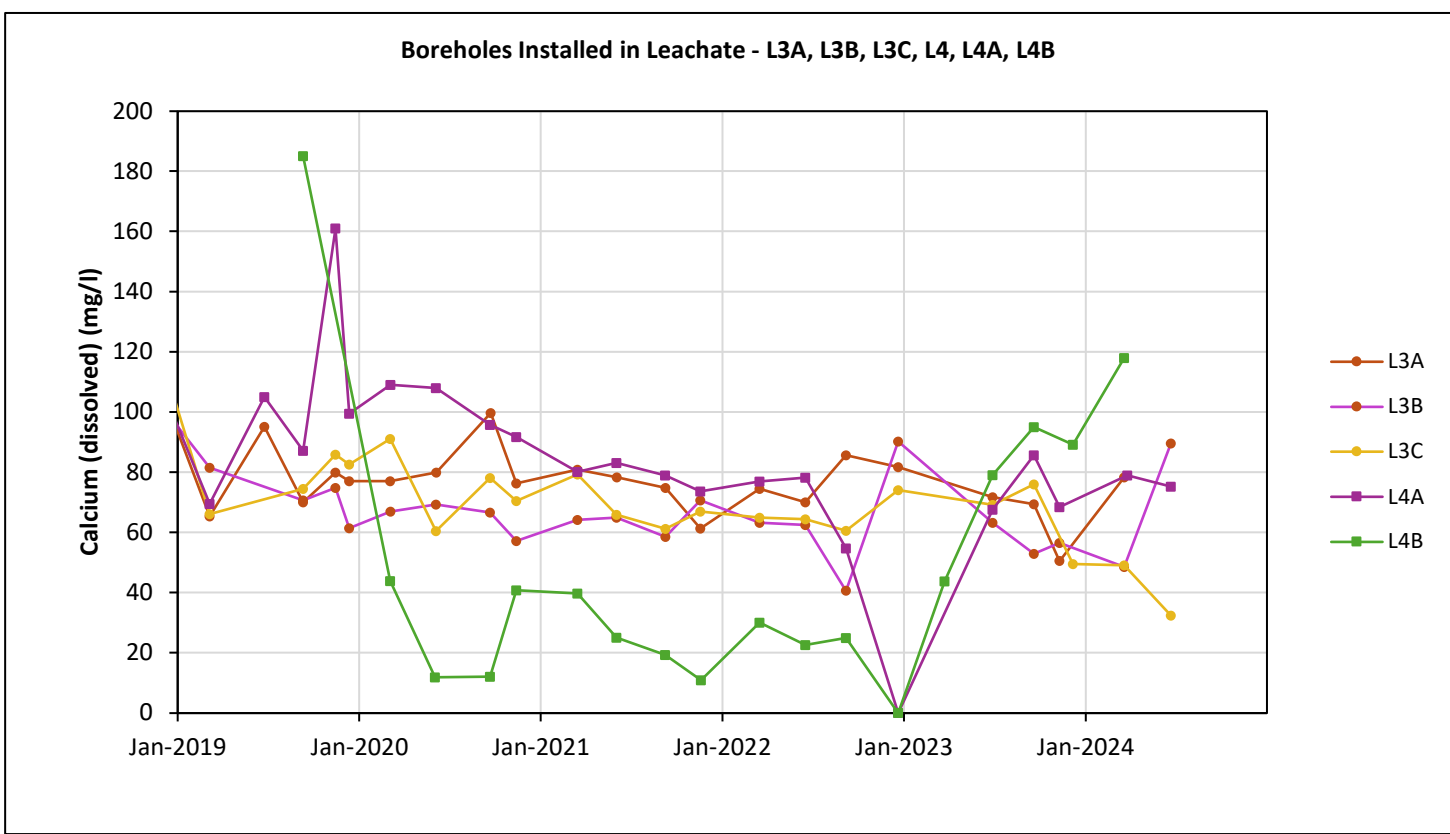
Note: bis (2-Ethylhexyl)phthalate concentrations recorded at 2µg/l, 8µg/l, 16µg/l, 20µg/l, 40µg/l, 80µg/l, 100µg/l and 200µg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.16	KT	AS	Dec-24

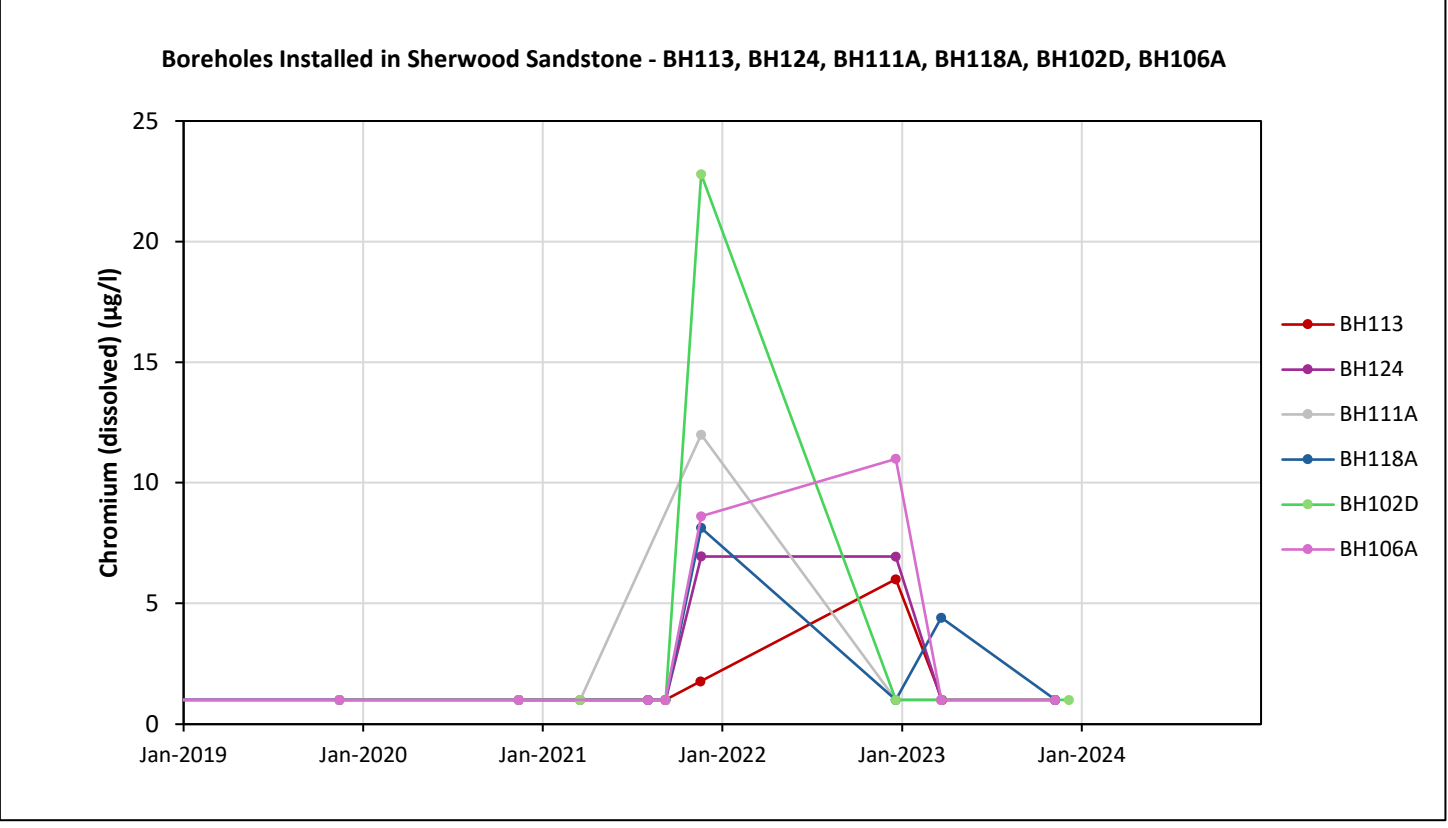
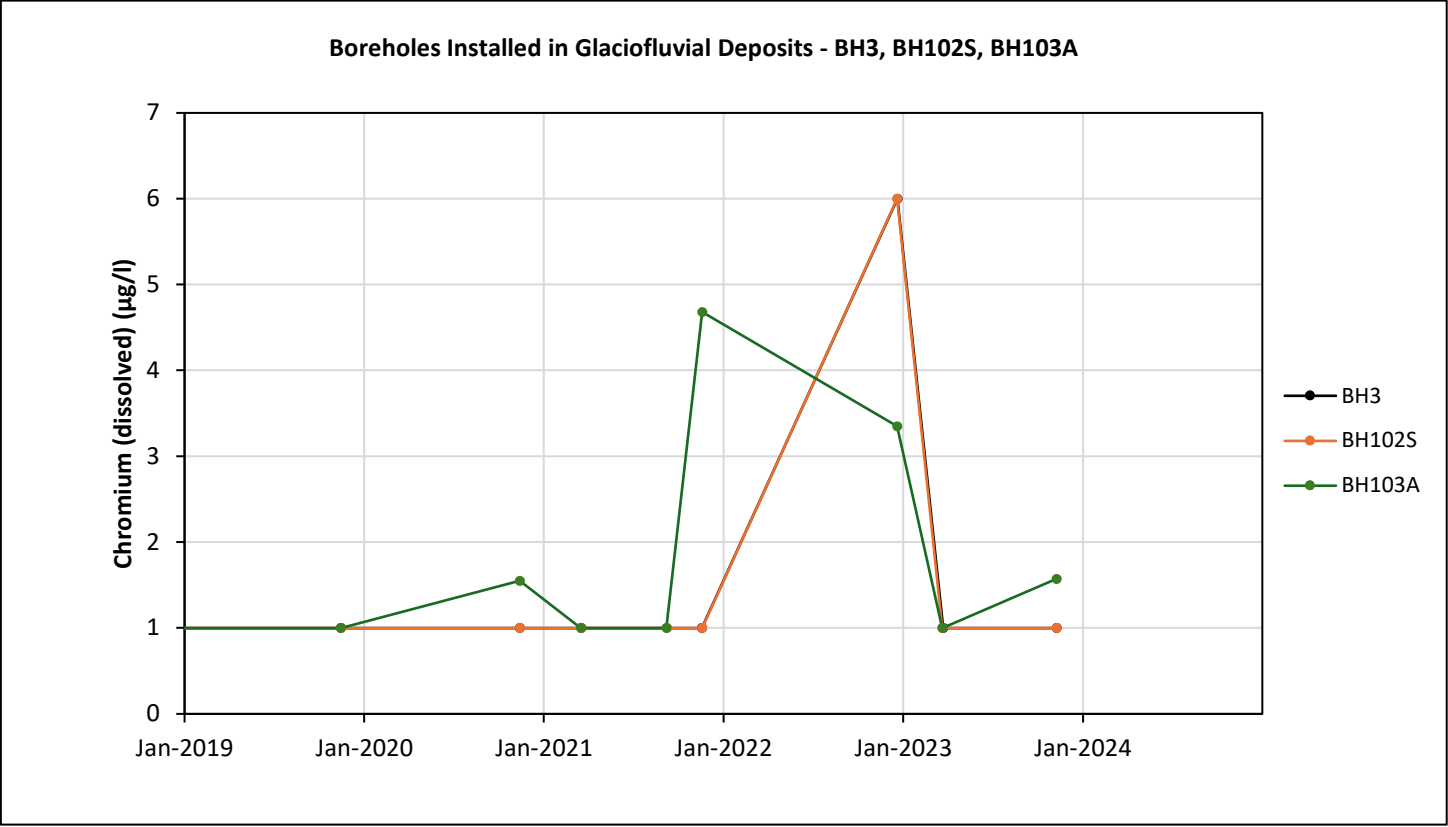
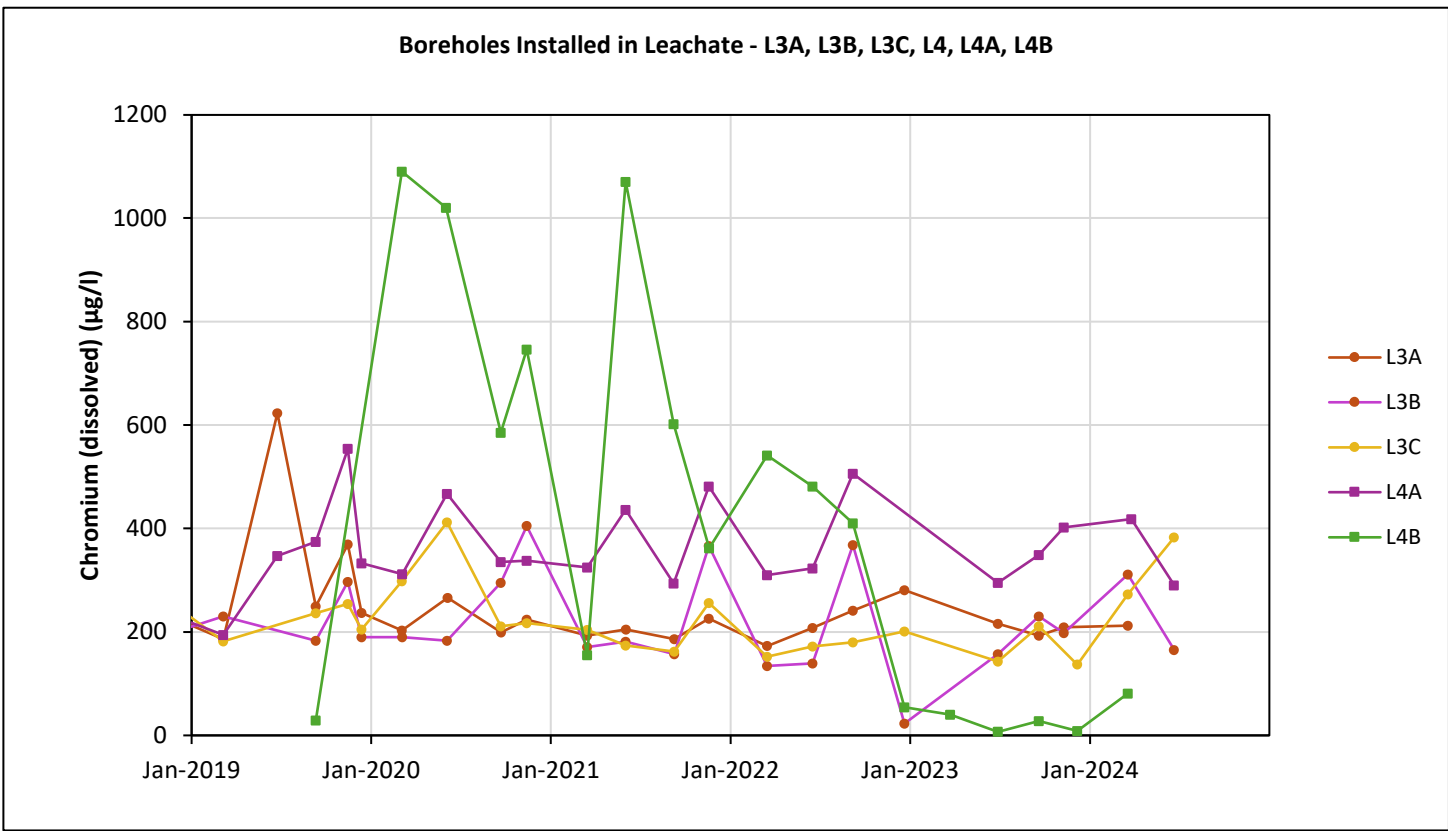


Note: Cadmium concentrations recorded at 0.08µg/l, 0.48µg/l, 0.772µg/l, 0.8µg/l, 0.88µg/l, 1.6µg/l and 8µg/l correspond to LOD.



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CLIENT	QUERCIA LIMITED		
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FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.17	KT	AS	Dec-24

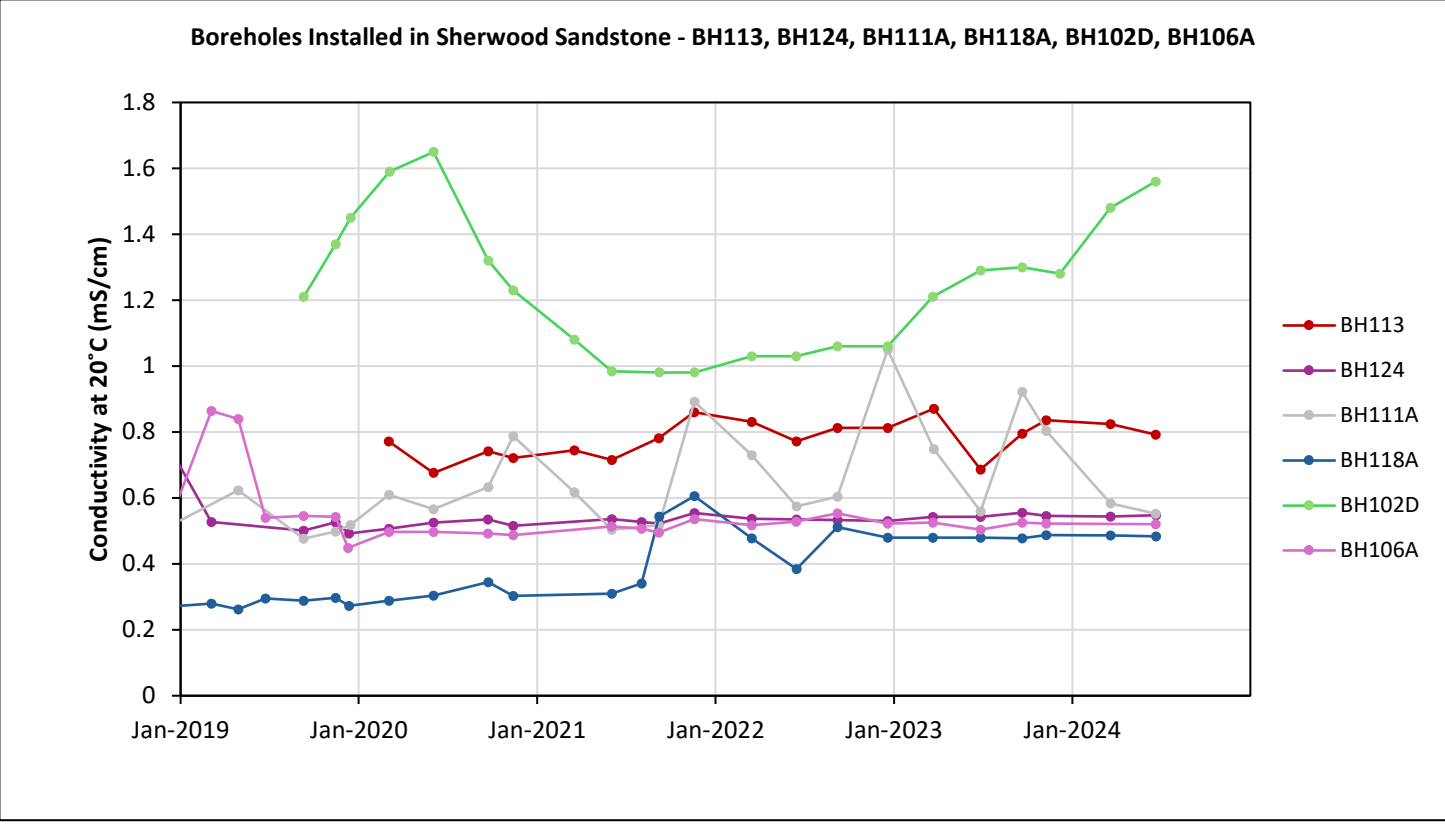
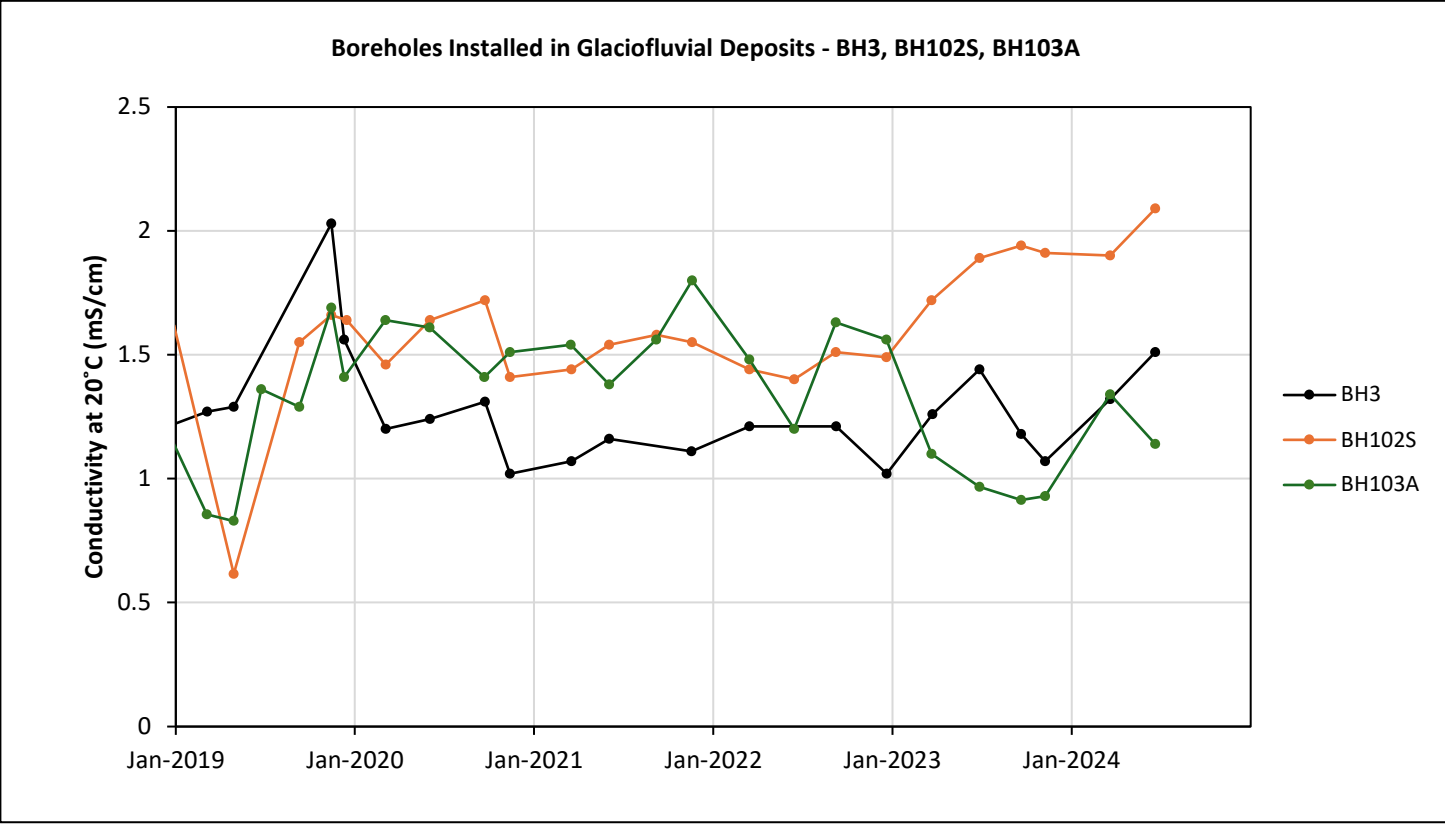
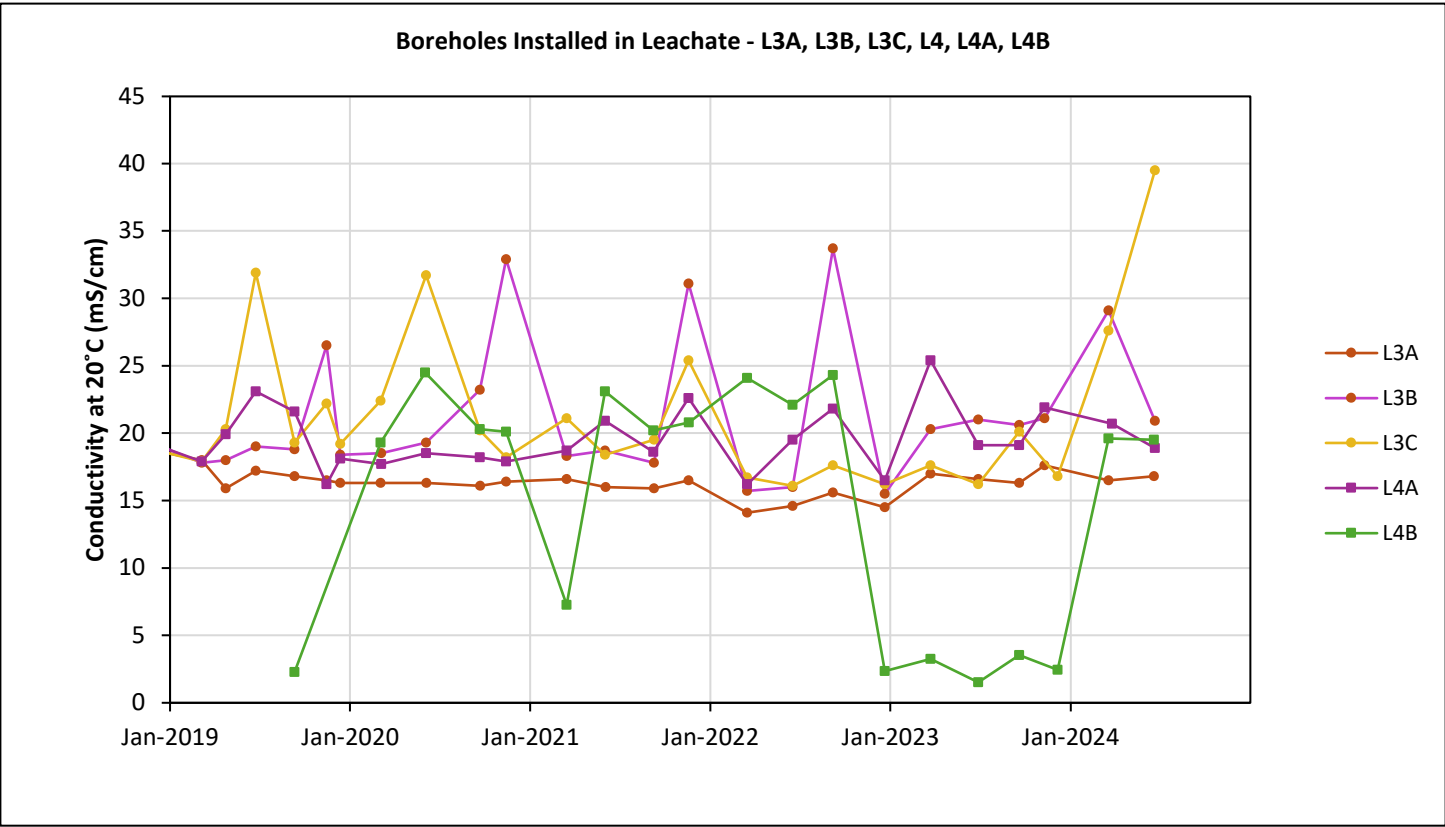


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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.18	KT	AS	Dec-24

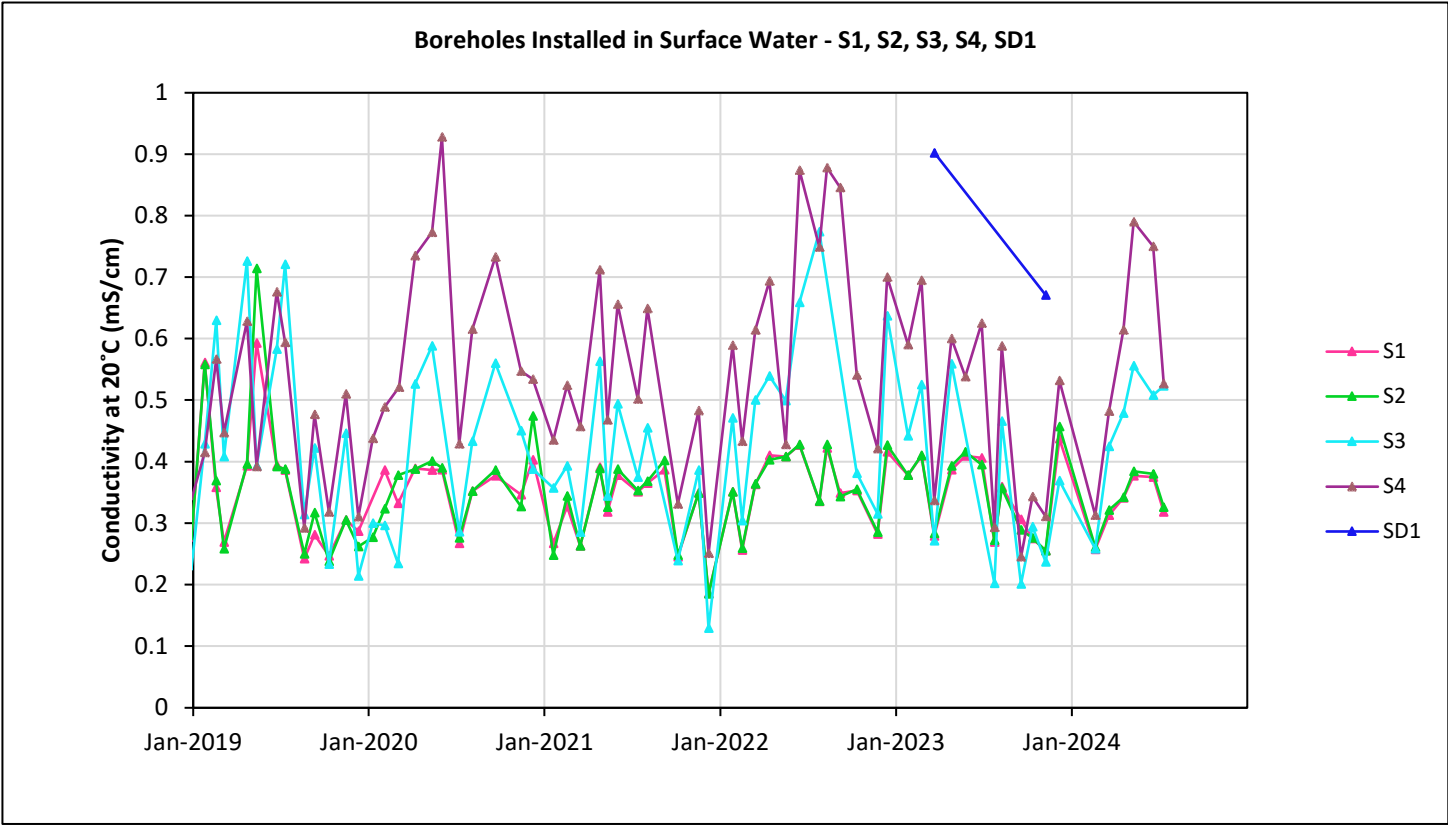



Note: Chromium concentrations recorded at 1µg/l, 6µg/l and 11µg/l correspond to LODs.

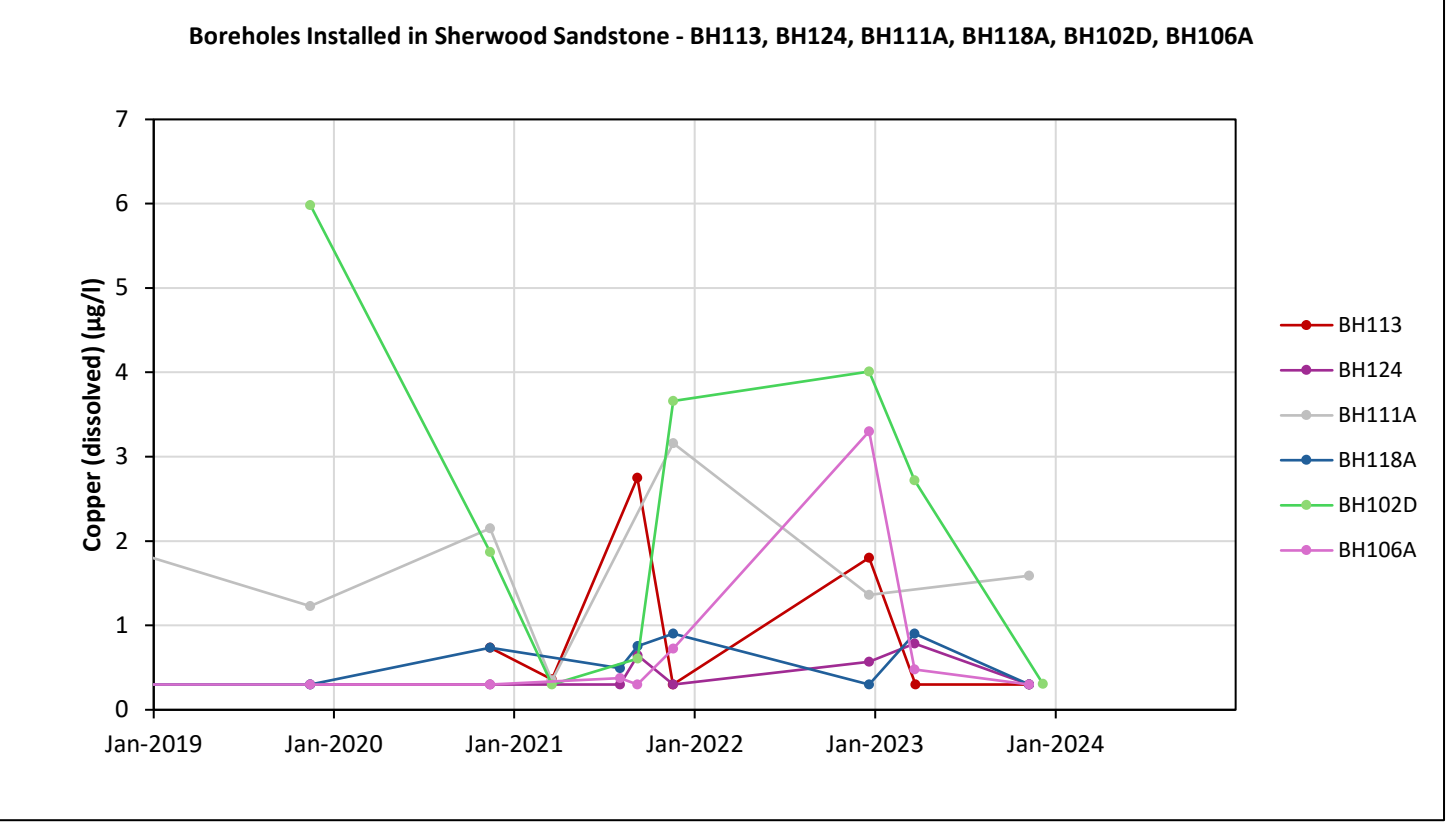
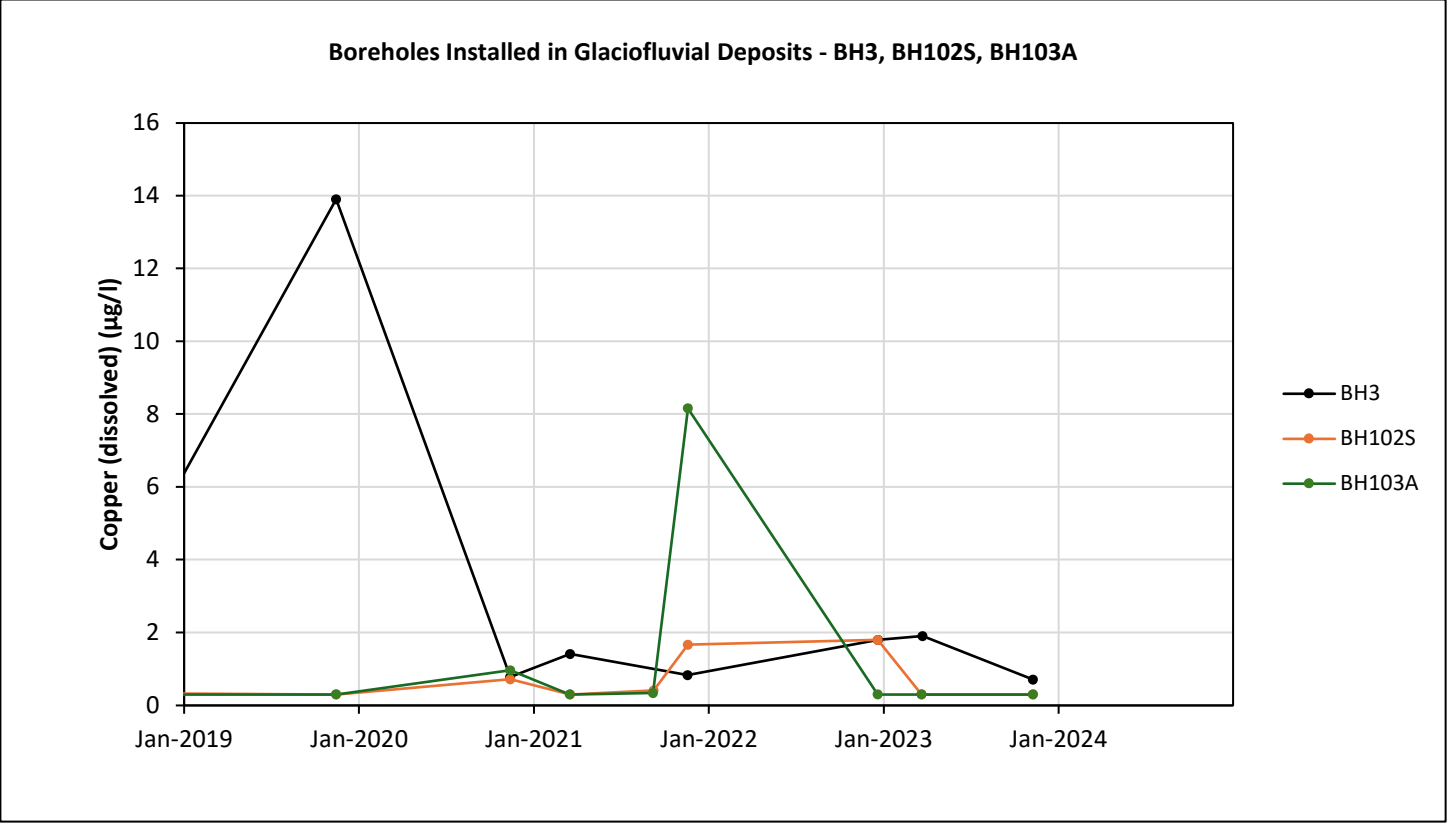
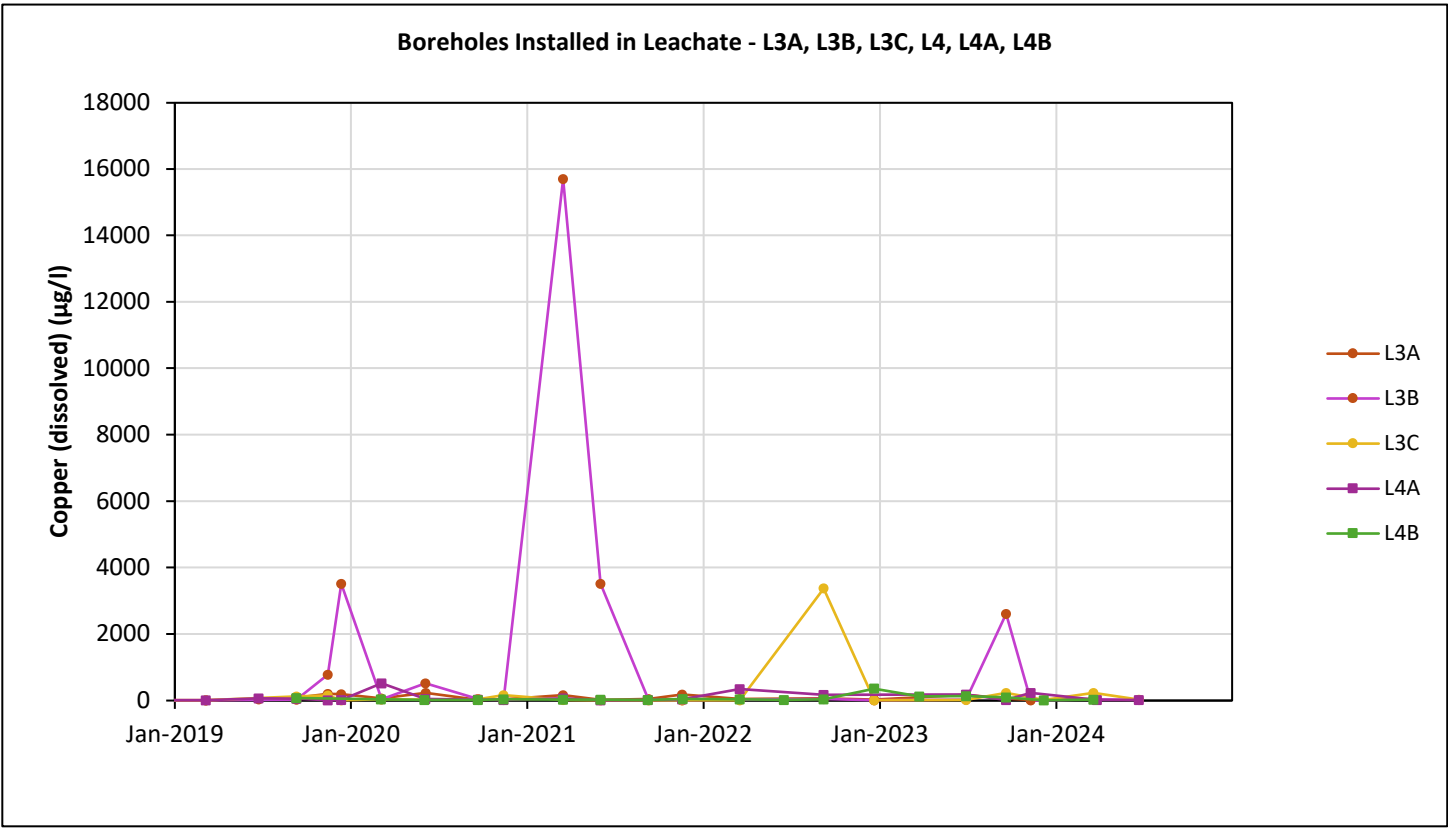
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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
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A5.20	KT	AS	Dec-24

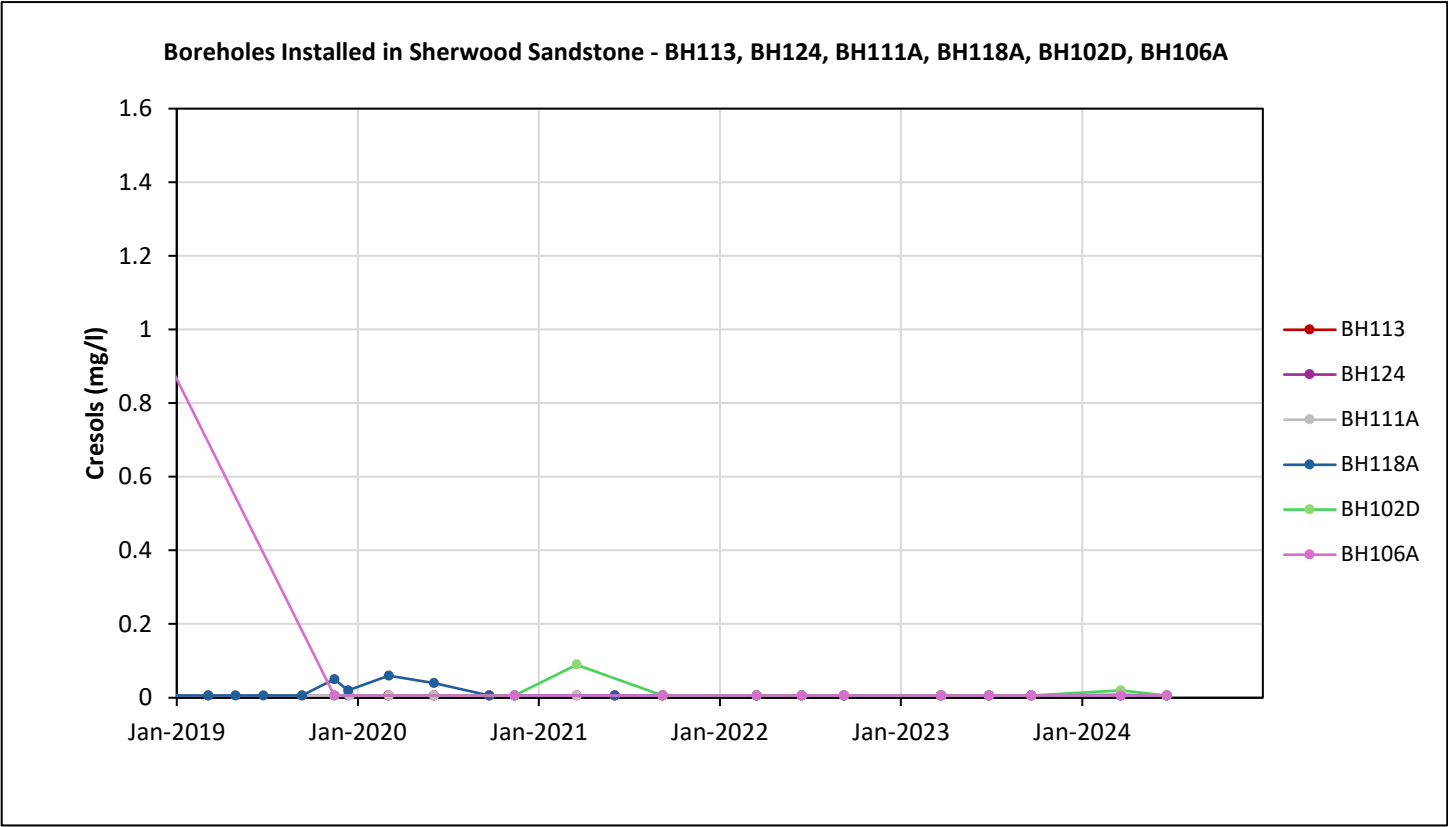
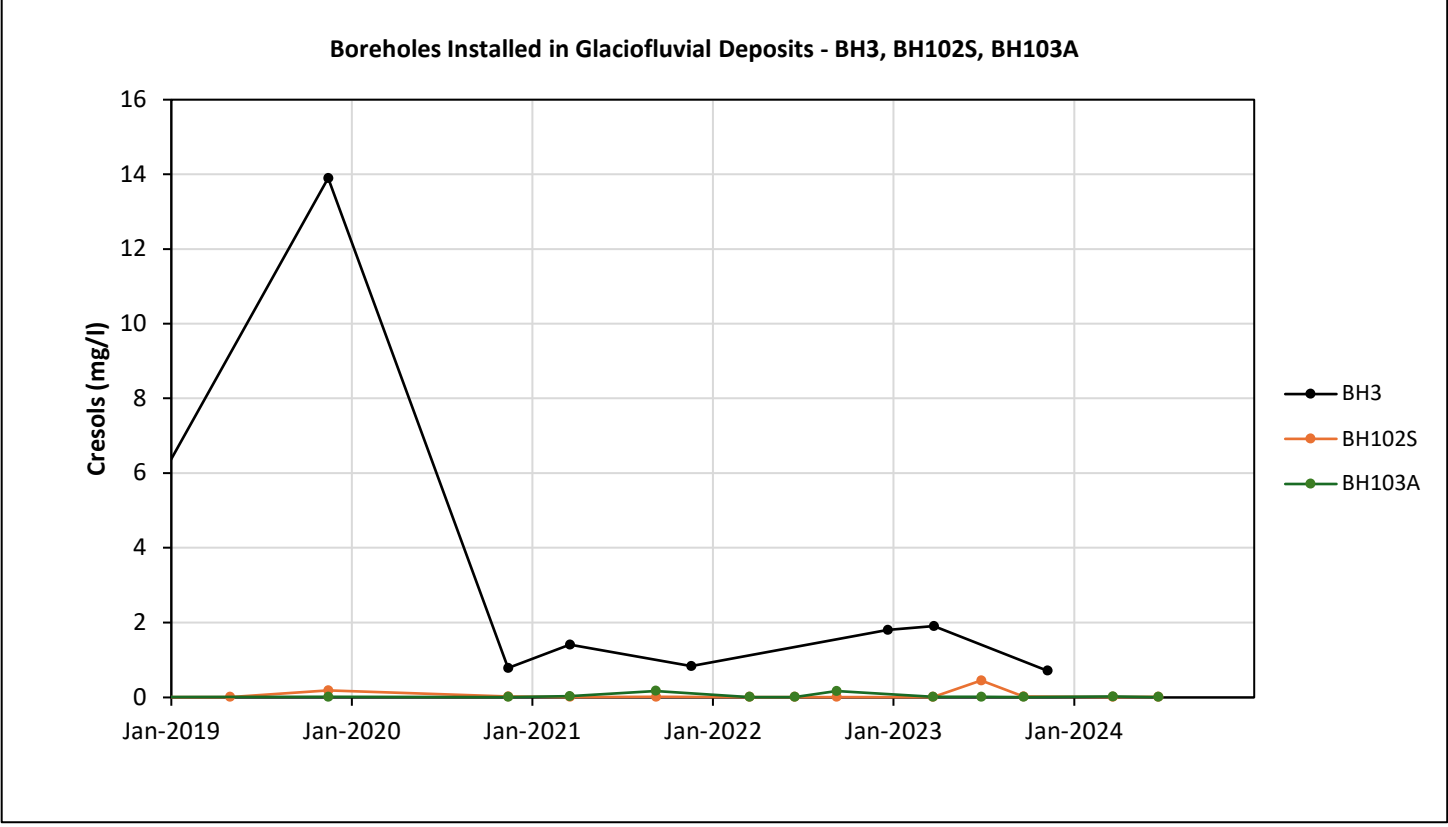
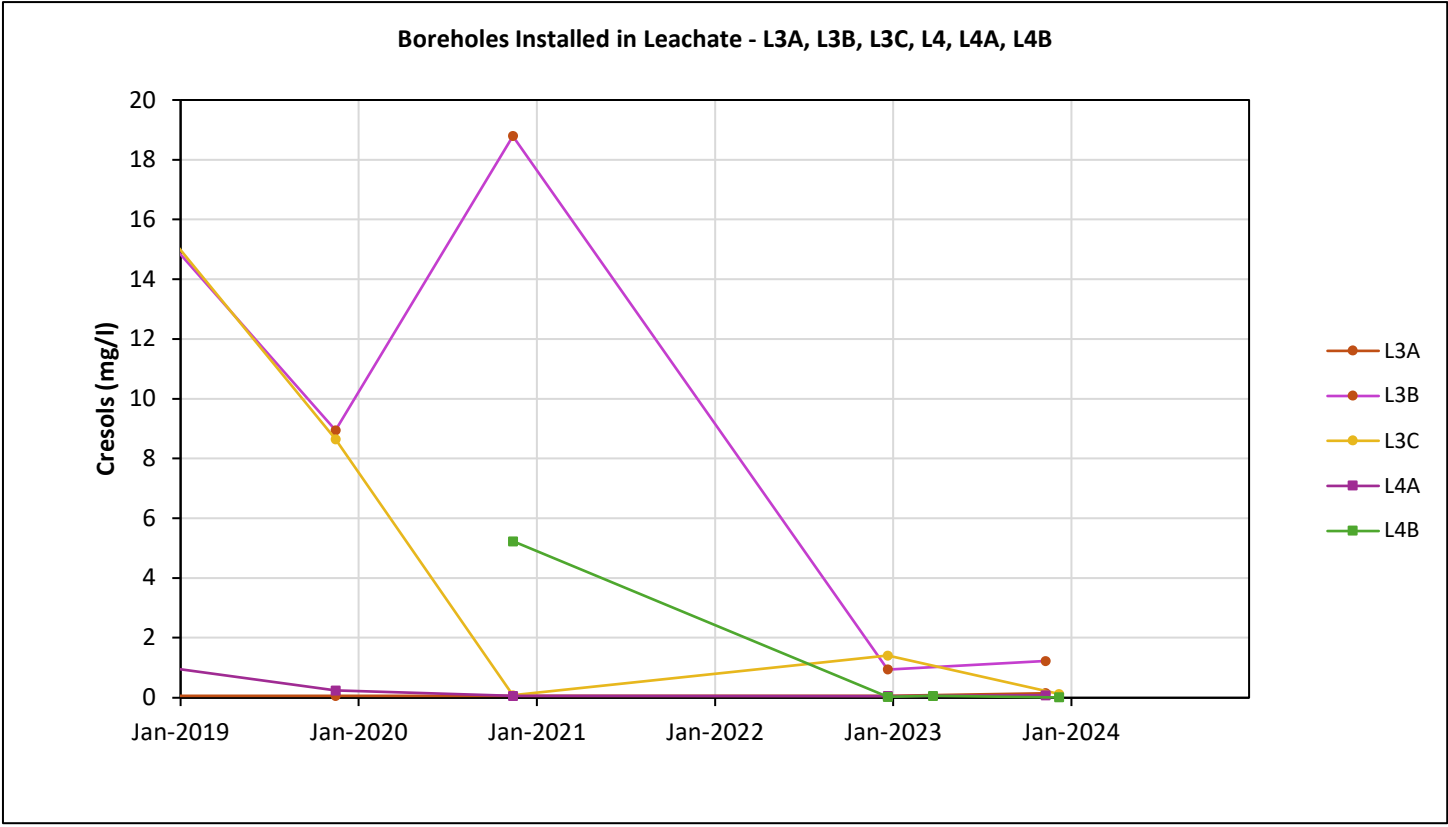


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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.20	KT	AS	Dec-24



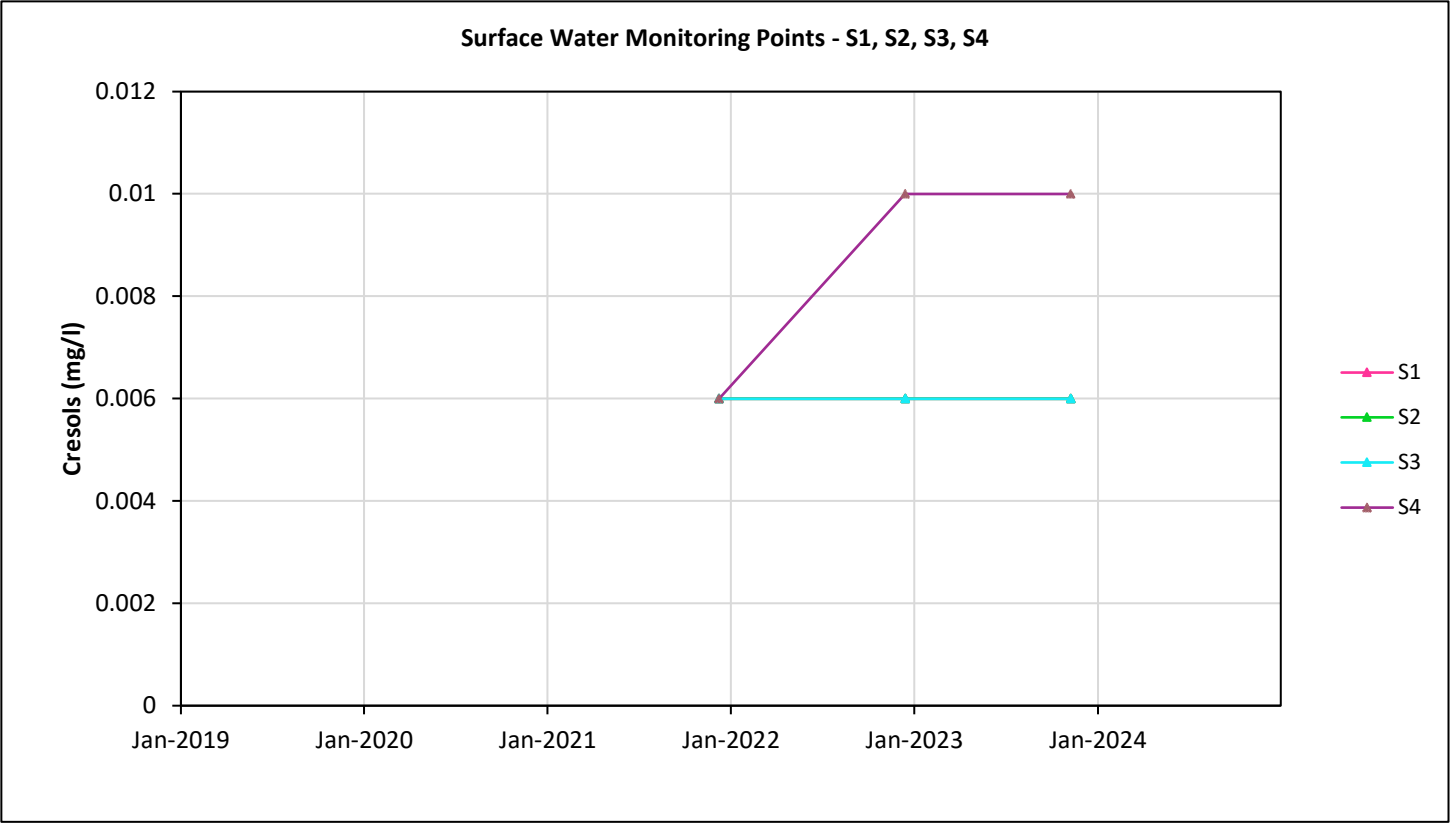
Note: Copper concentrations recorded at 0.3µg/l, 1.8µg/l, 3µg/l, 3.3µg/l and 30µg/l correspond to LOD.

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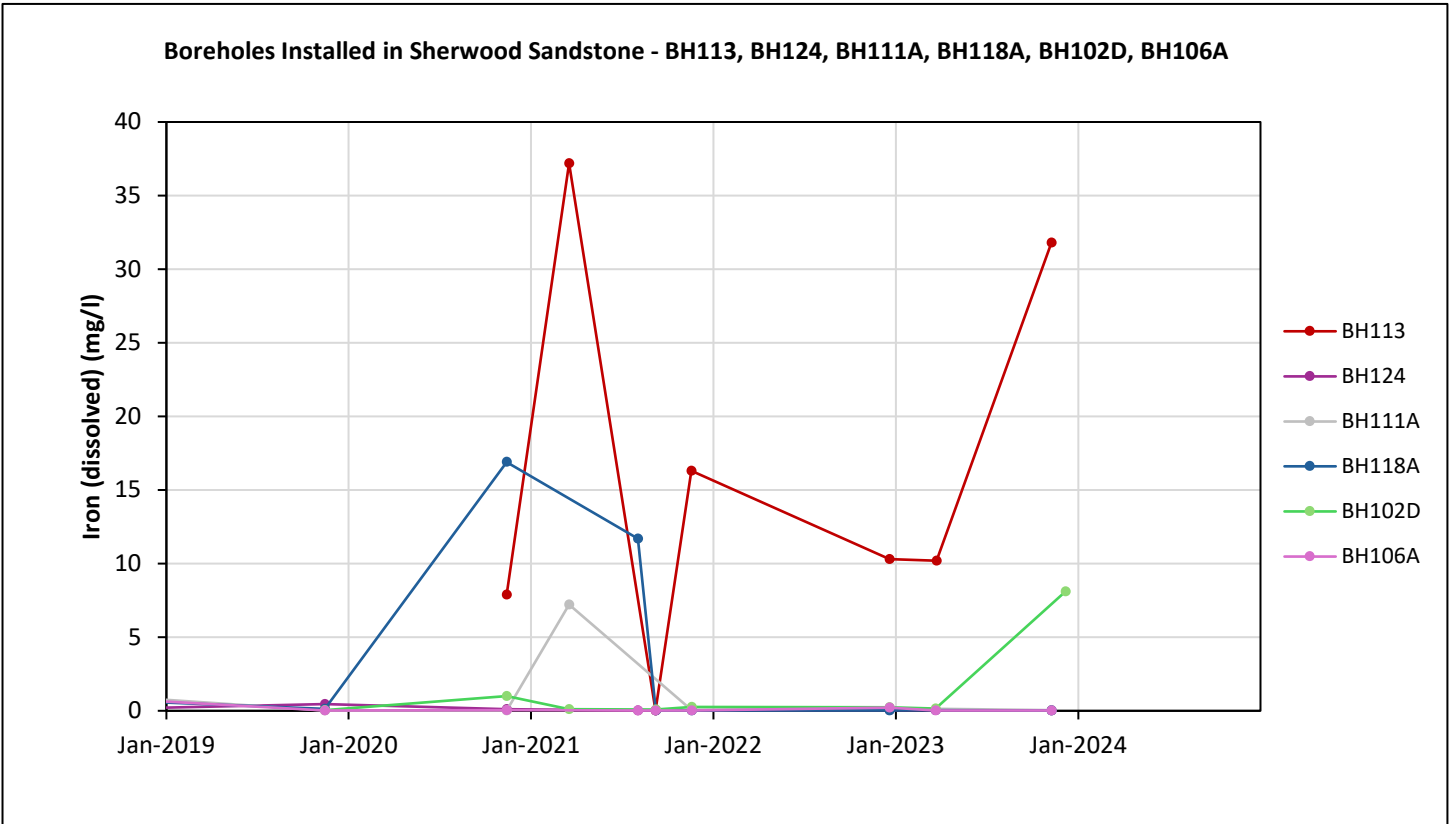
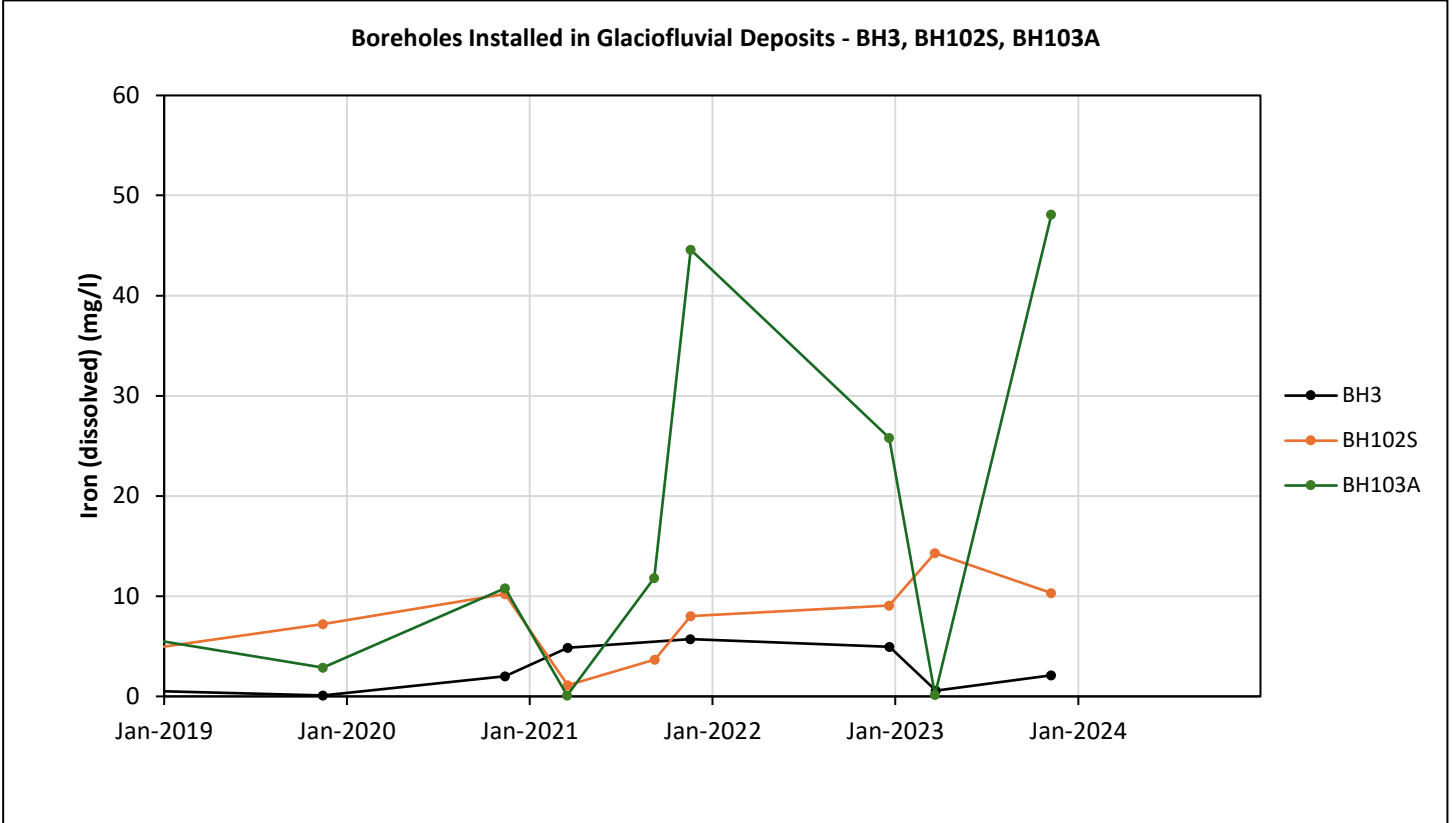
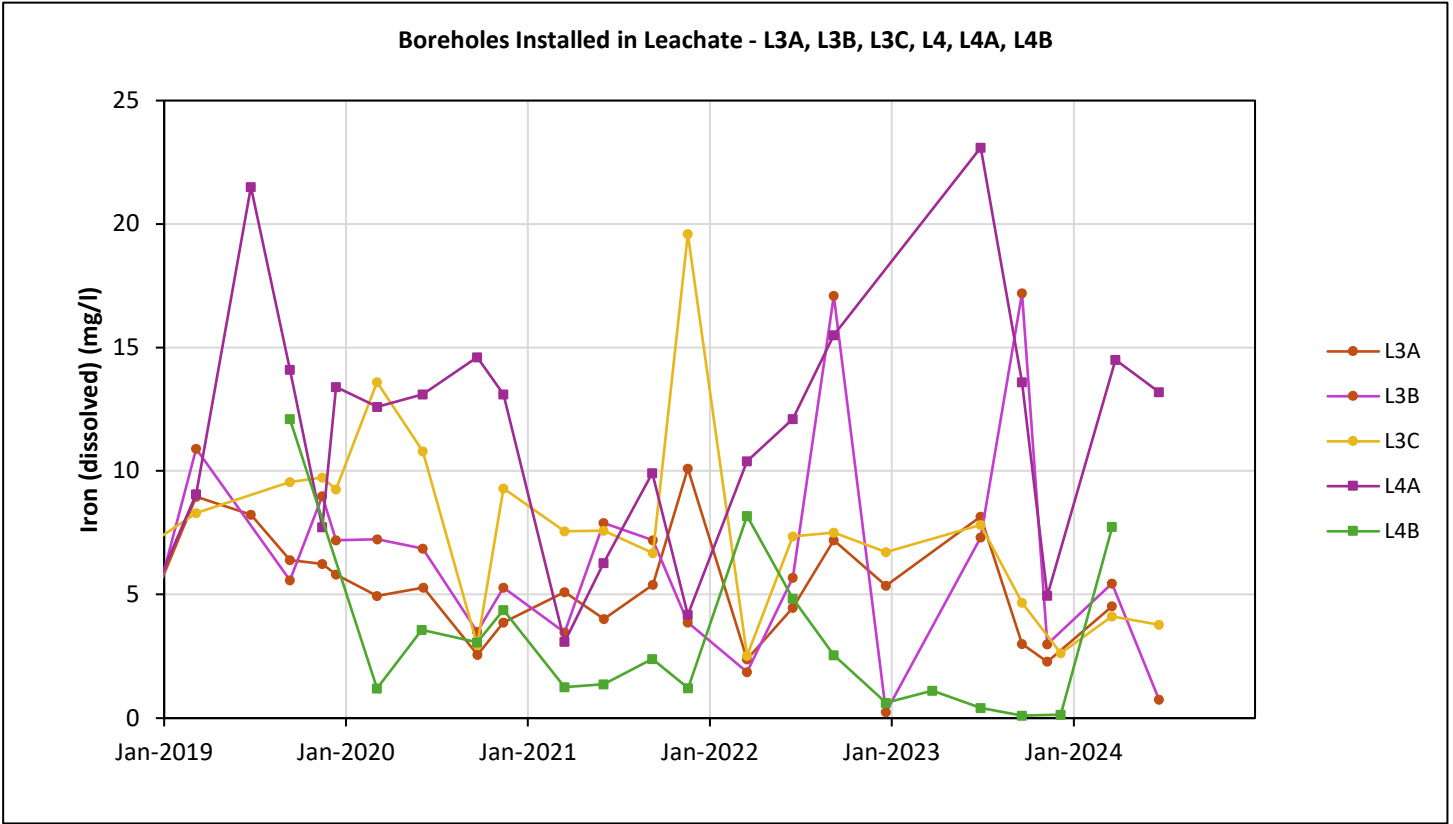
Note: Cresols concentrations recorded at 0.006mg/l, 0.06mg/l and 0.15mg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
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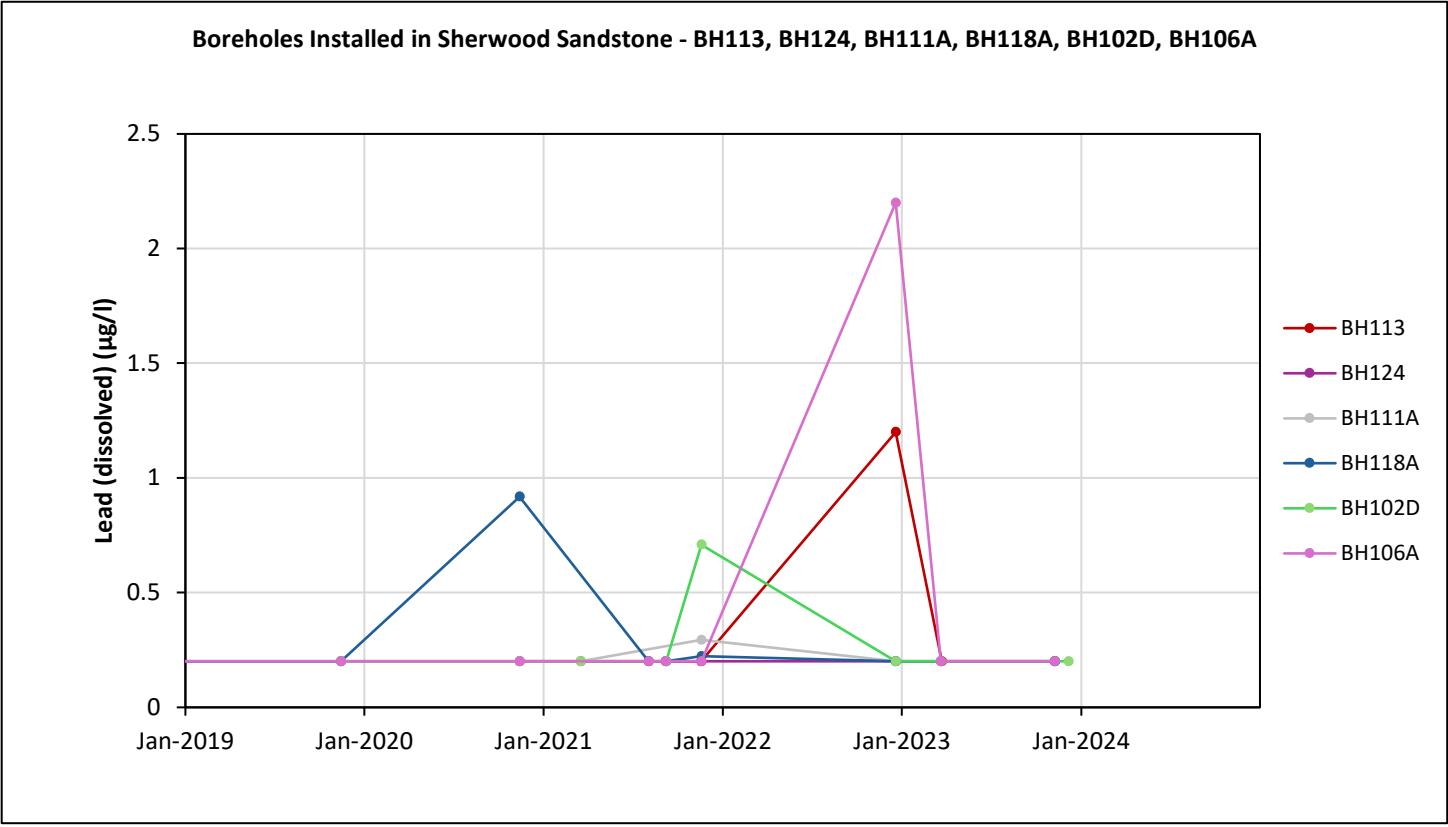
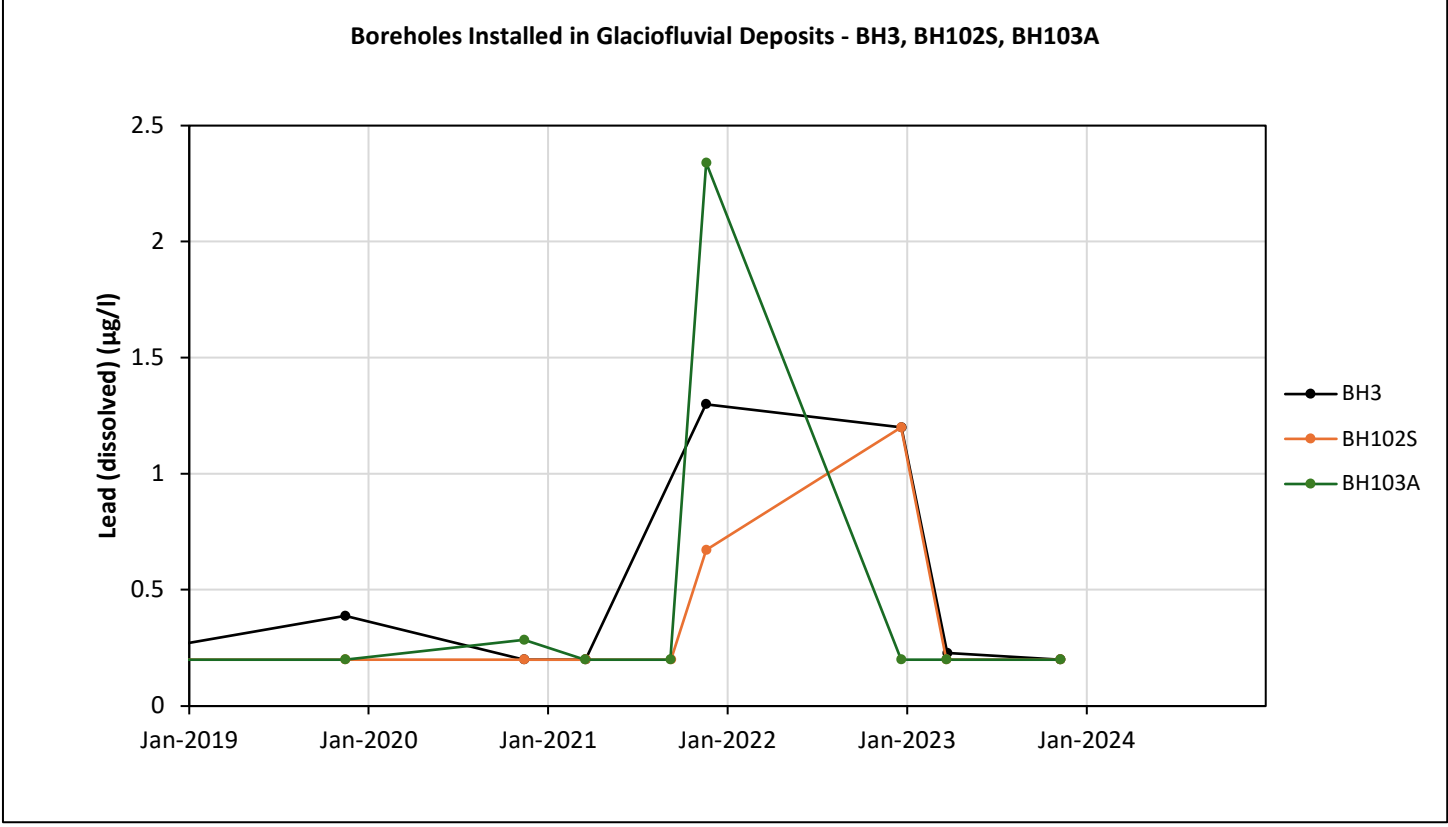
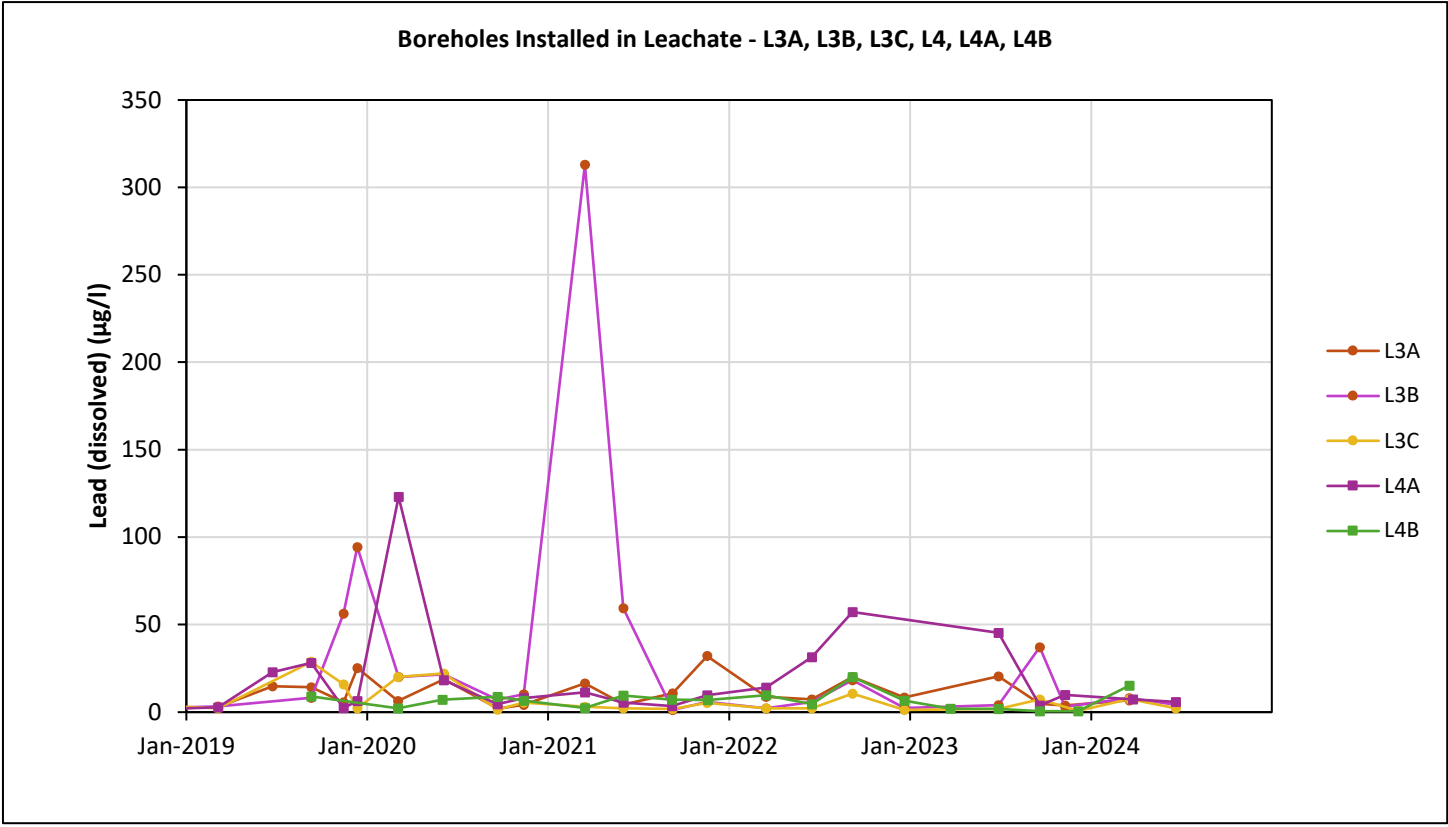
Note: Cresols concentrations recorded at 0.006mg/l, 0.06mg/l and 0.15mg/l correspond to LOD.

<div><div></div><div><div>PART OF</div><div></div></div></div>			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.22	KT	AS	Dec-24



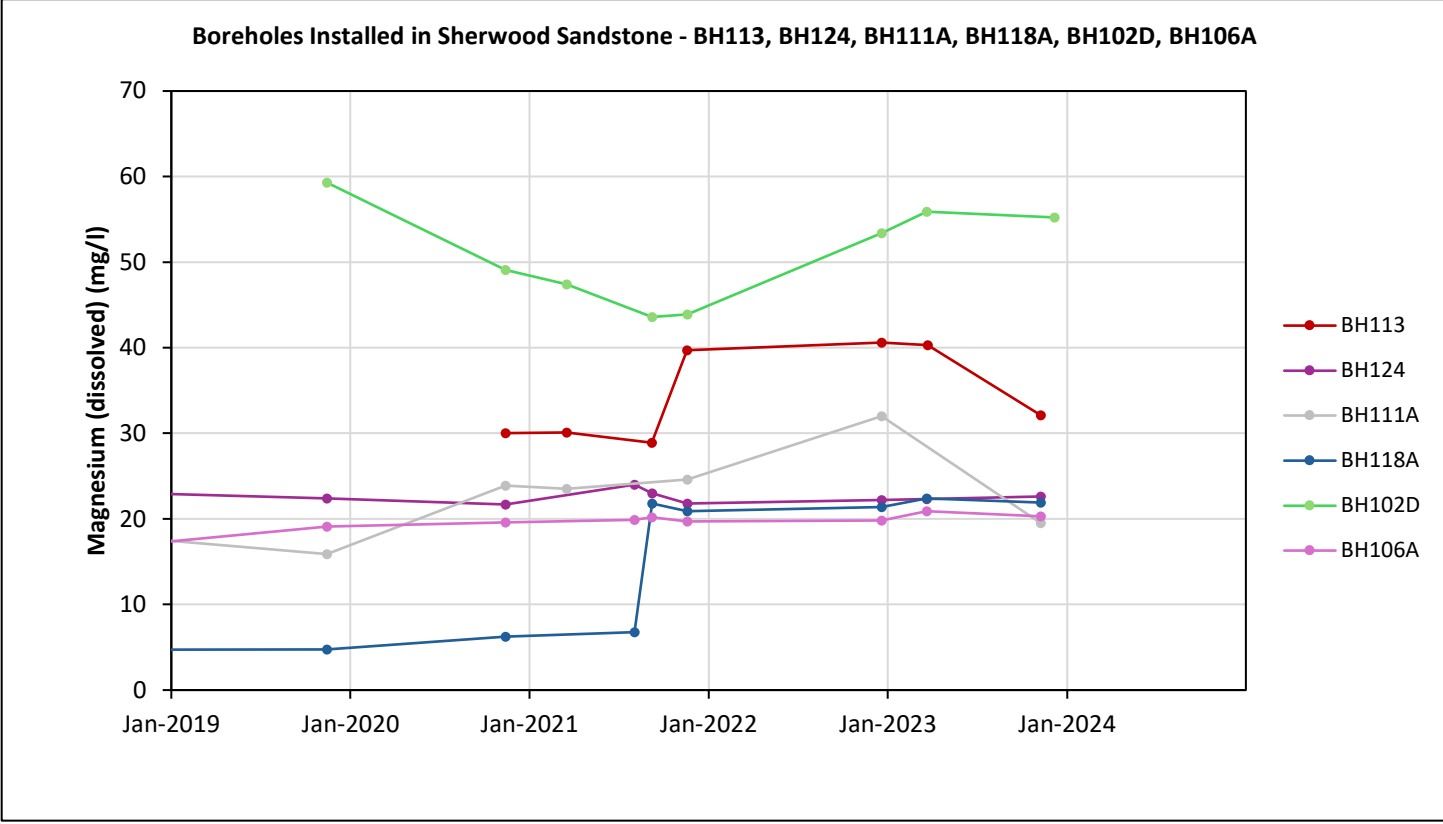
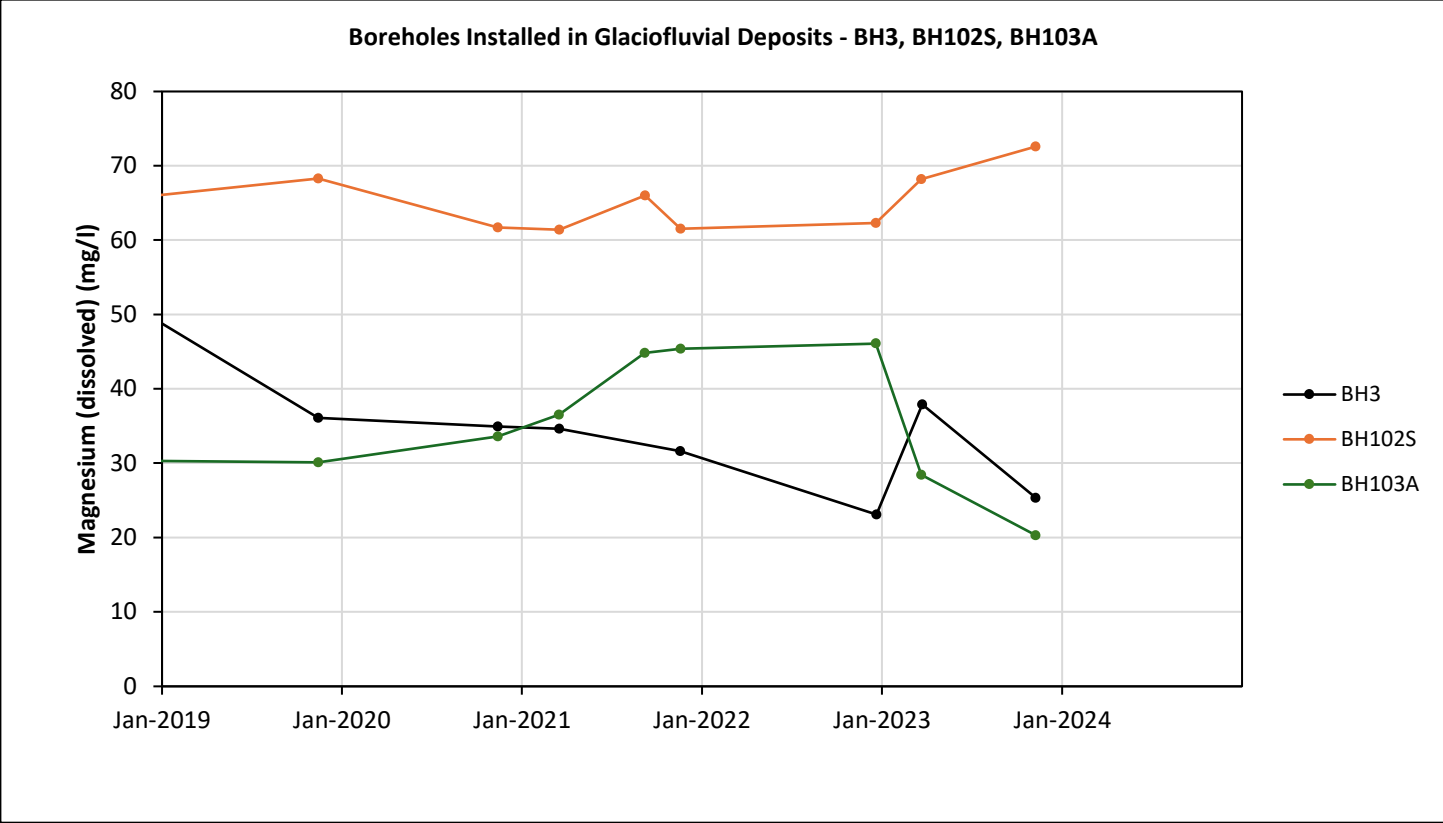
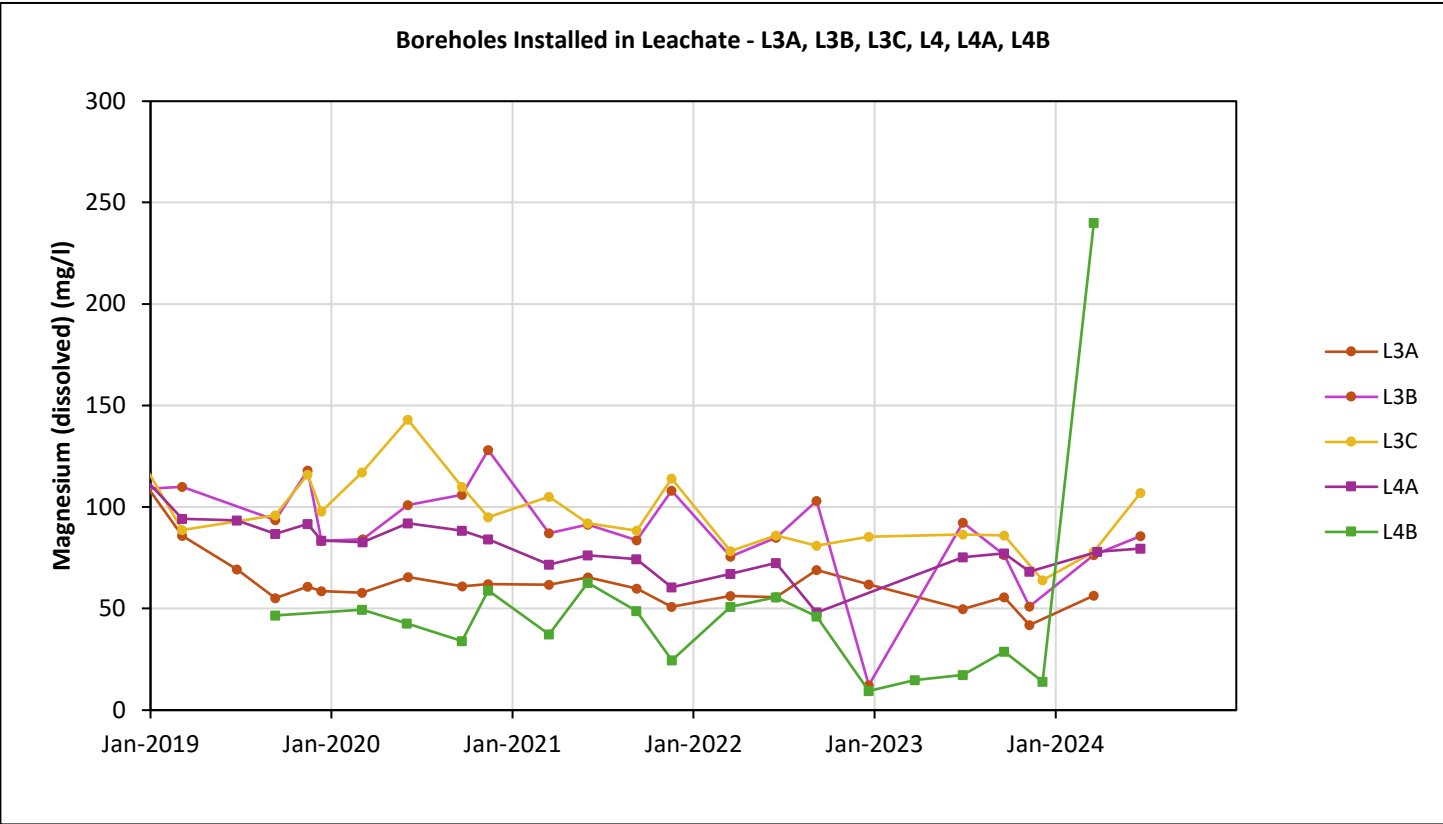
Note: Iron concentrations recorded at 0.019mg/l and 0.209mg/l correspond to LOD.



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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.23	KT	AS	Dec-24

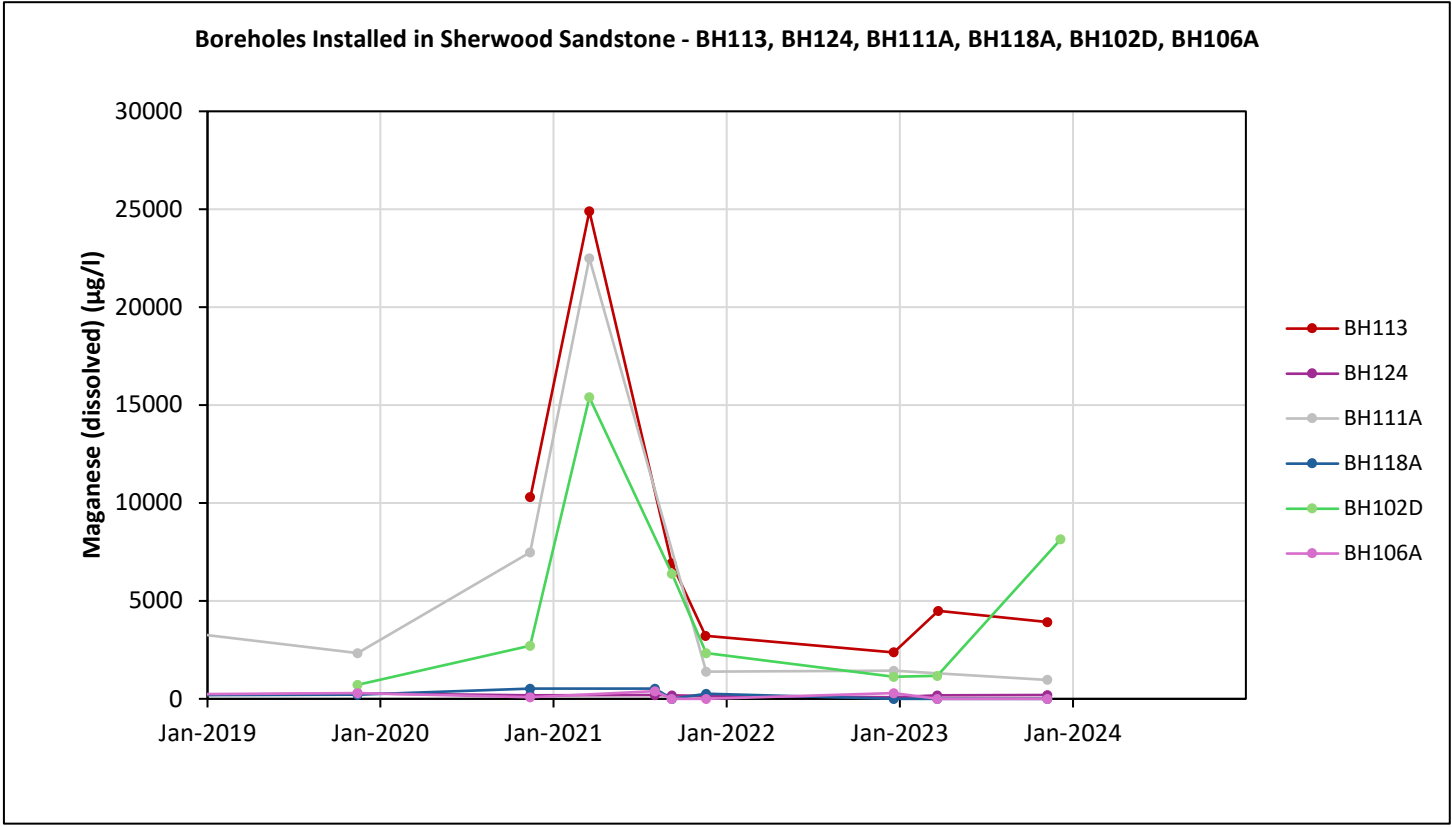
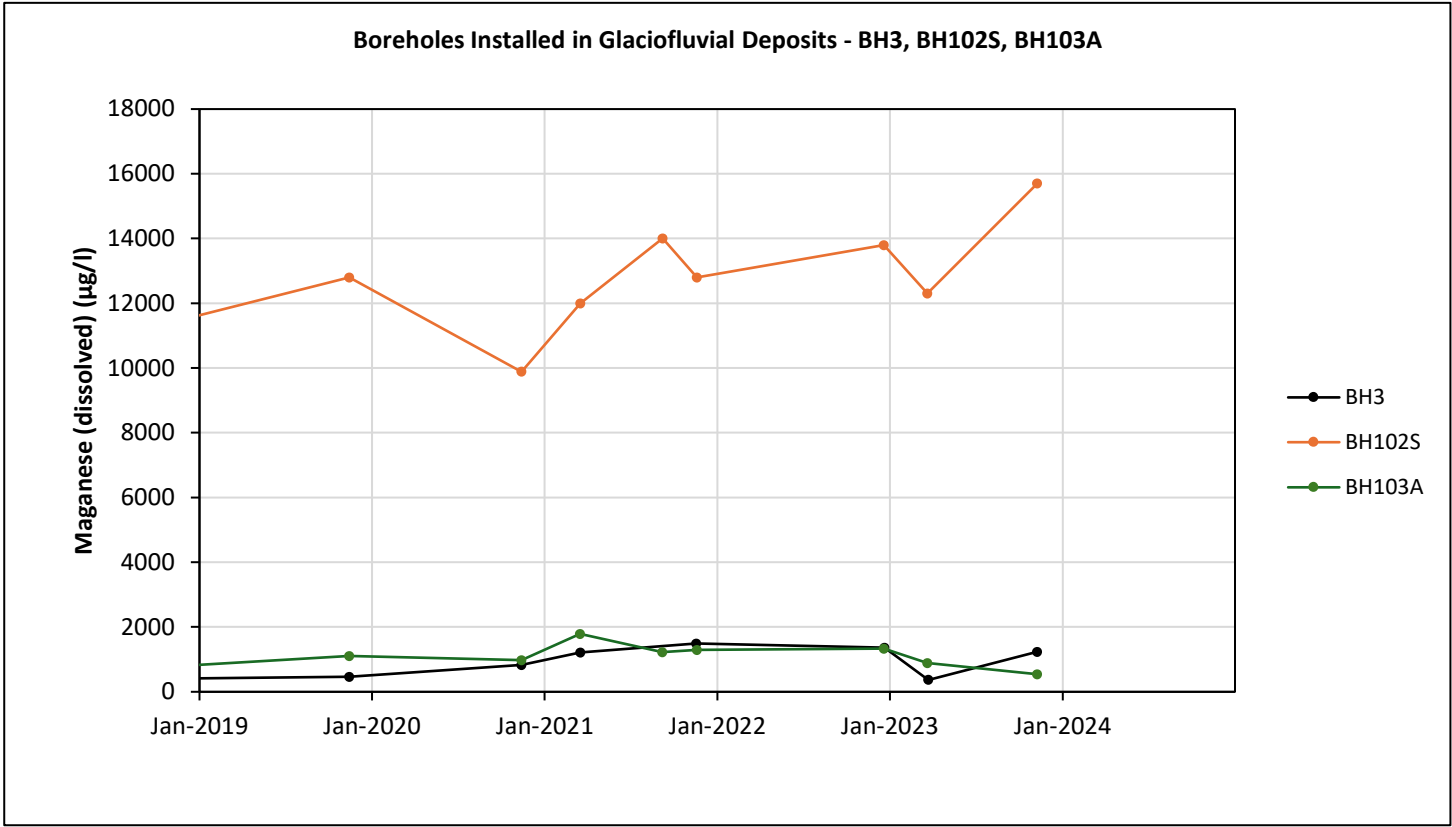
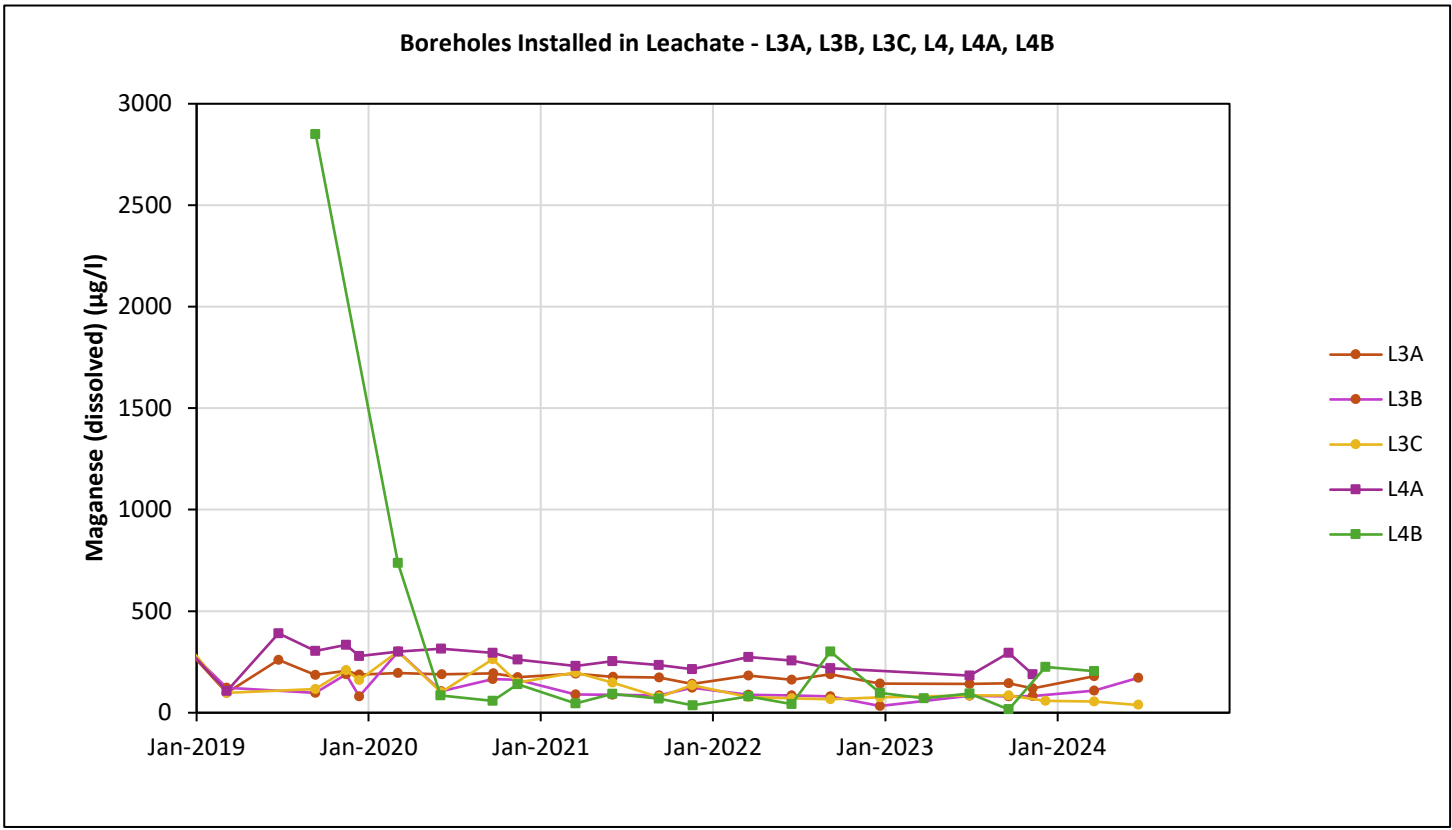


Note: Lead concentrations recorded at 0.2µg/l, 1.2µg/l, 2µg/l, 2.2µg/l and 20µg/l correspond to LOD.



 			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
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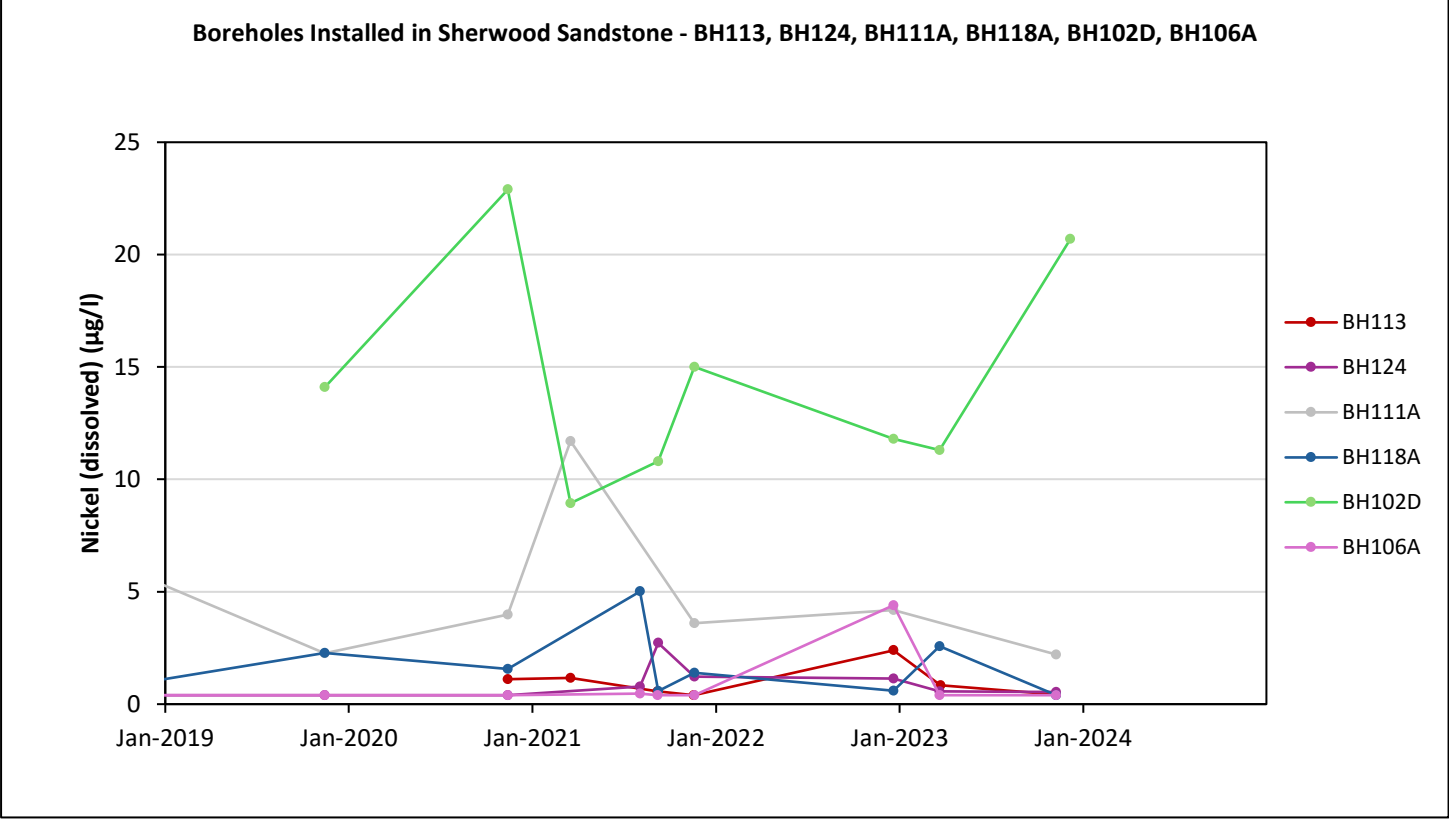
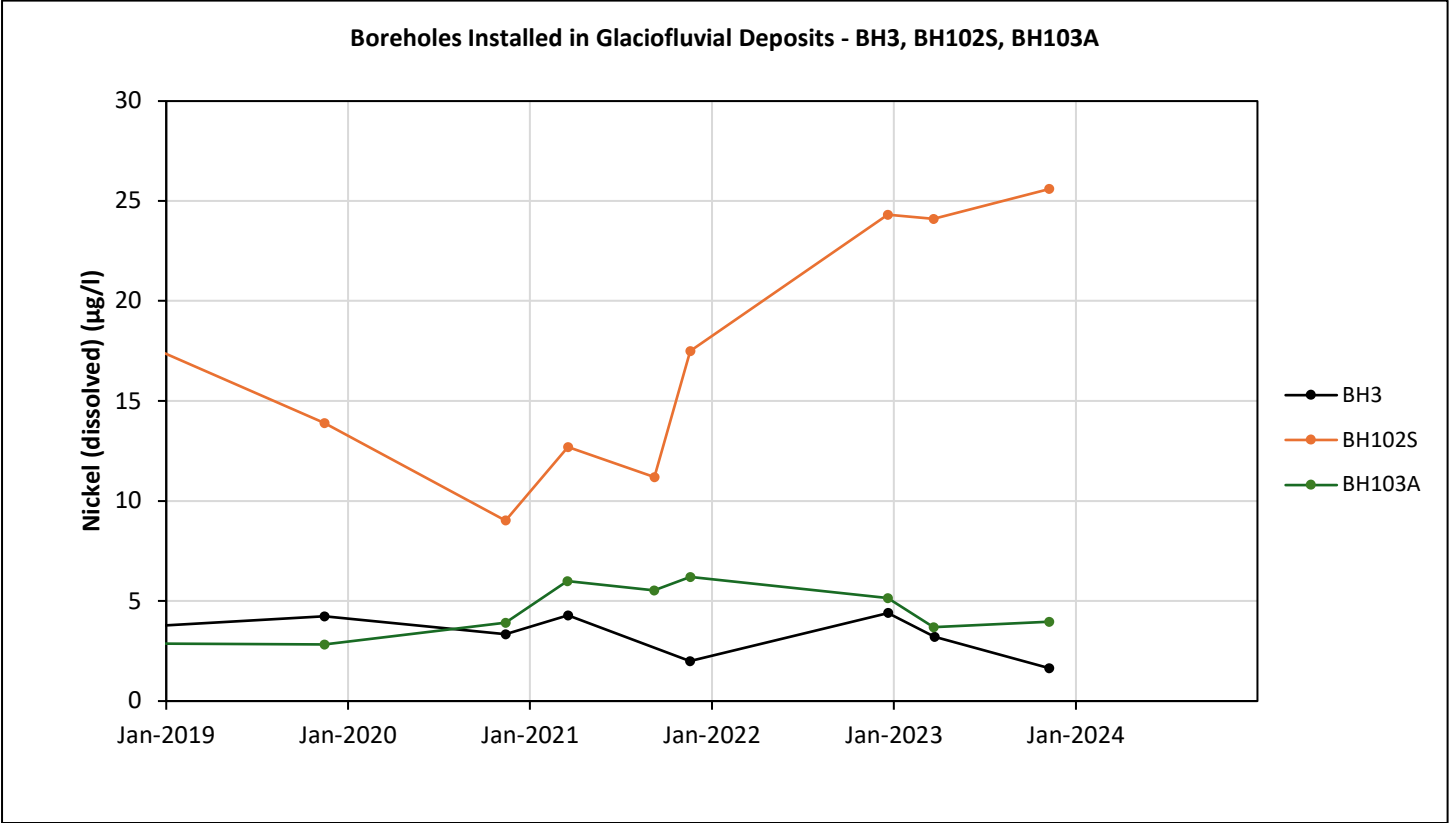
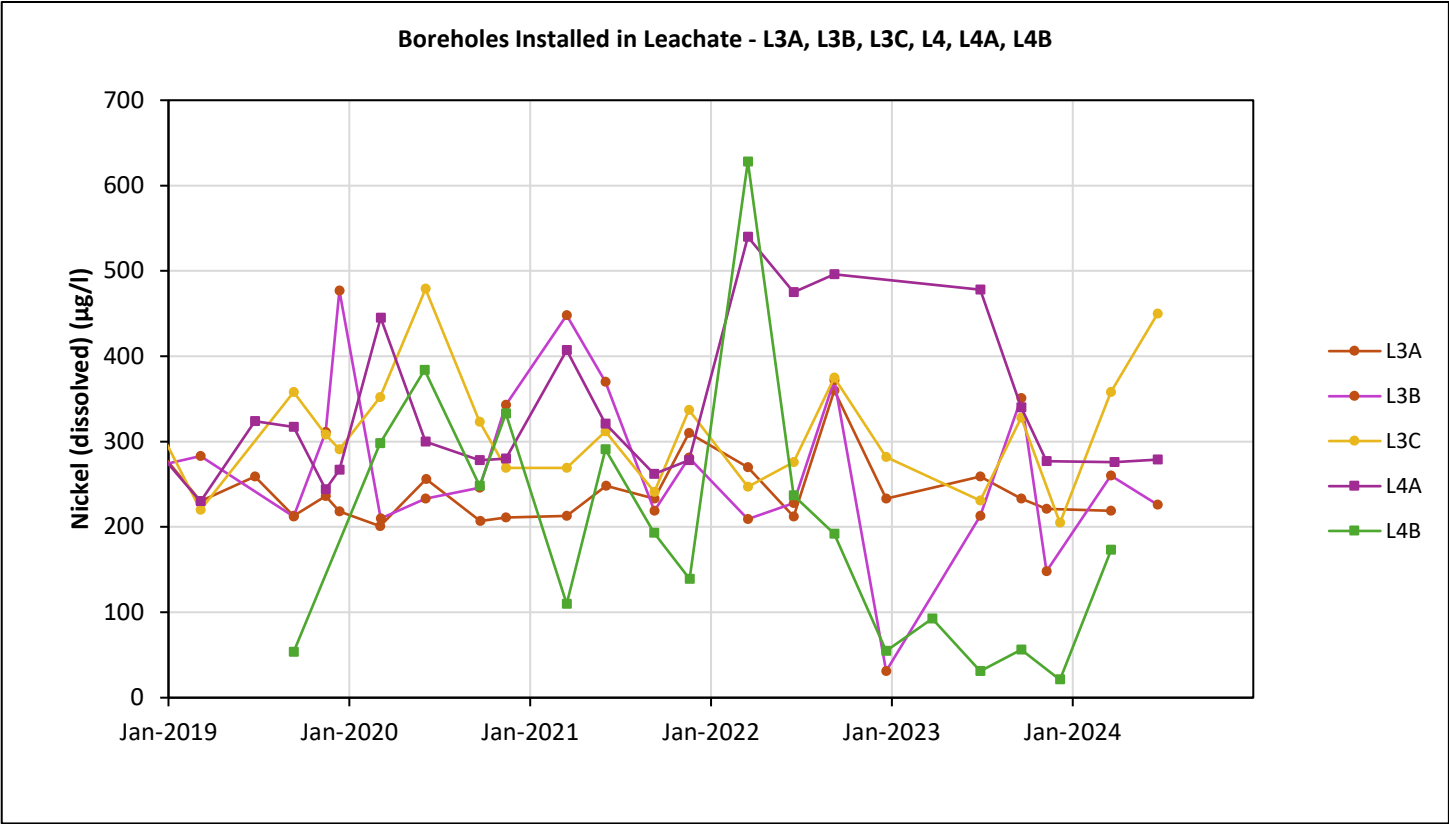


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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.25	KT	AS	Dec-24




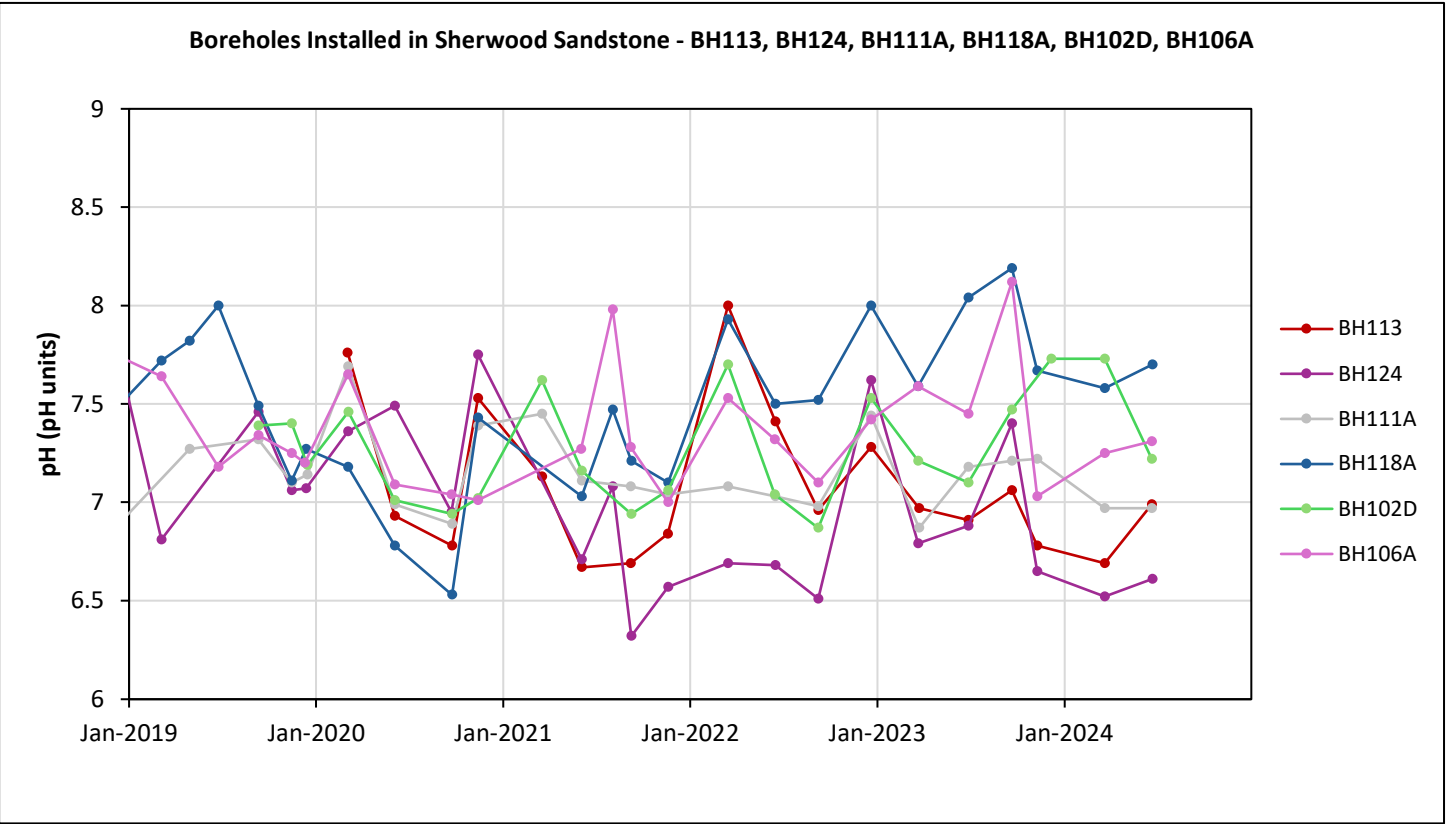
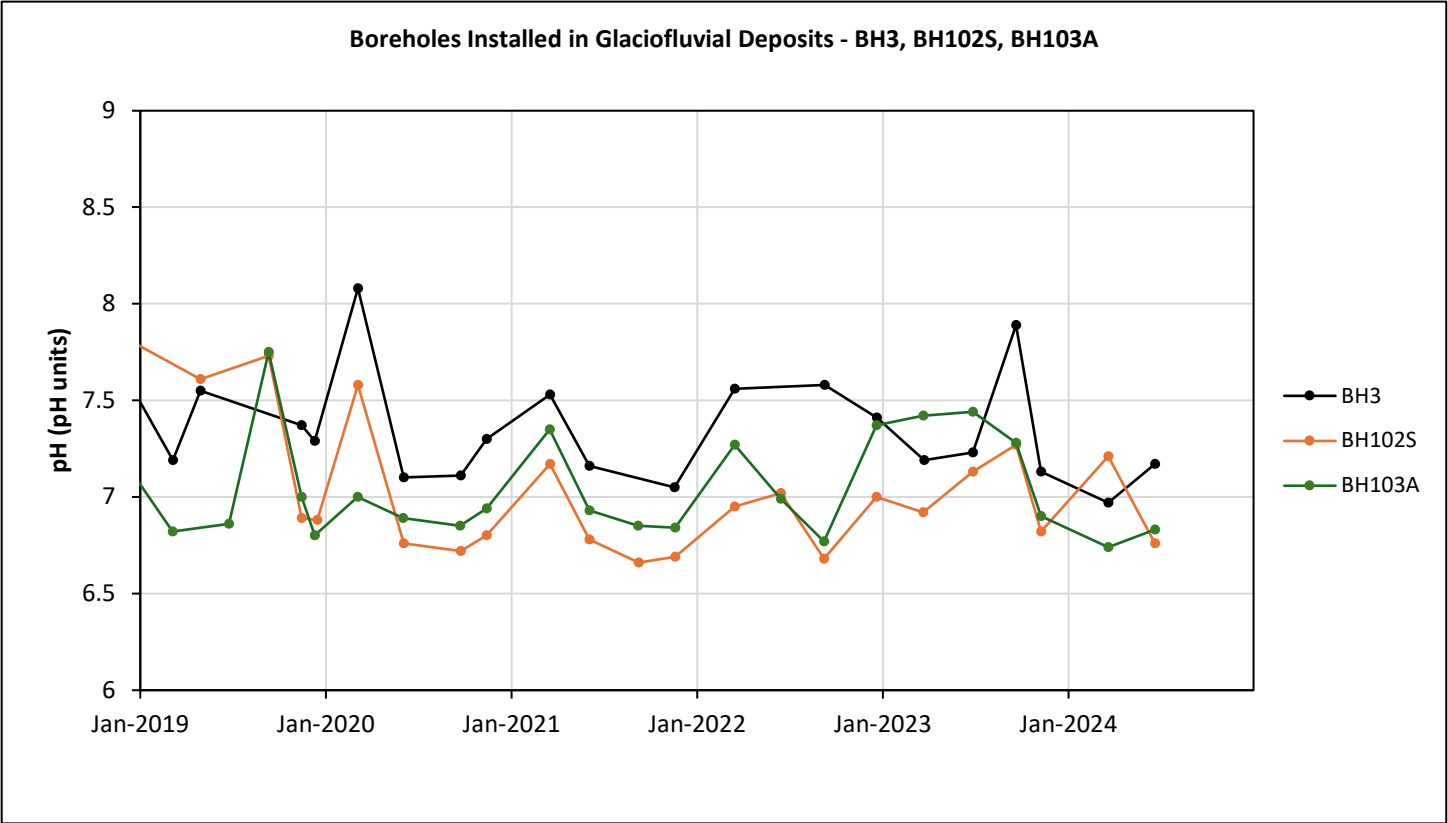
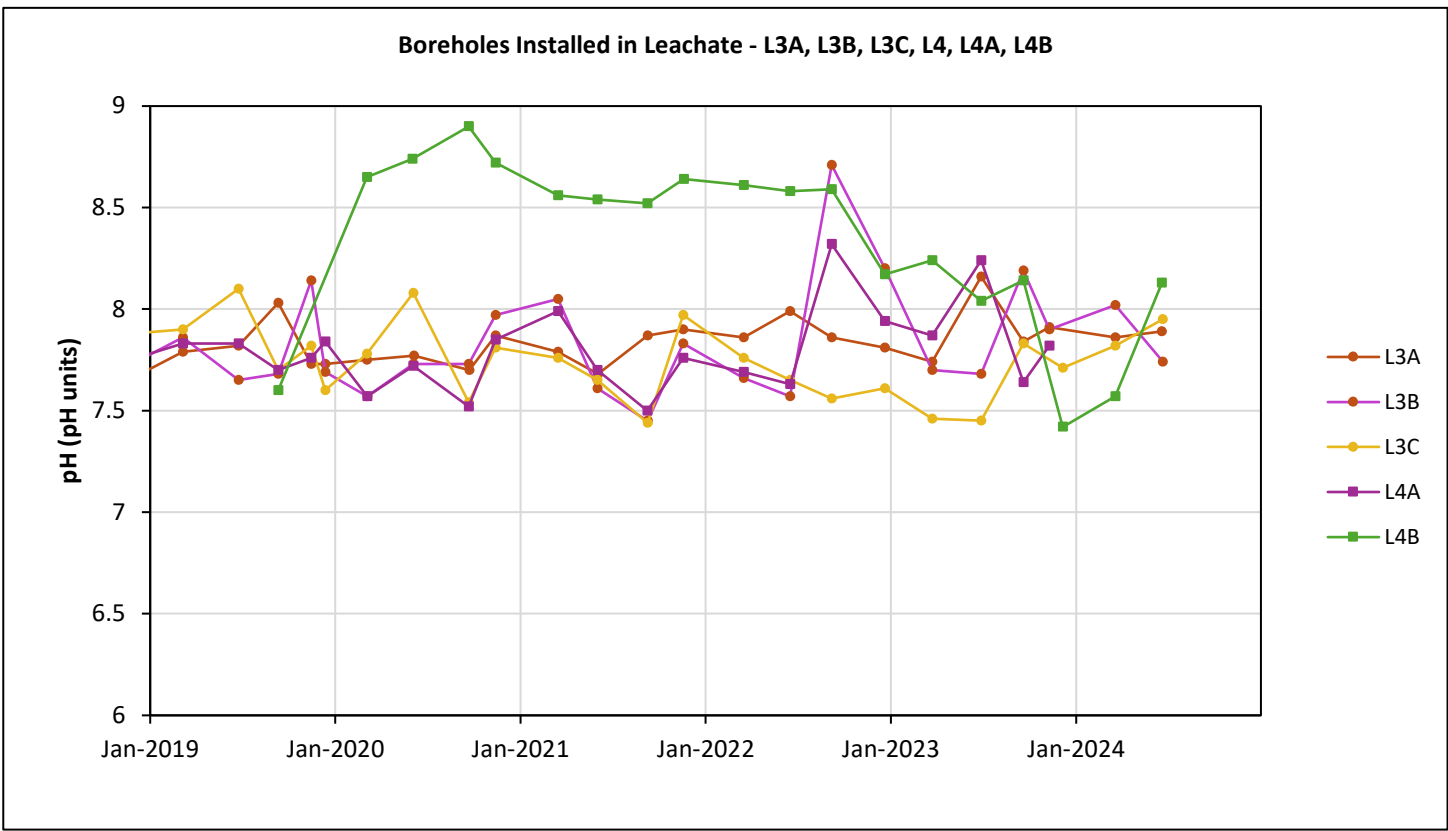
Note: Manganese concentrations recorded at 3µg/l, 33µg/l and 300µg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
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FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
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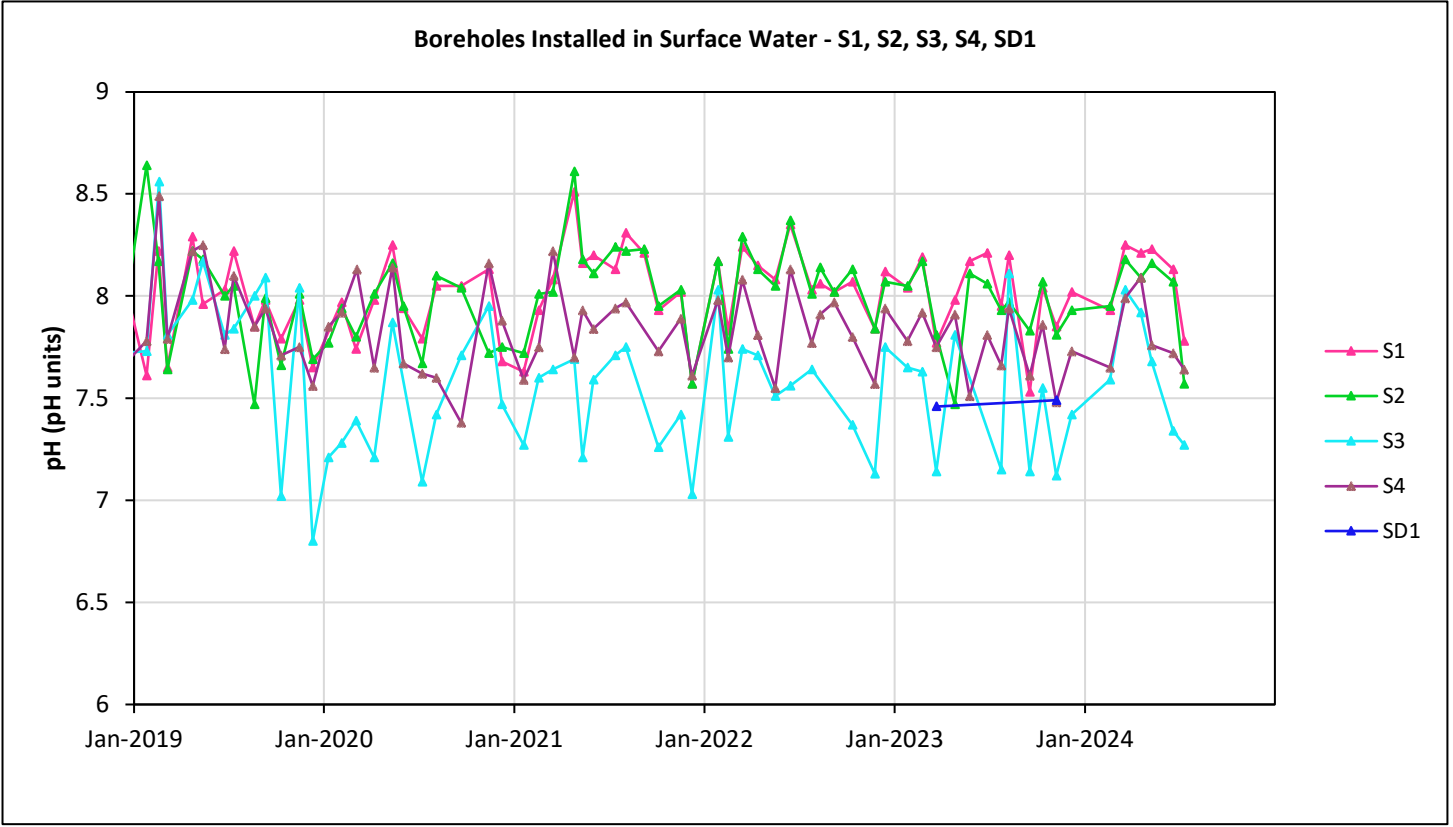


Note: Nickel concentrations recorded at 0.4µg/l, 2.4µg/l and 4.4µg/l correspond to LOD.

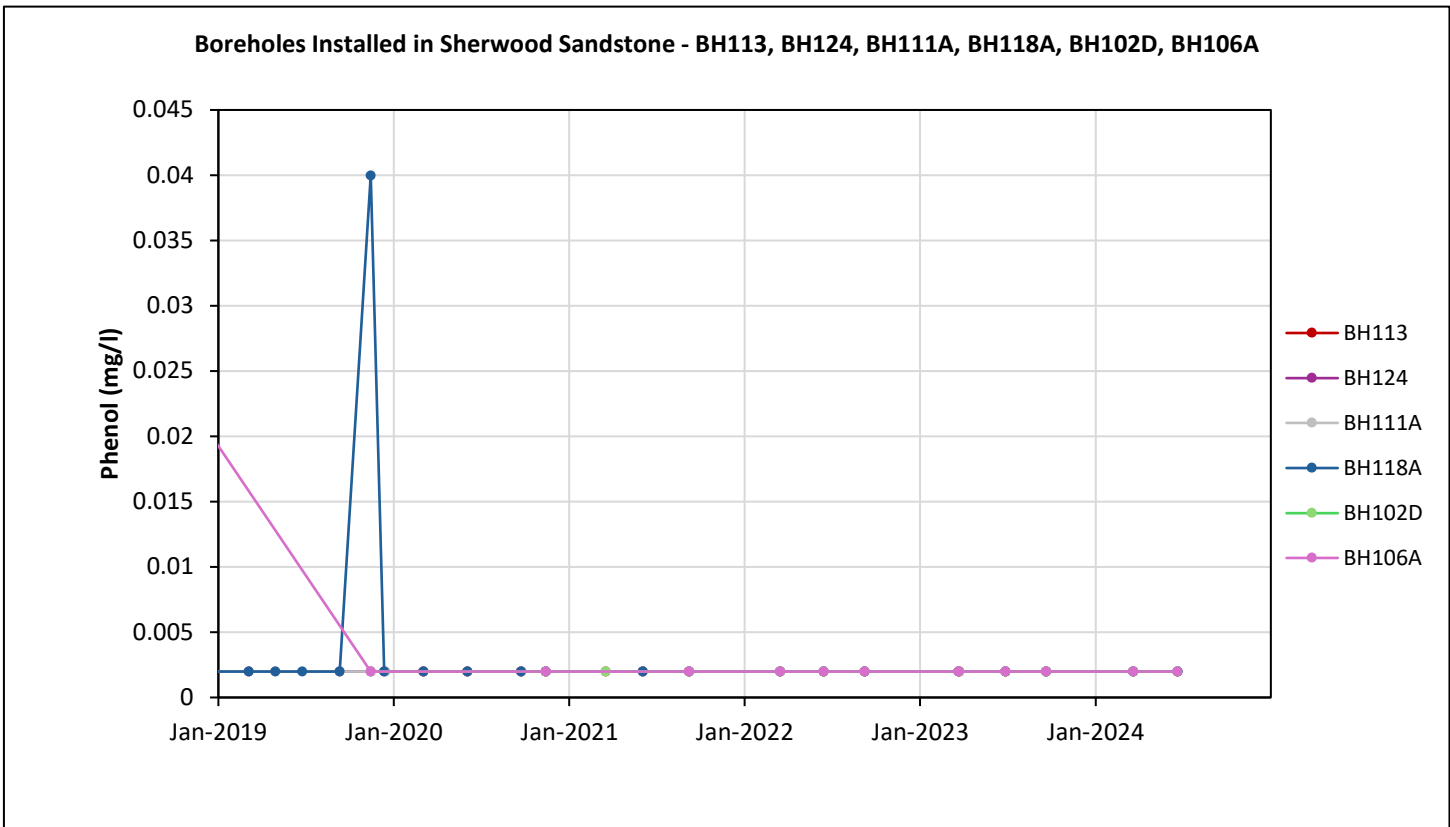
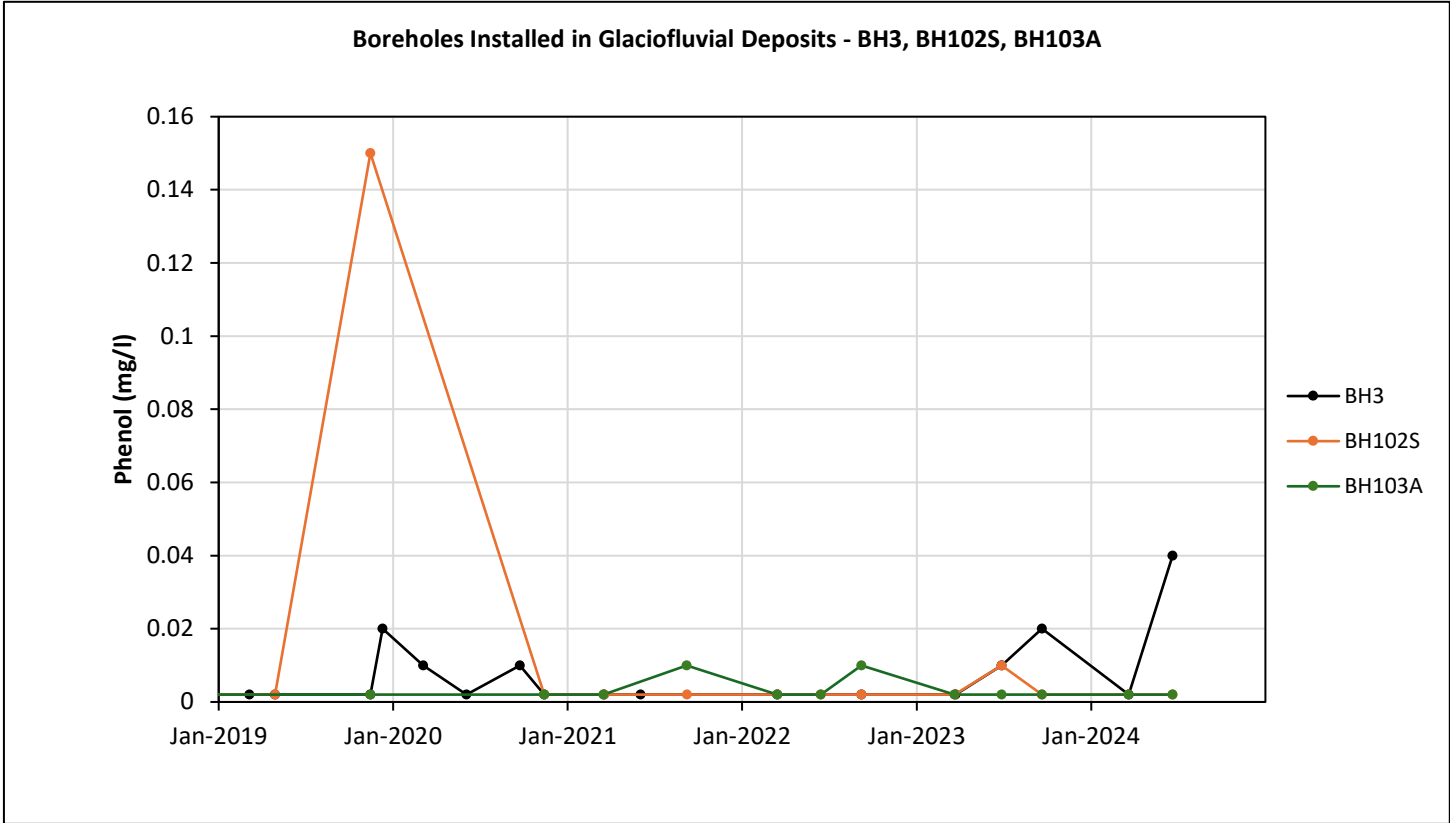
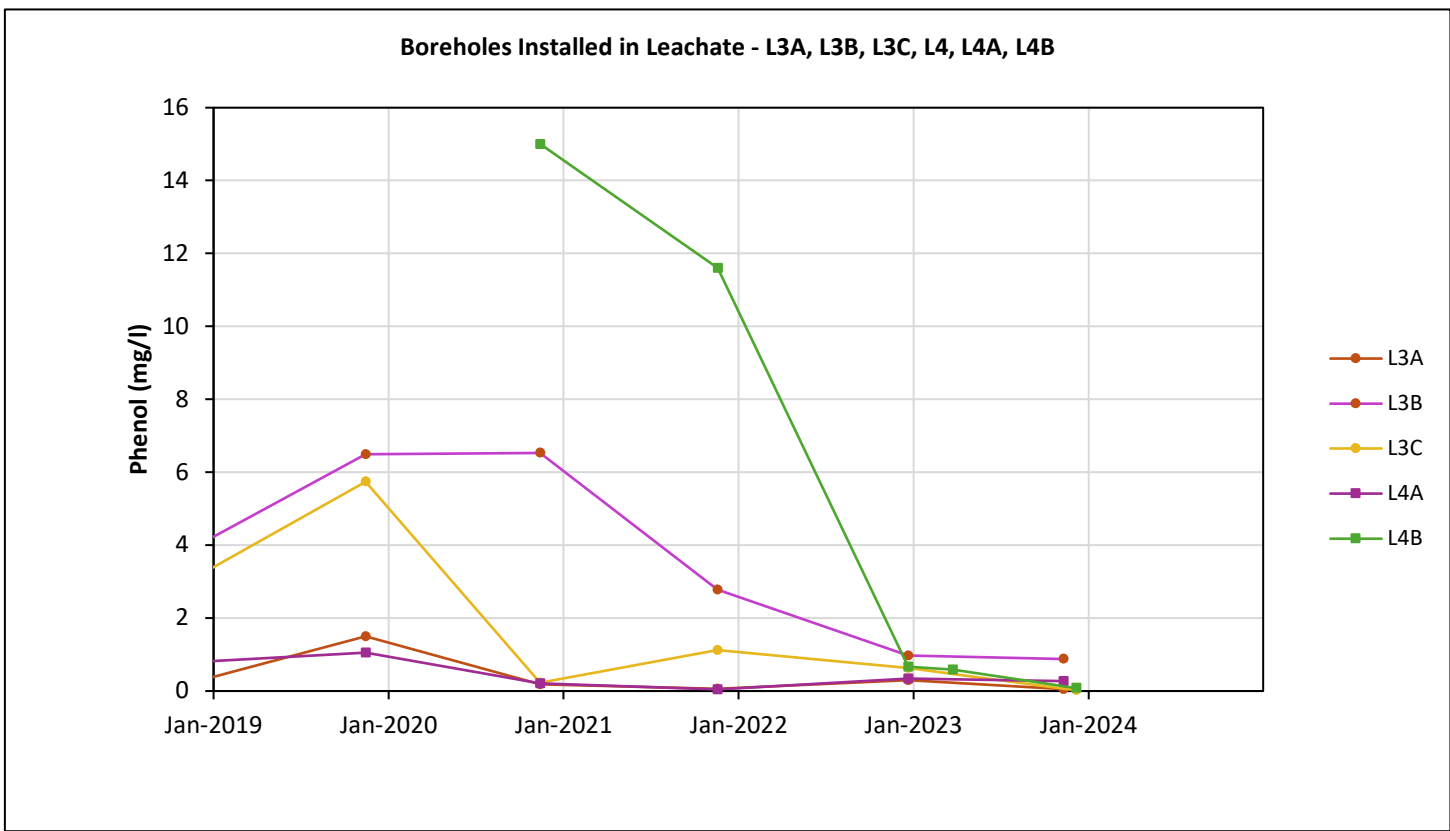
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PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
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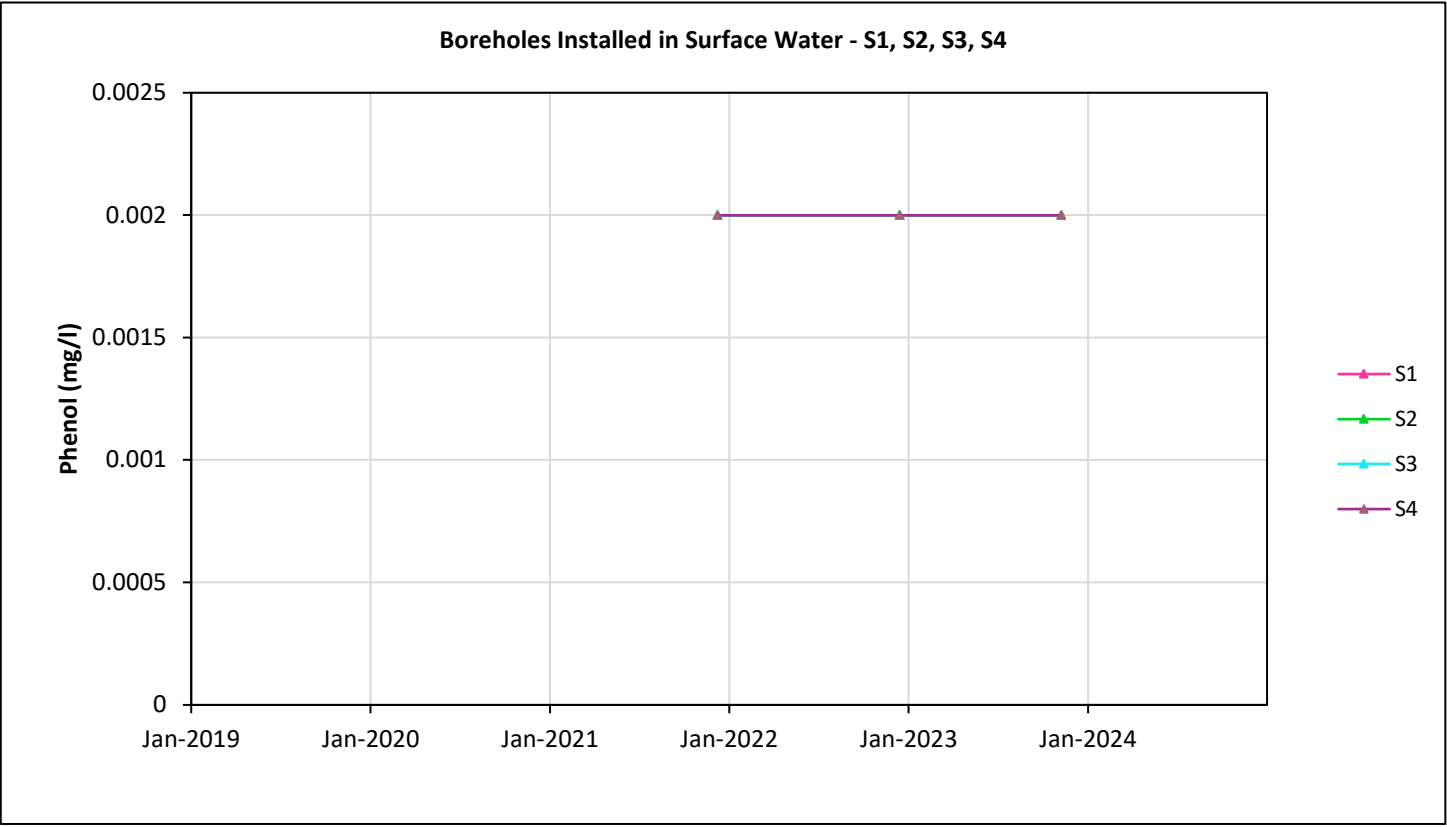


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PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
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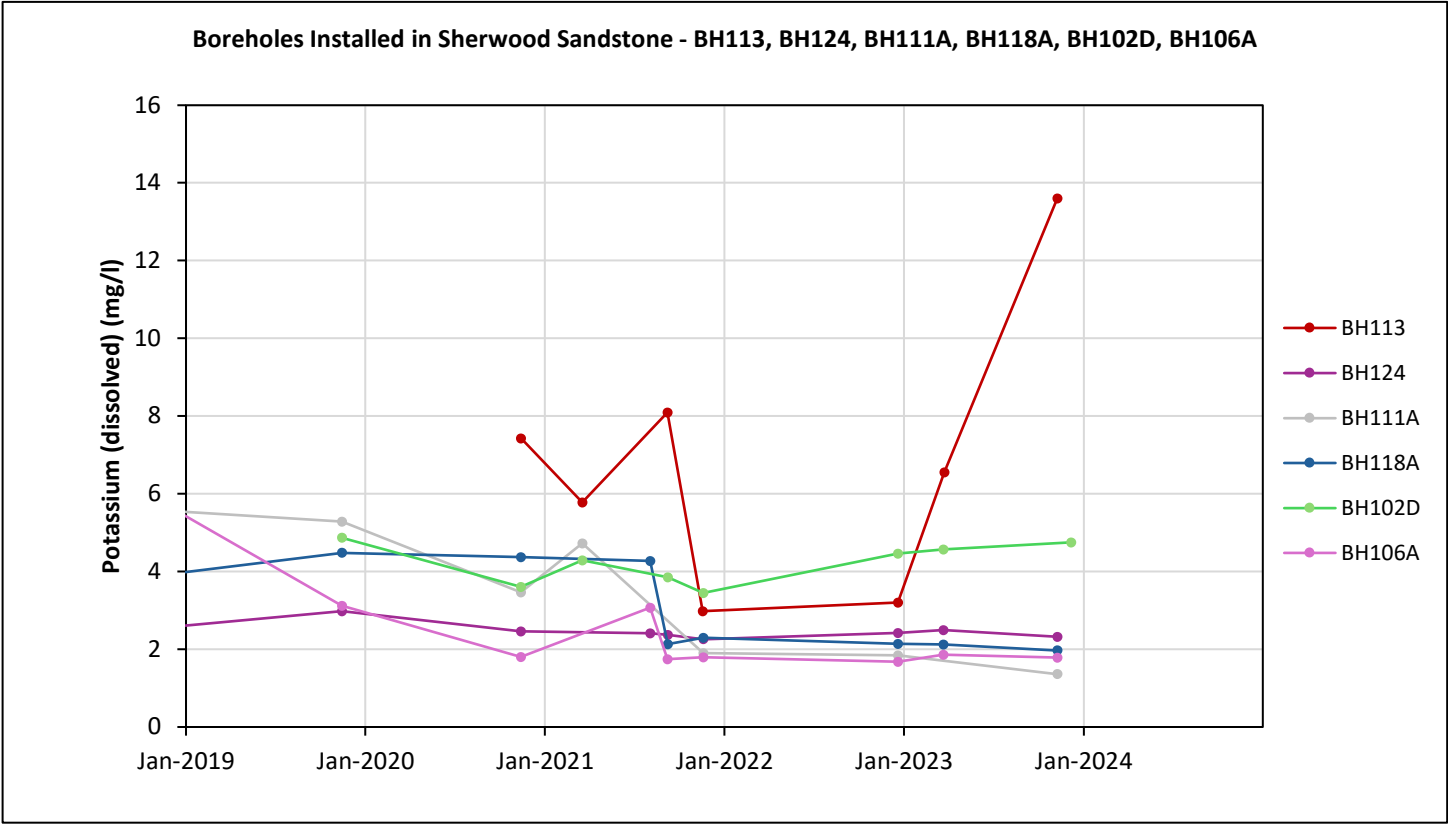
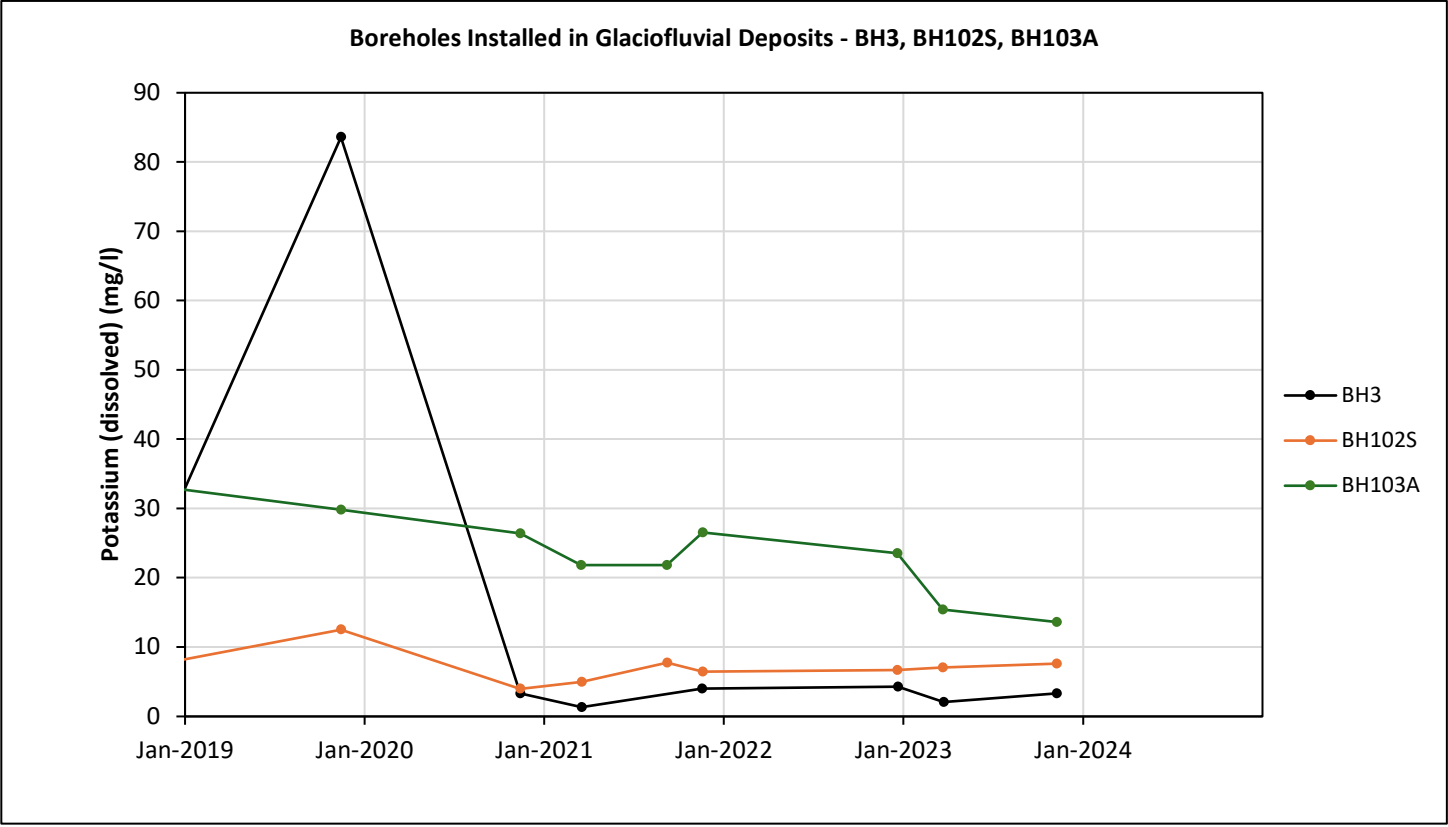
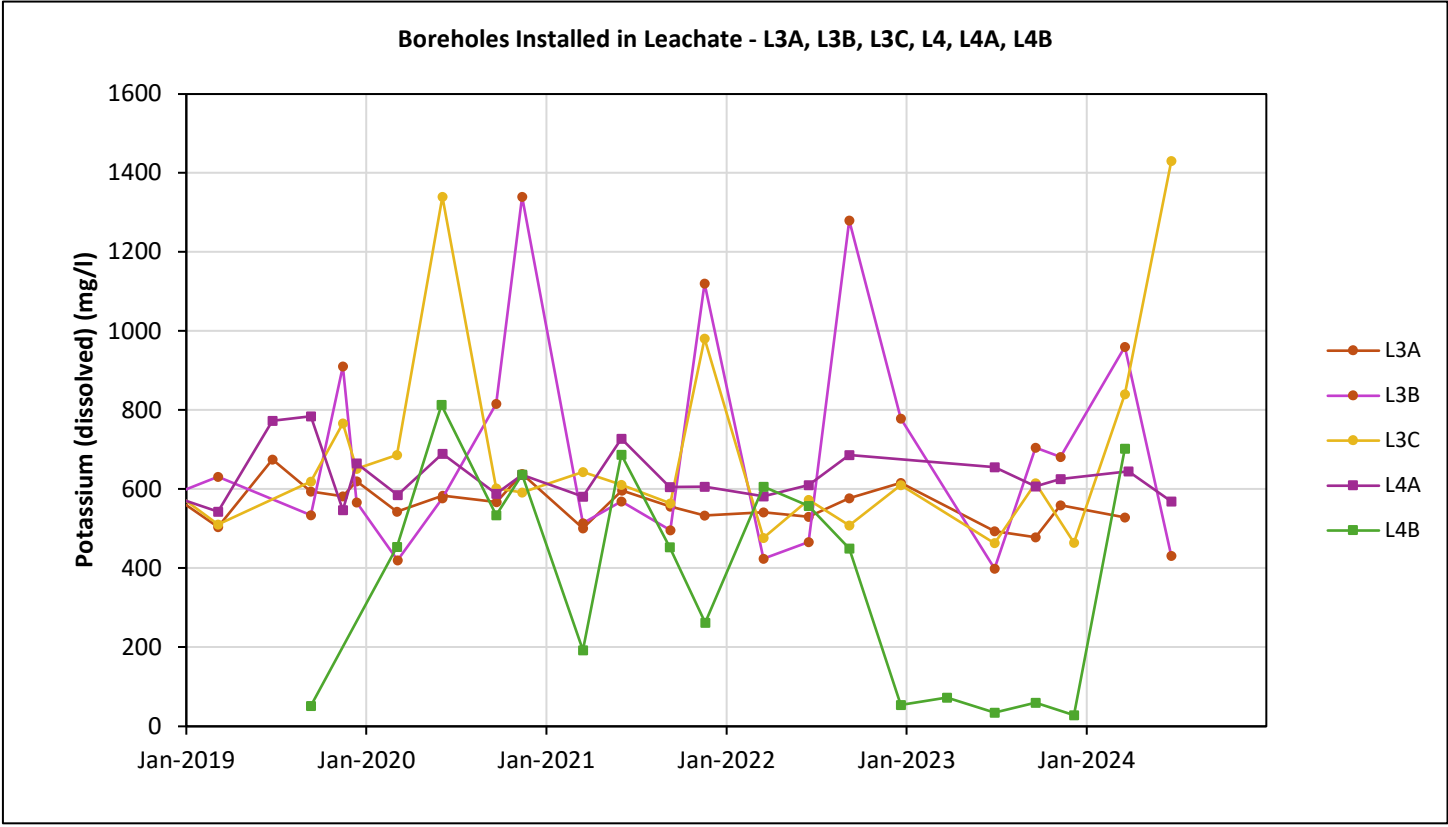
Note: Phenol concentrations recorded at 0.002mg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
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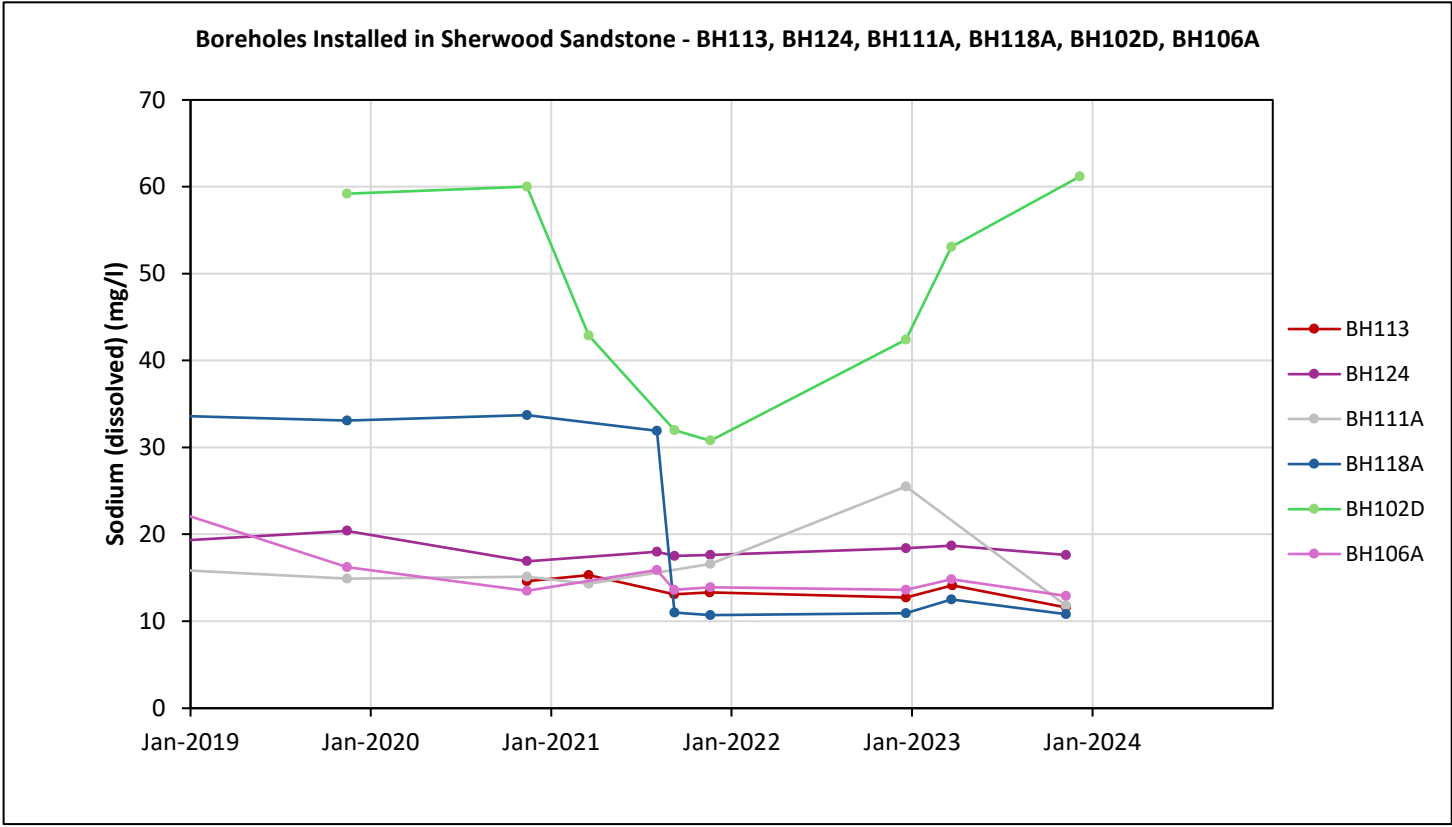
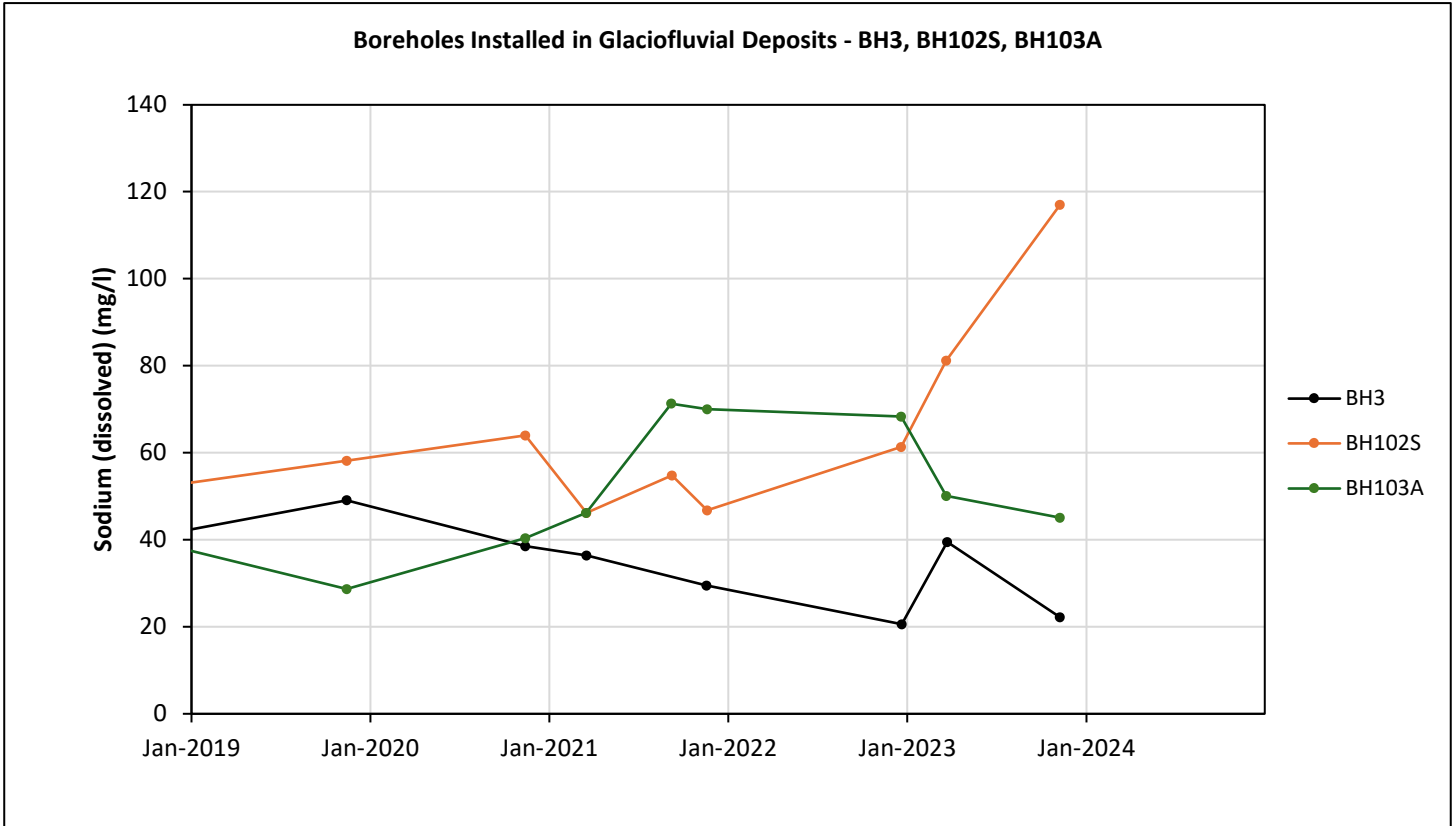
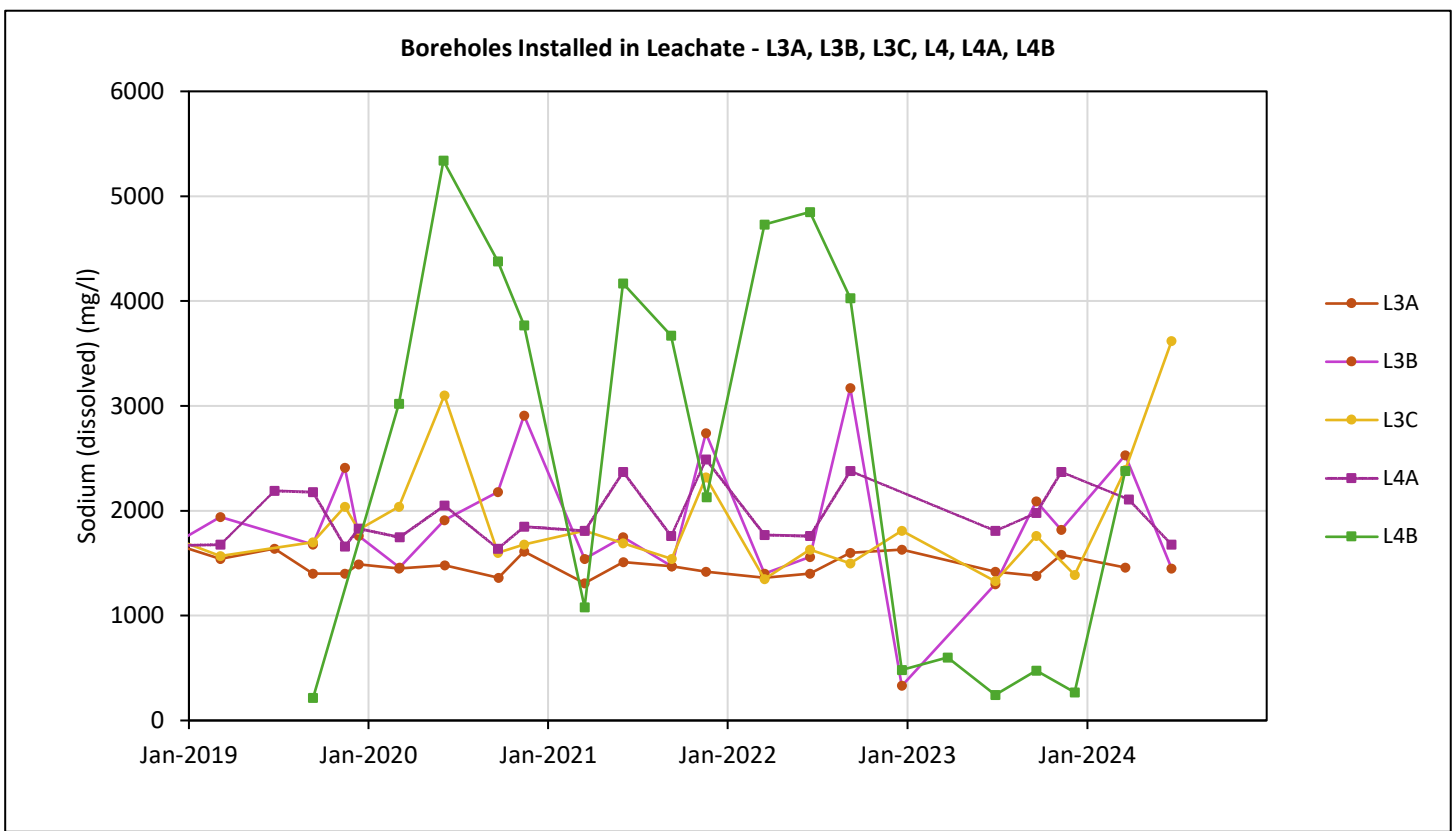


Note: Phenol concentrations recorded at 0.002mg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
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FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
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CLIENT	QUERCIA LIMITED		
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FIGURE NO	DRAWN BY	APPROVED BY	Date
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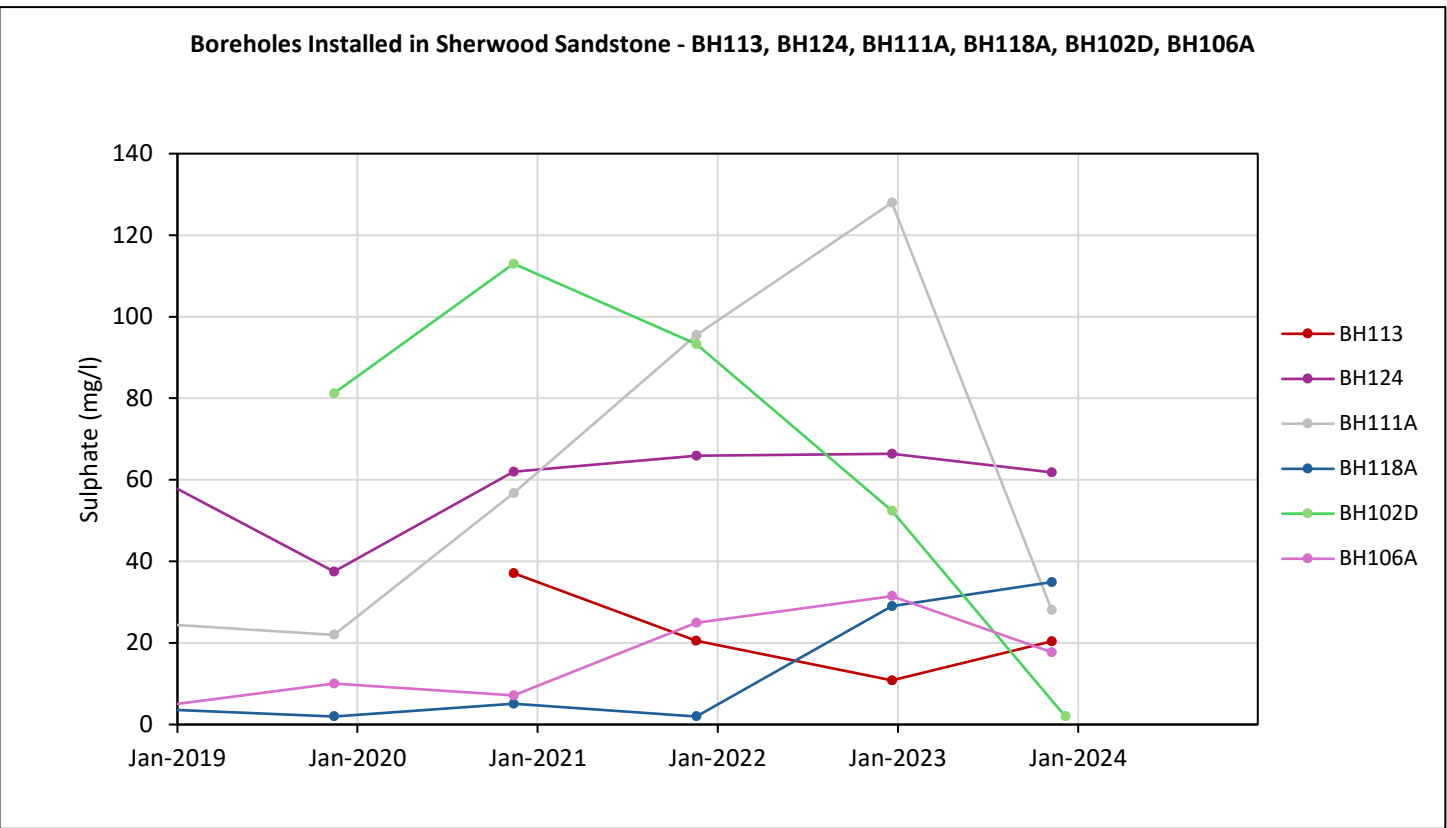
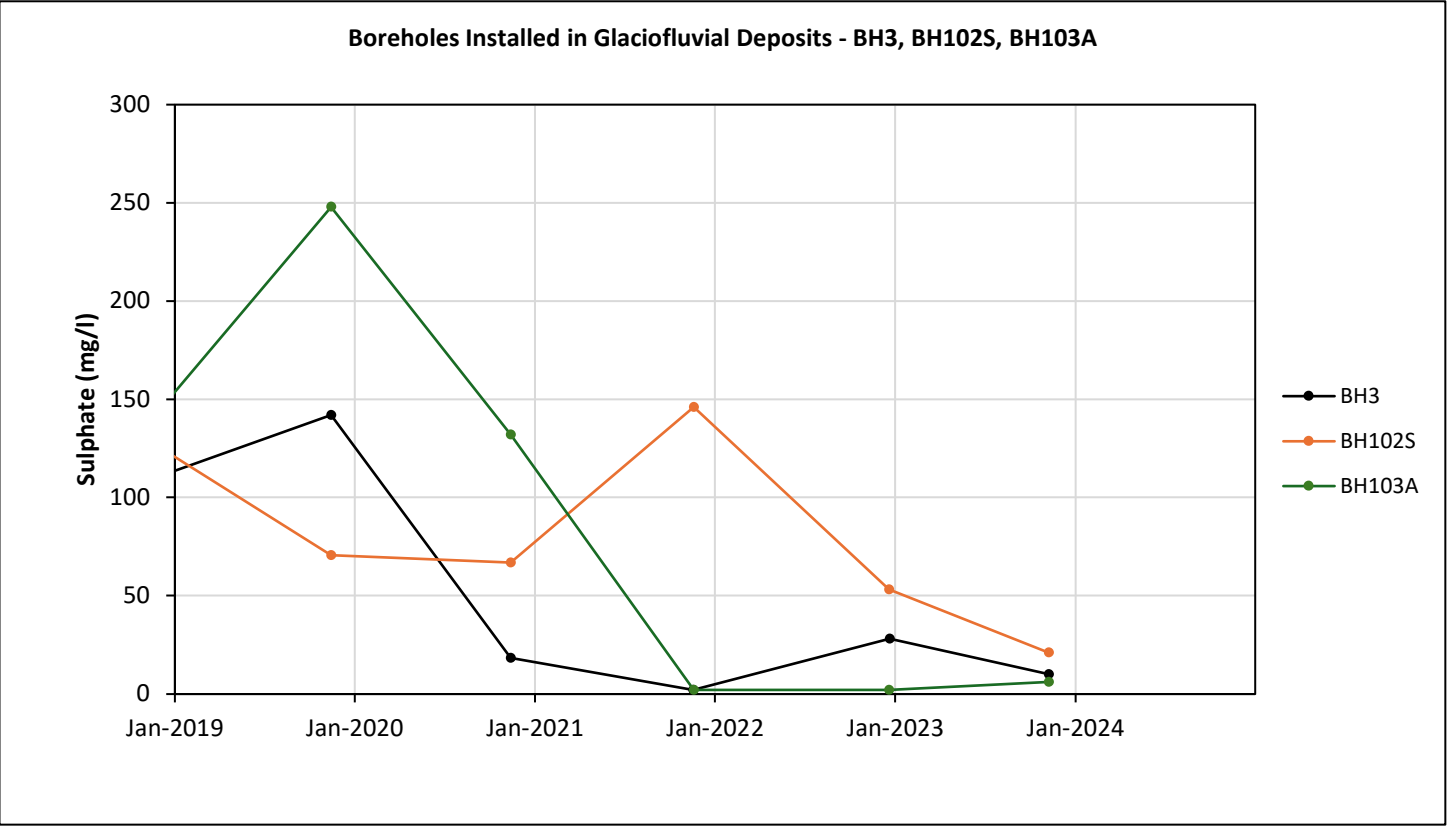
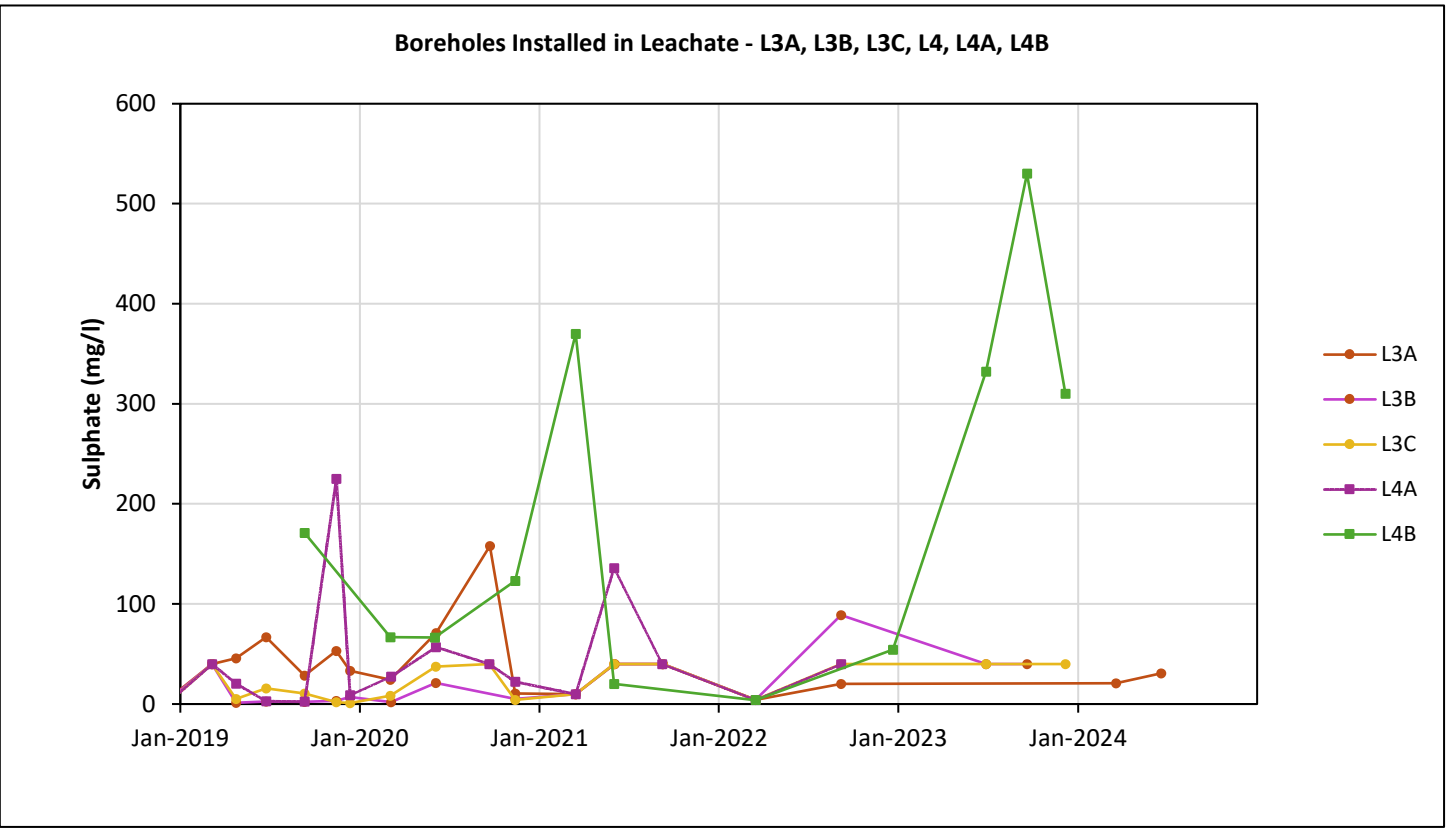


wardell
armstrong



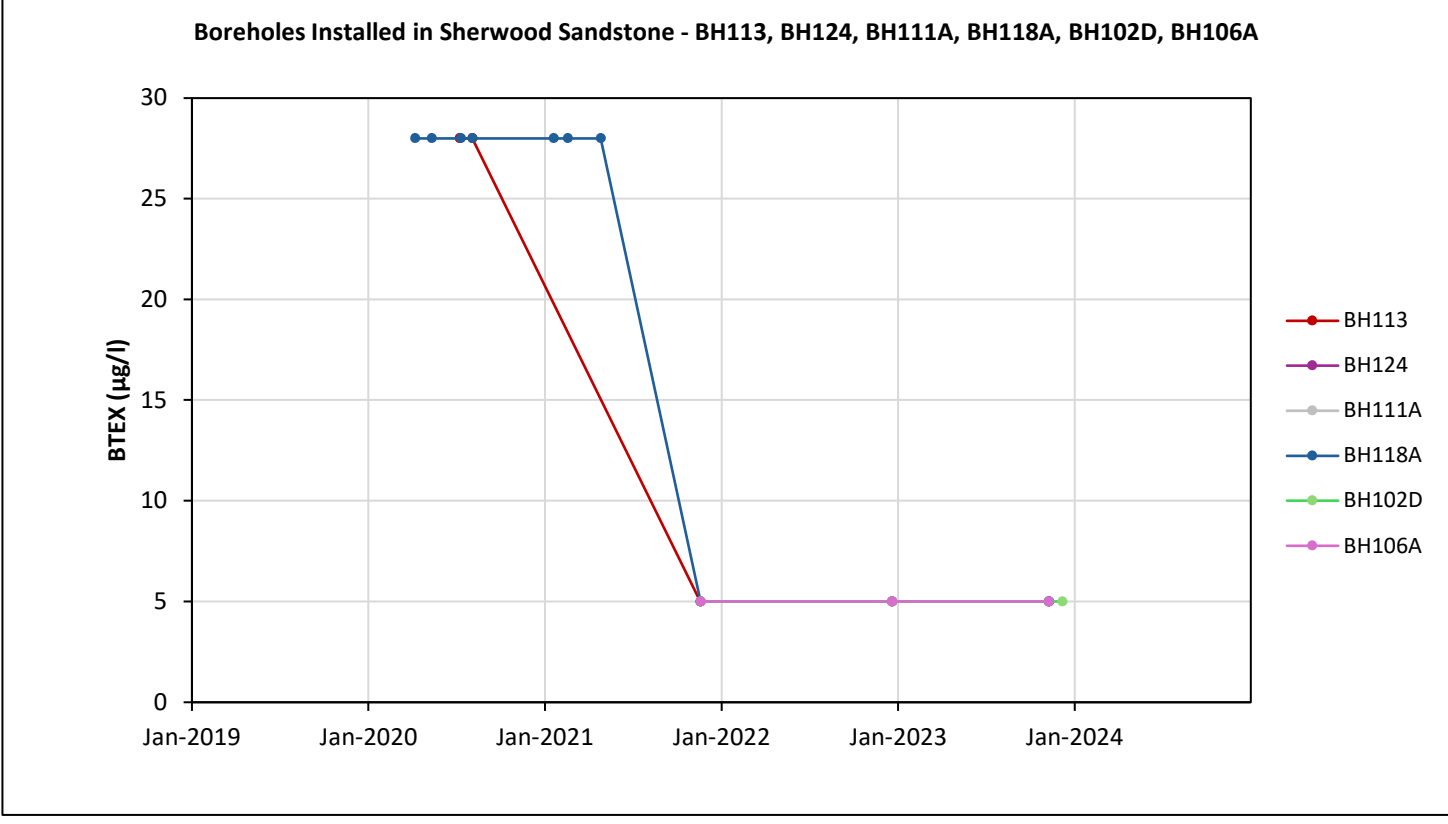
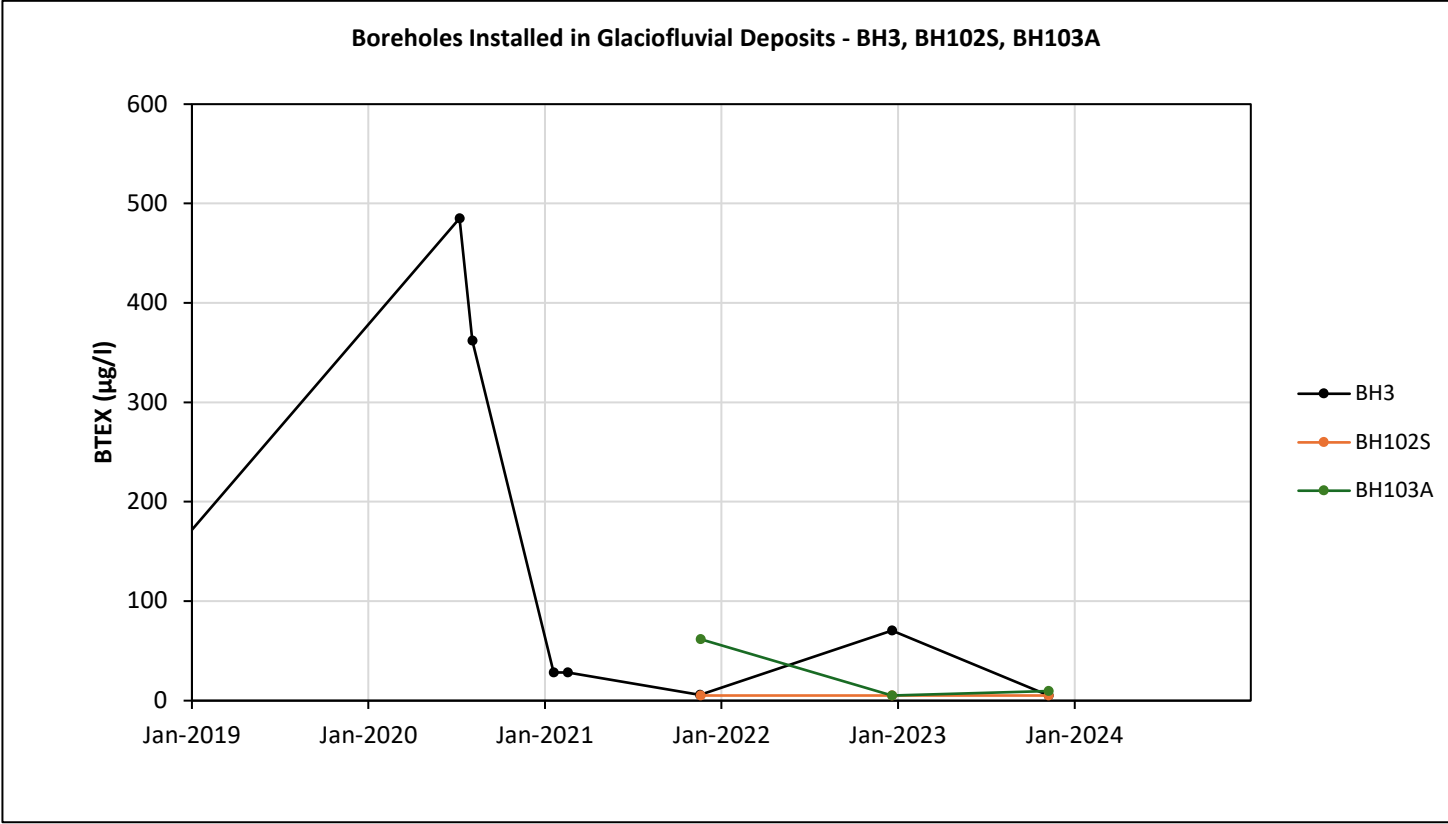
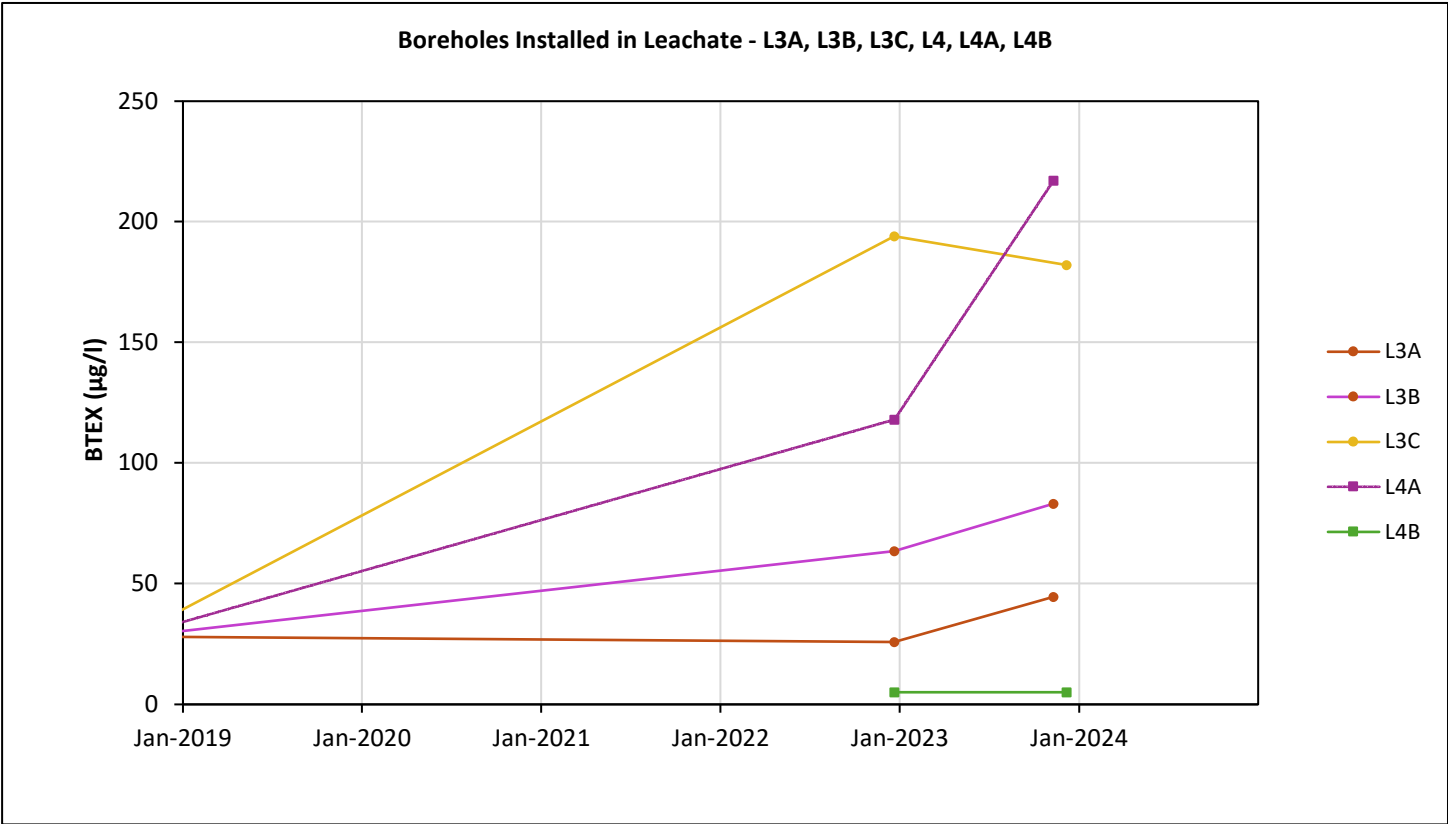
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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
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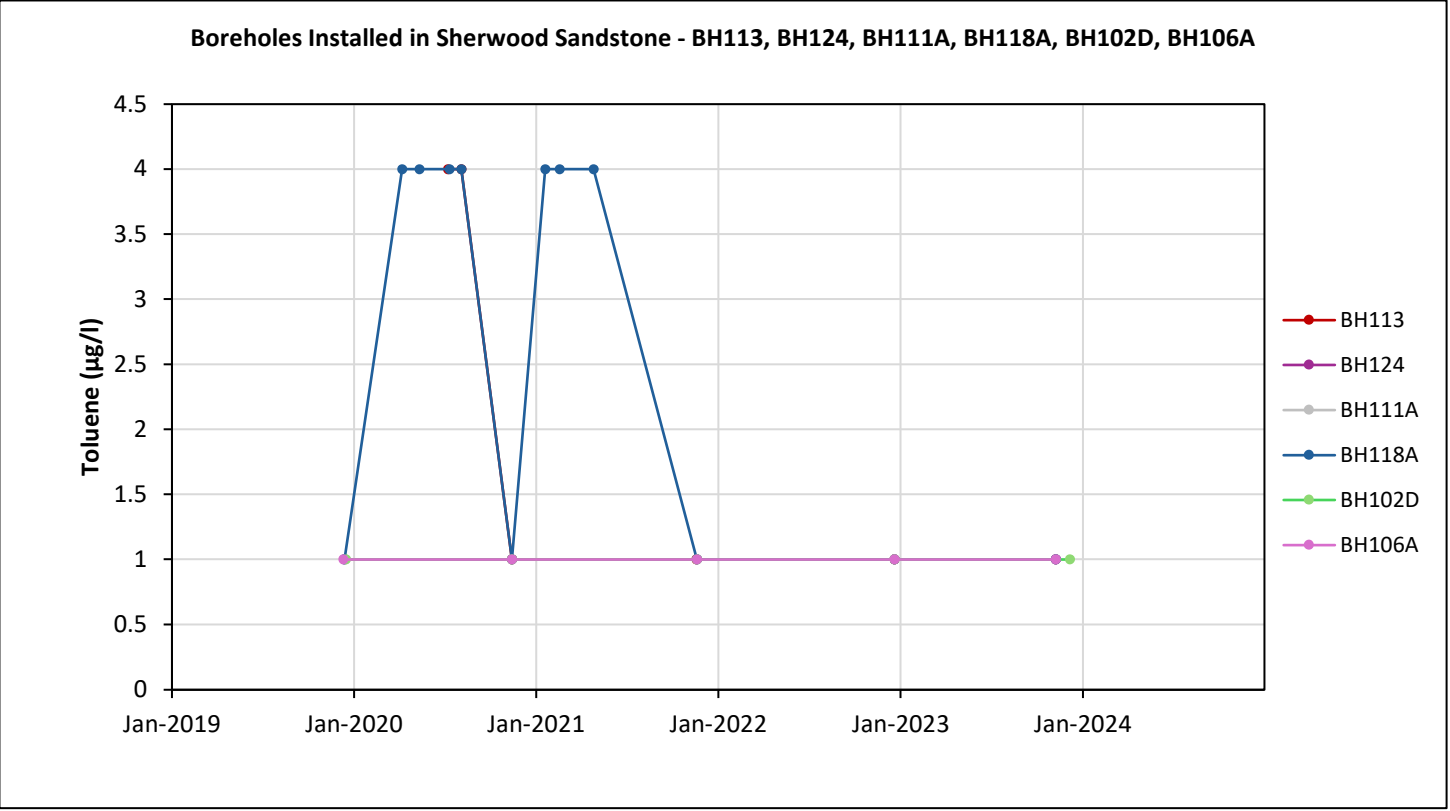
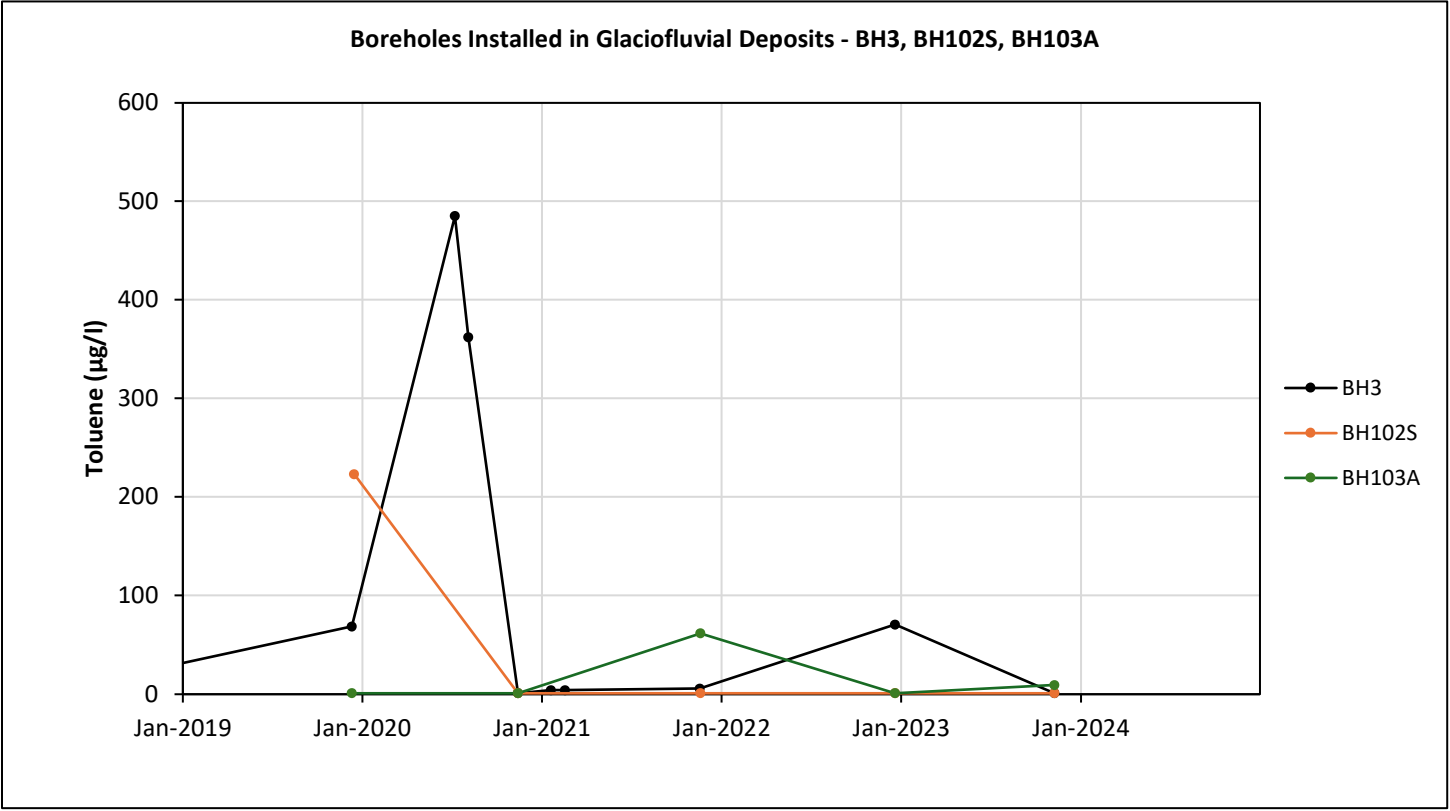
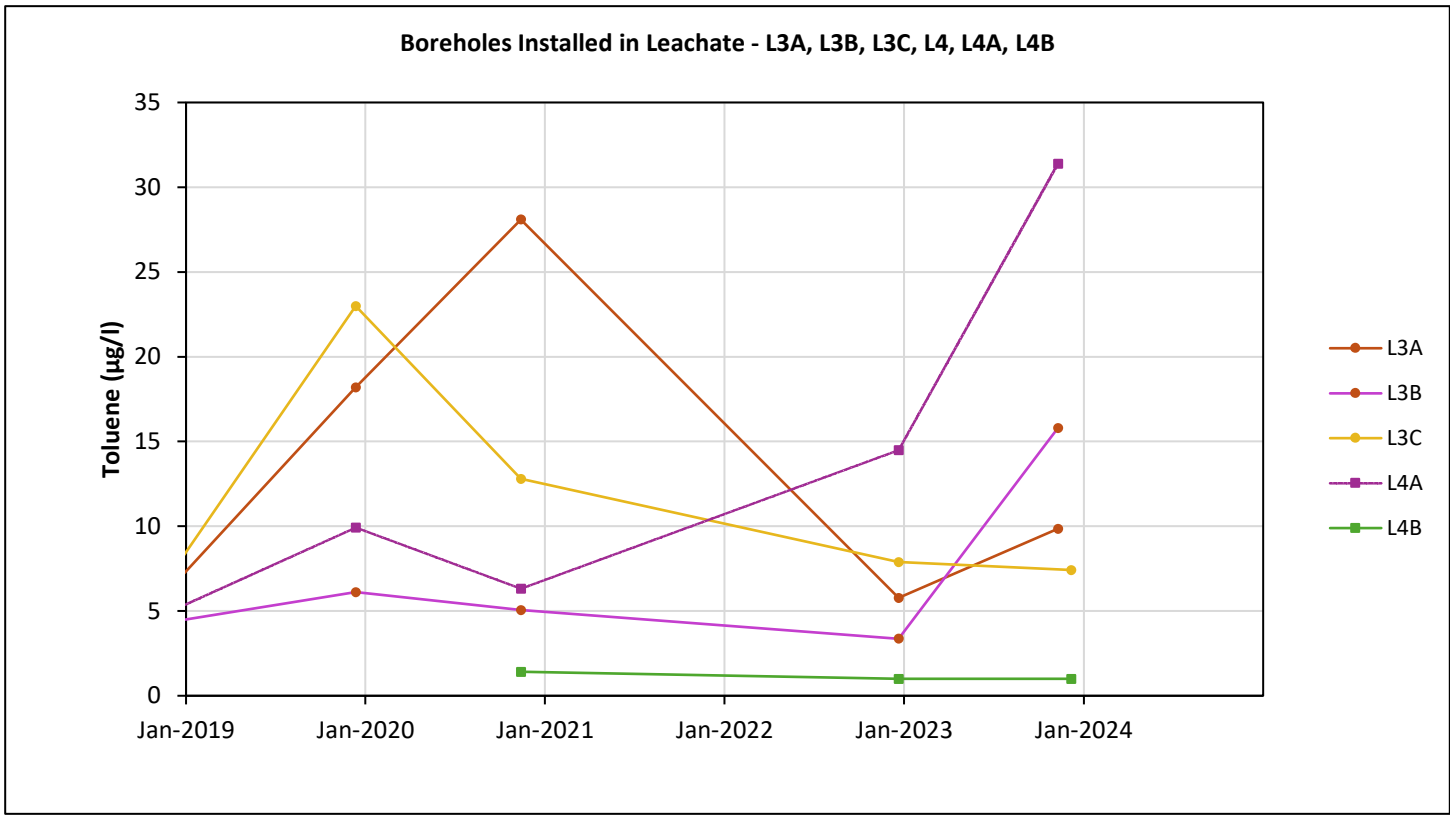
Note: Sulphate concentrations recorded at 0.5mg/l, 1mg/l, 2mg/l, 4mg/l, 5mg/l, 10mg/l, 20mg/l and 40mg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A5.32	KT	AS	Dec-24



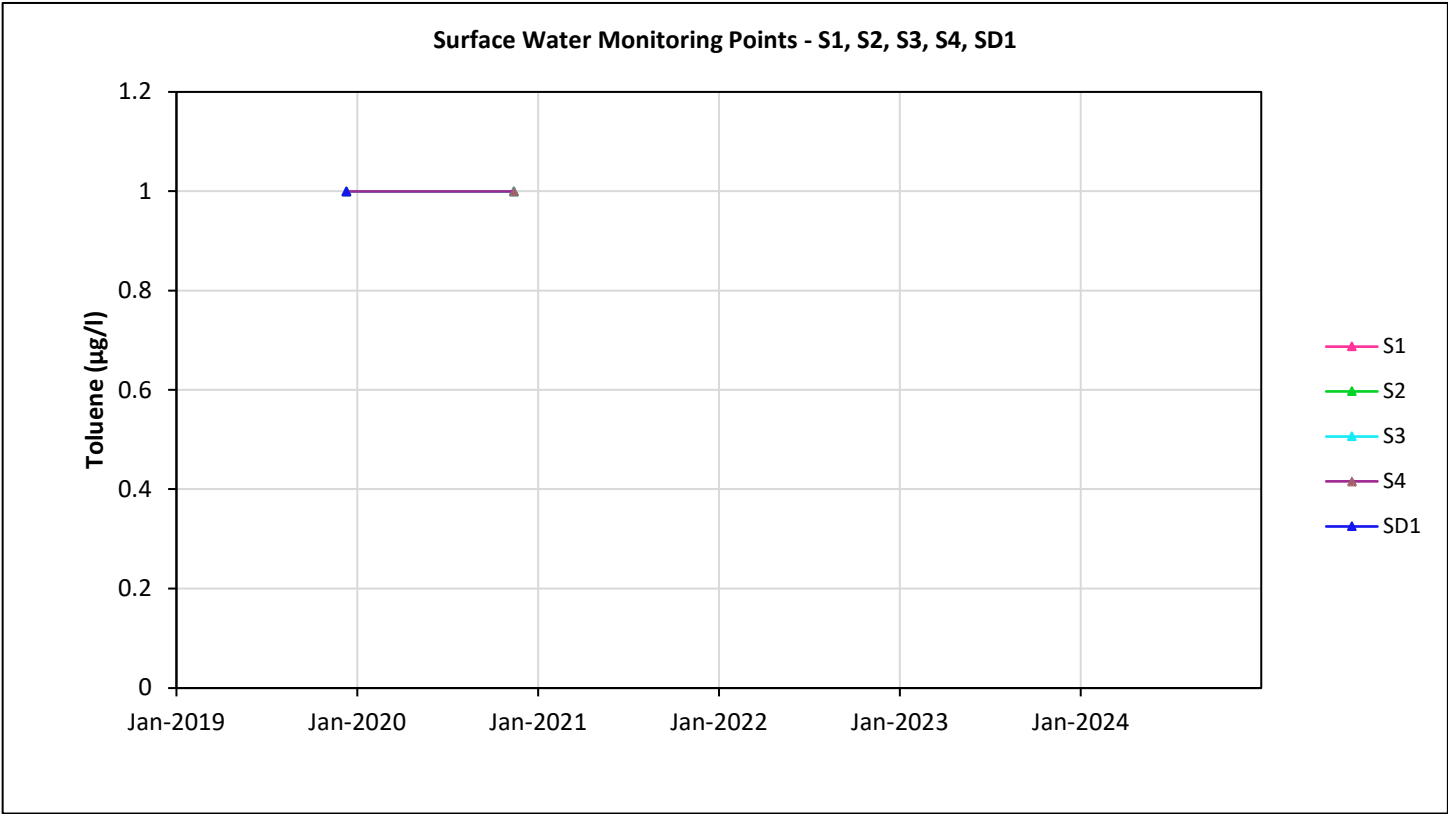
Note: BTEX concentrations recorded at 5µg/l and 28µg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
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FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
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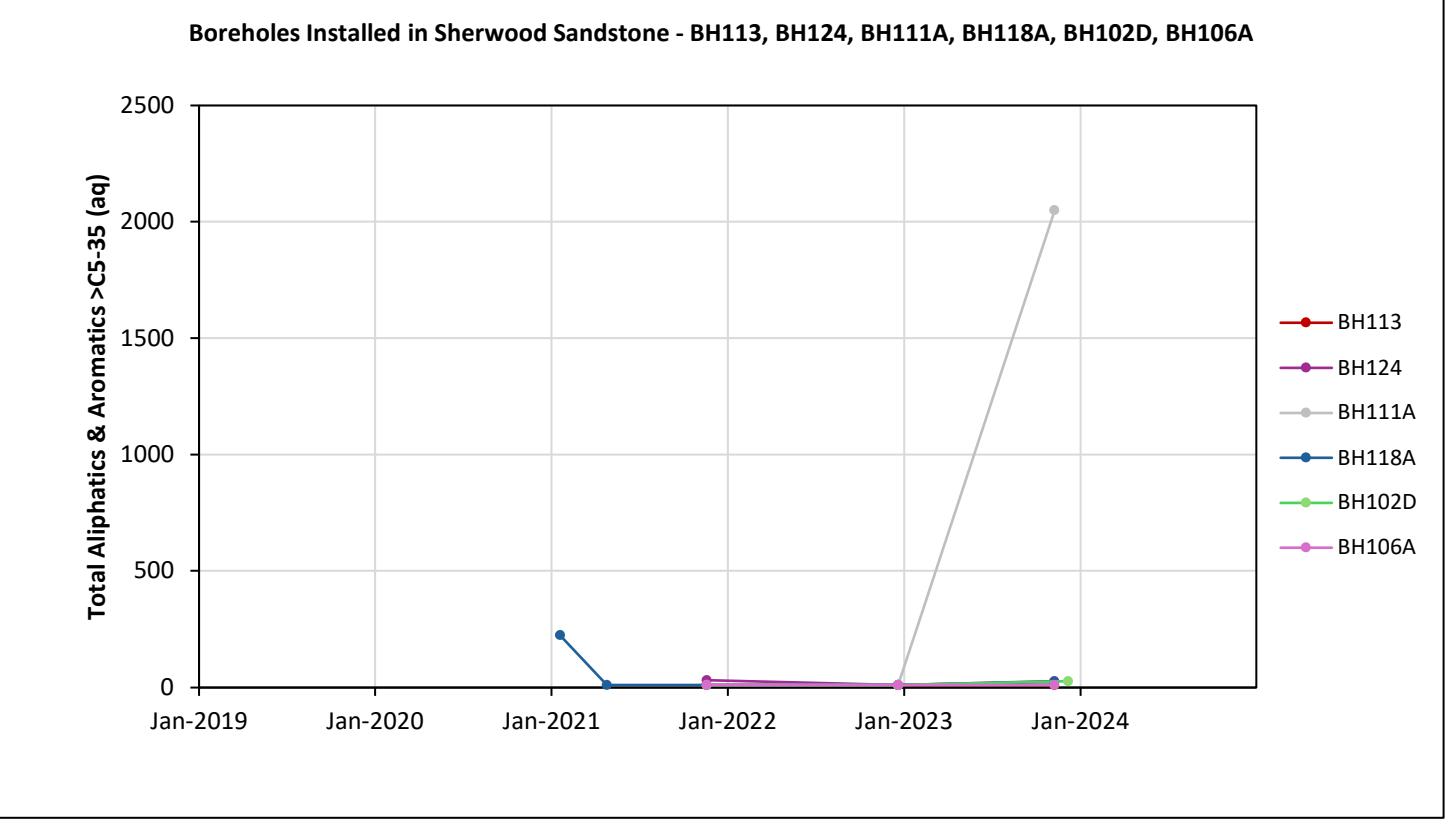
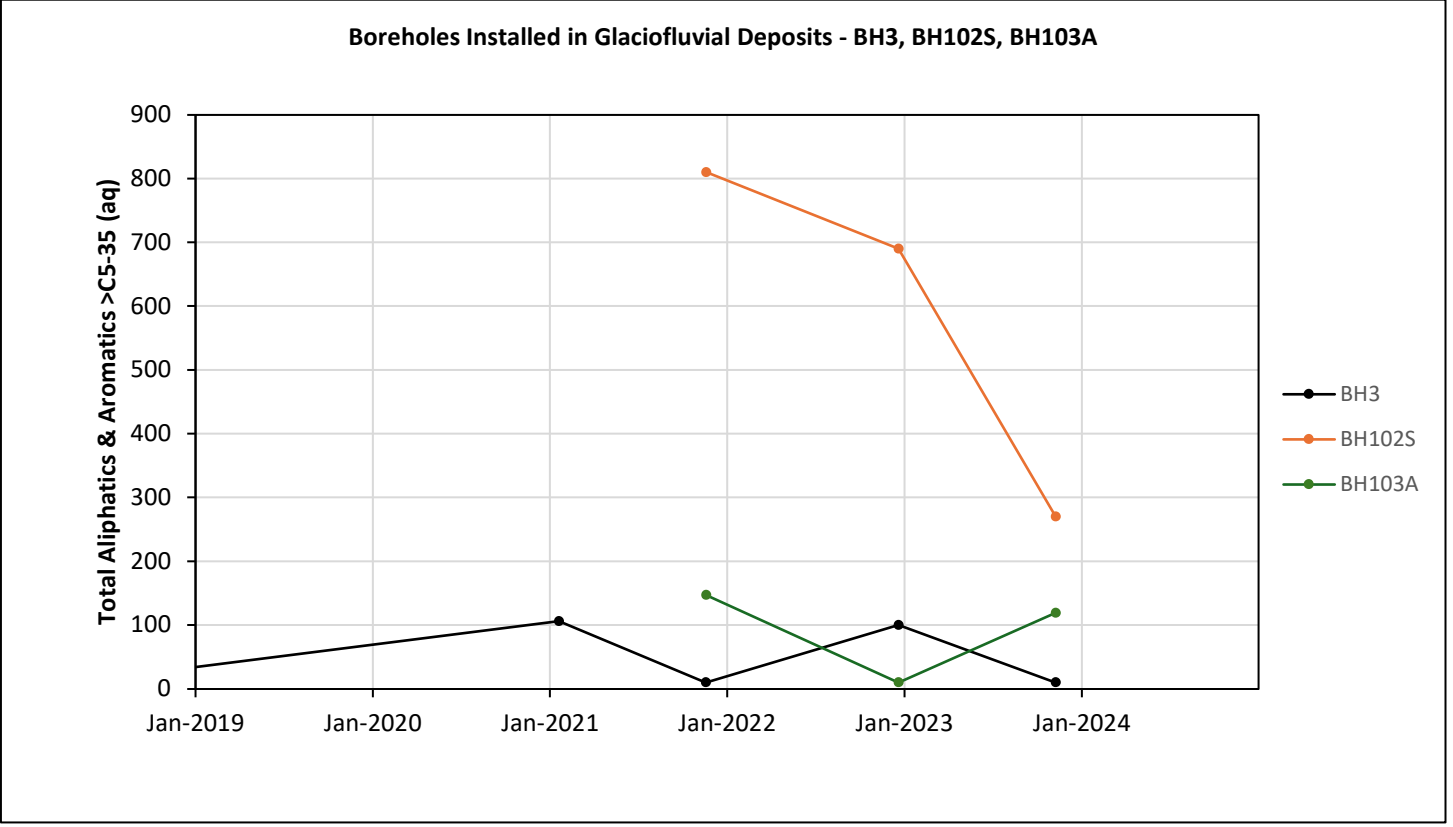
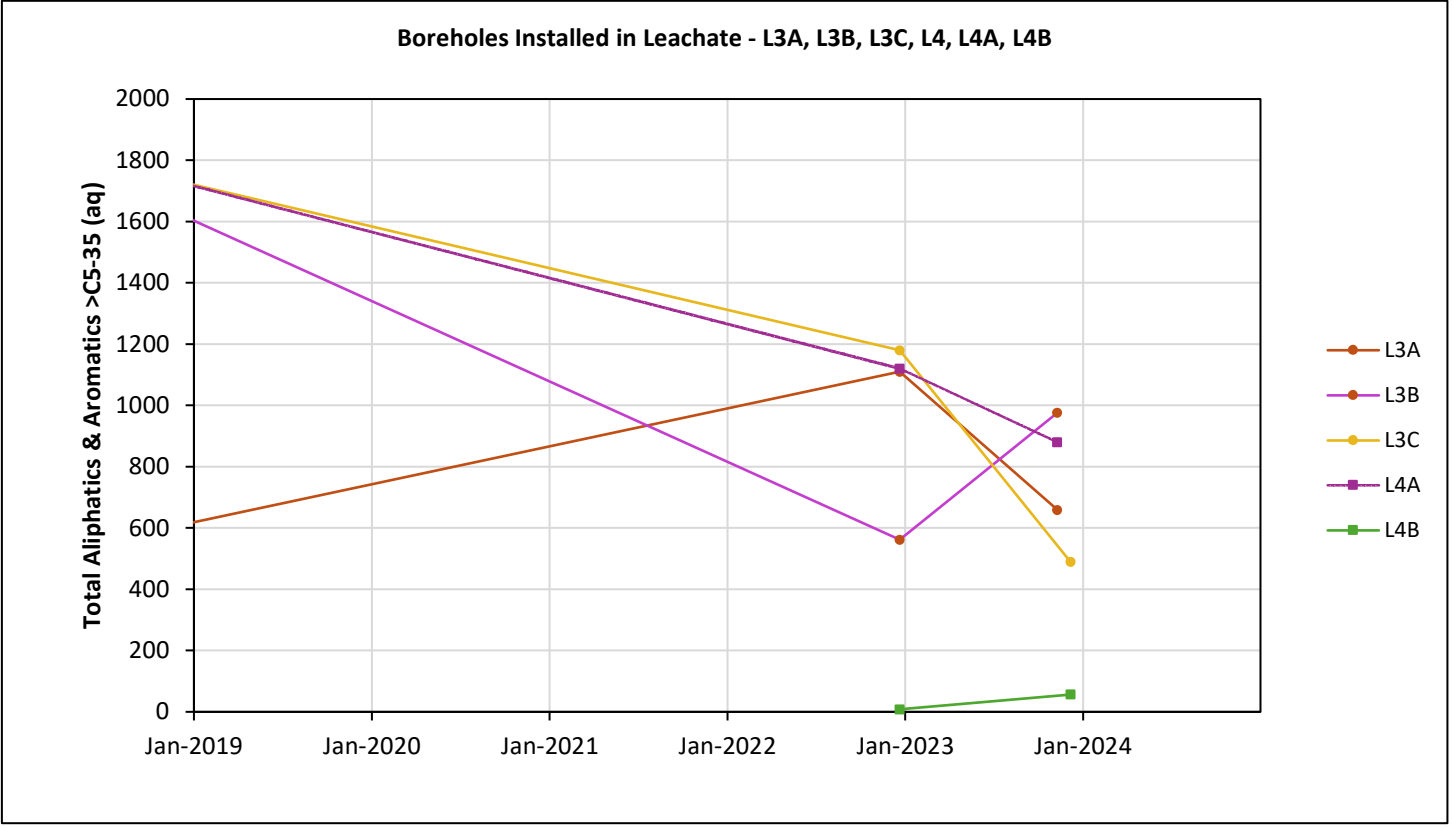
Note: Toluene concentrations recorded at 1µg/l and 4µg/l correspond to LOD.

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CLIENT	QUERCIA LIMITED		
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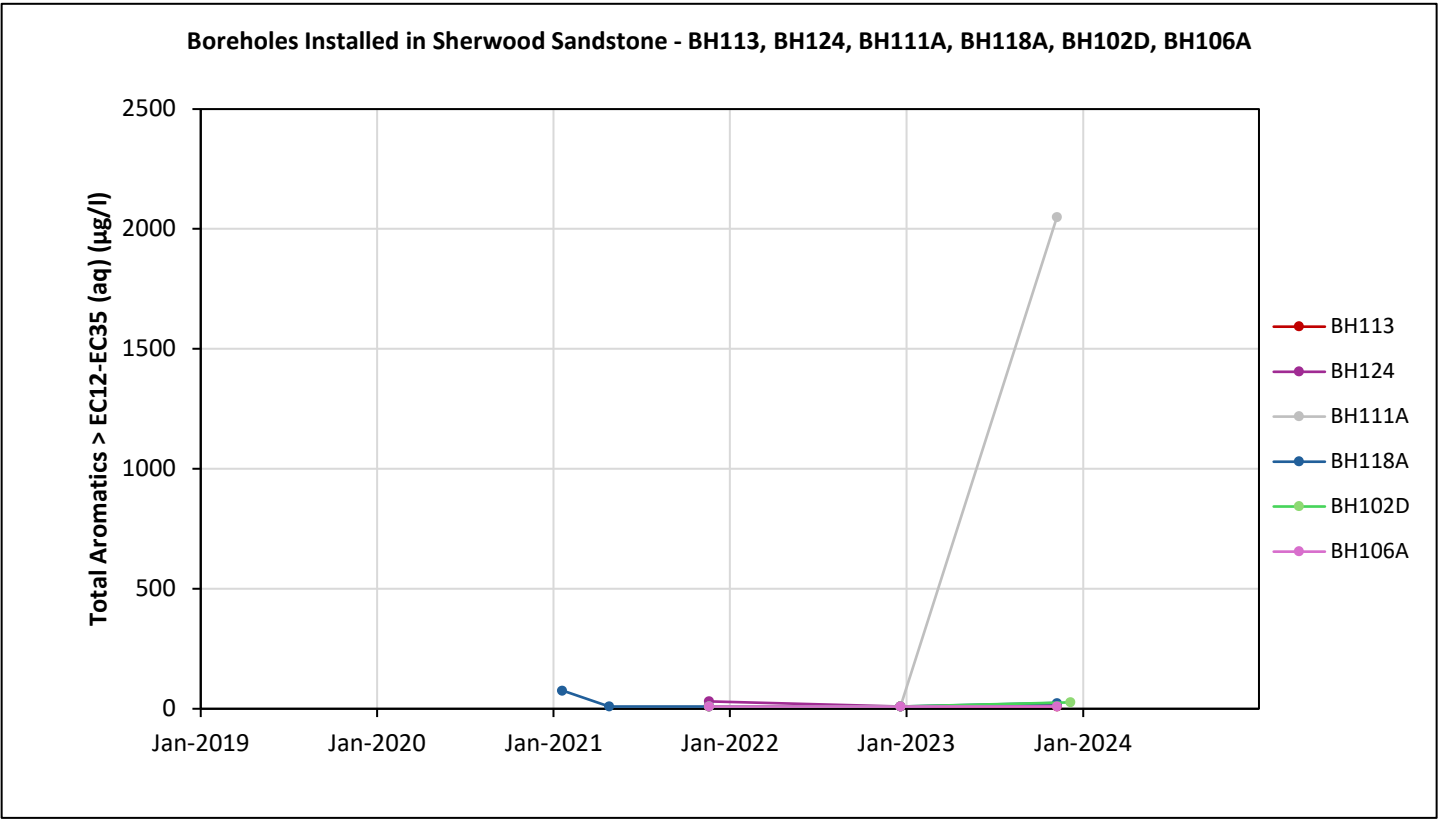
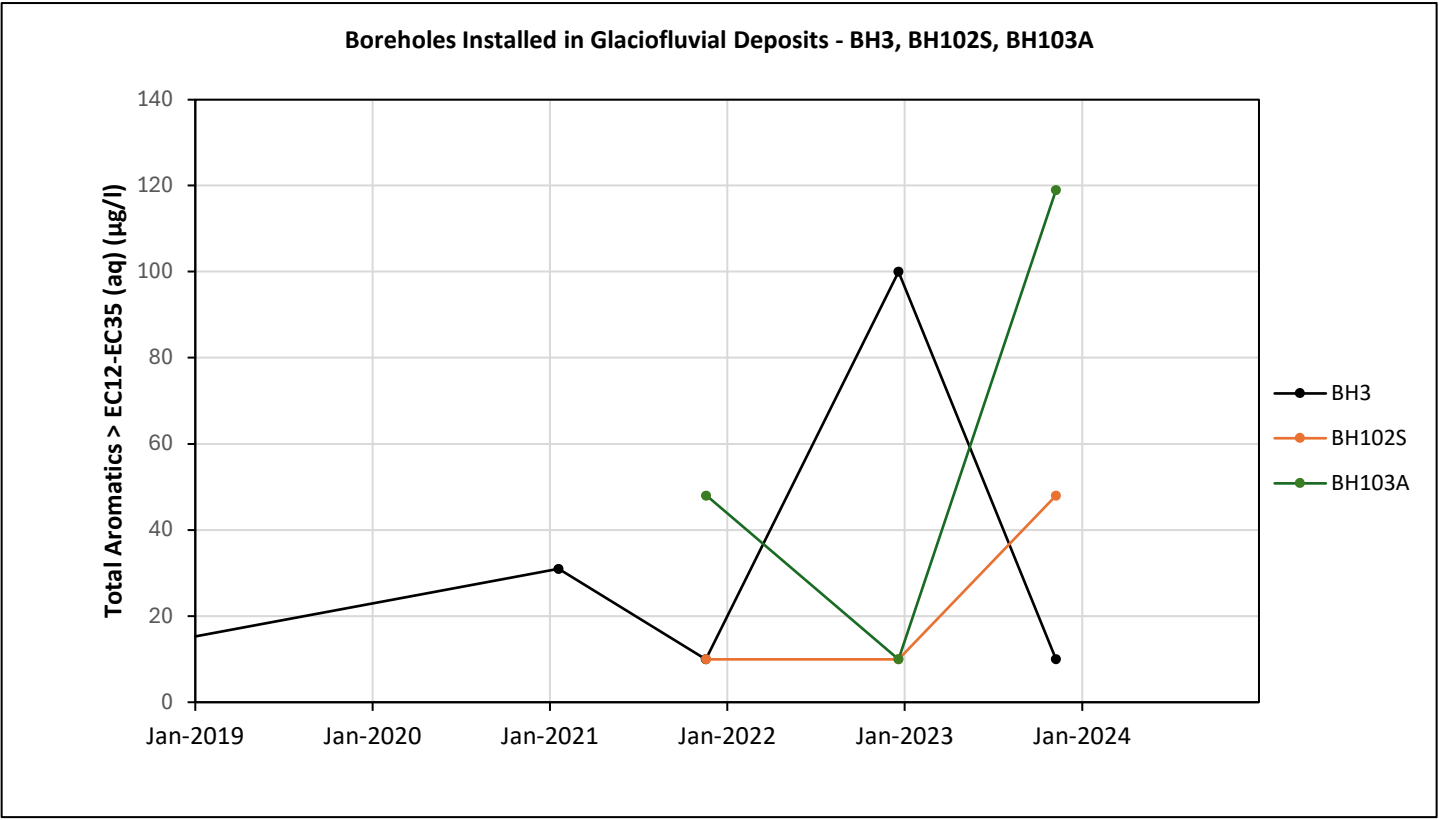
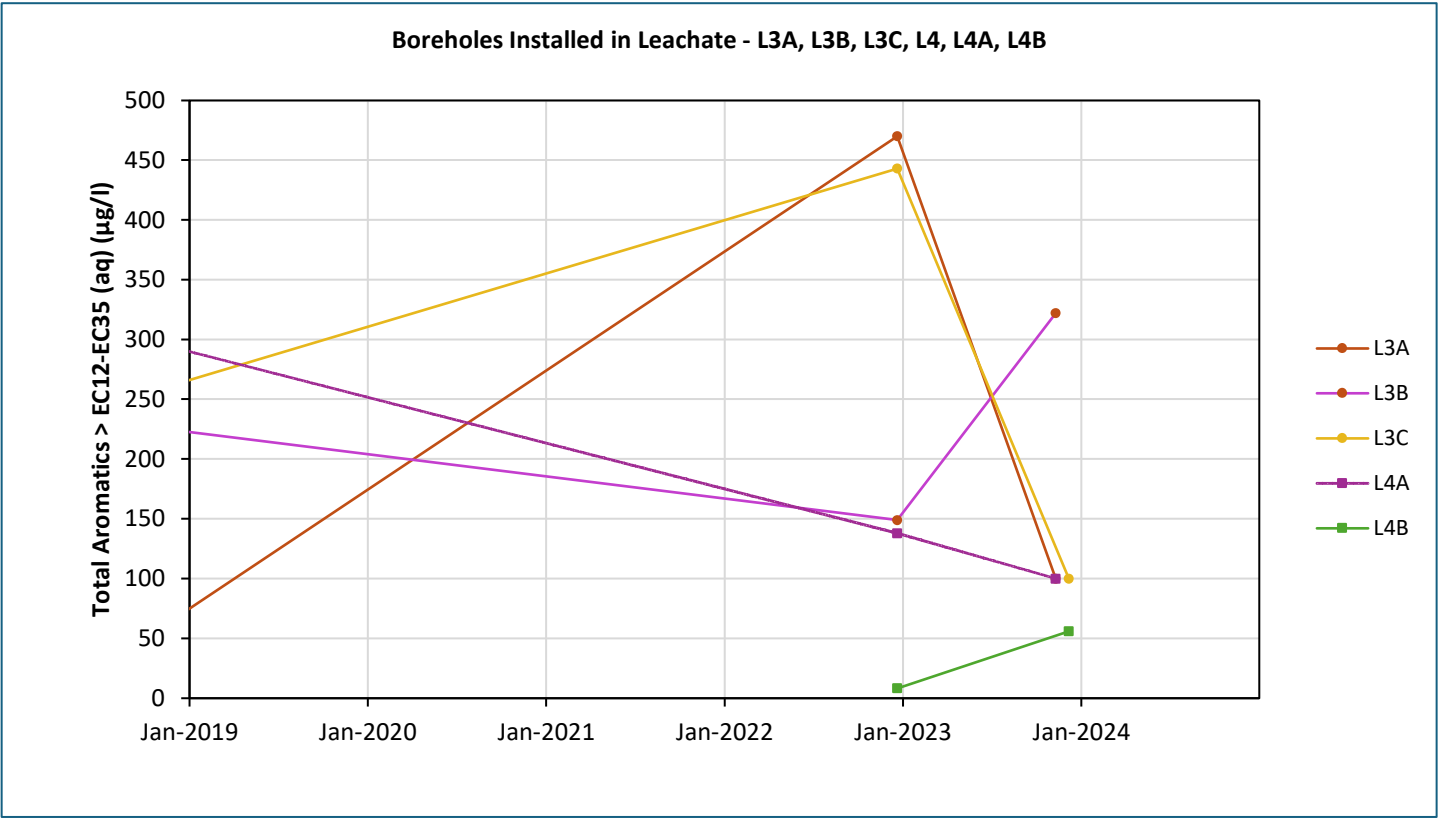
Note: Toluene concentrations recorded at 1µg/l and 4µg/l correspond to LOD.

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FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
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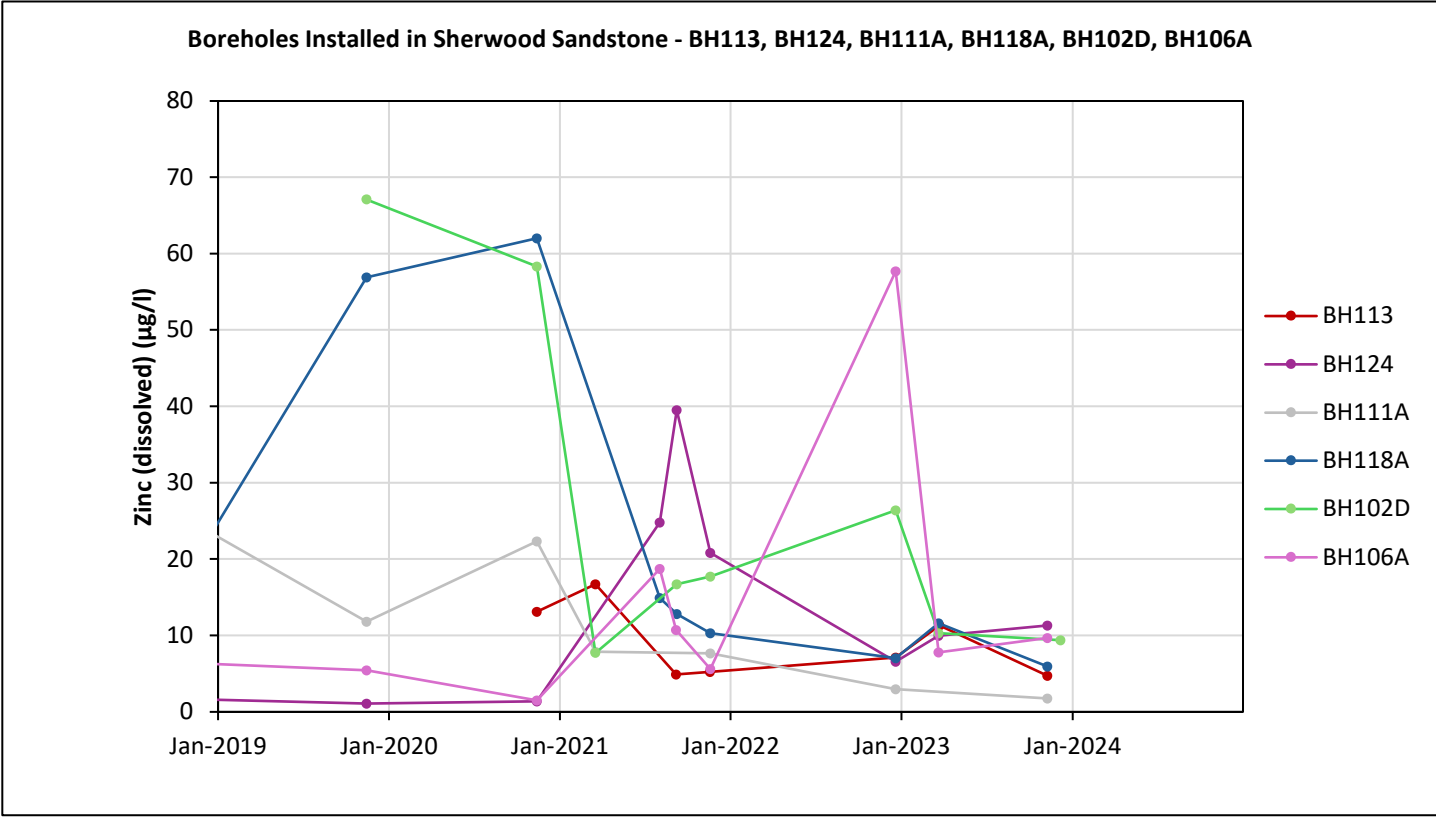
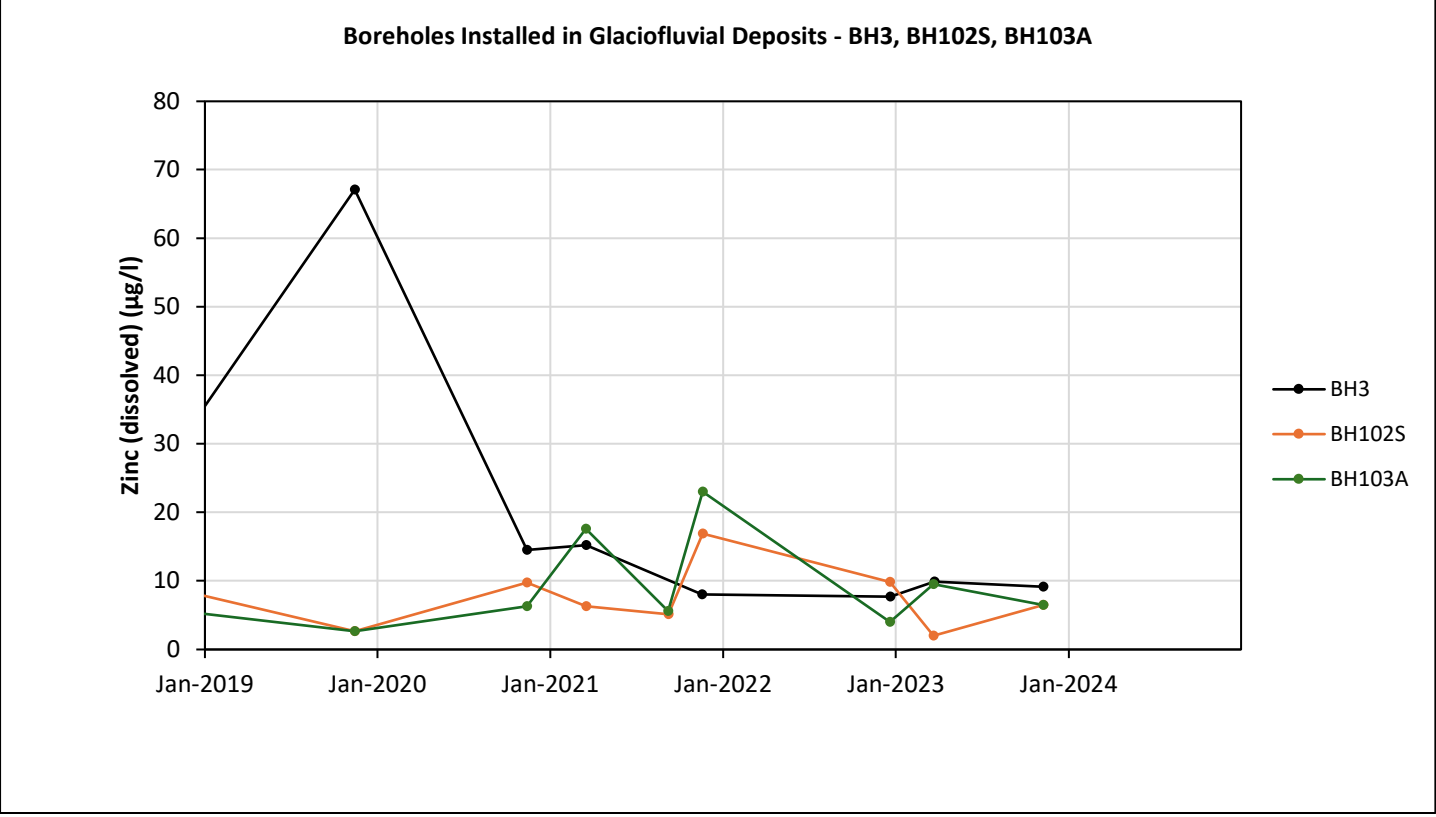
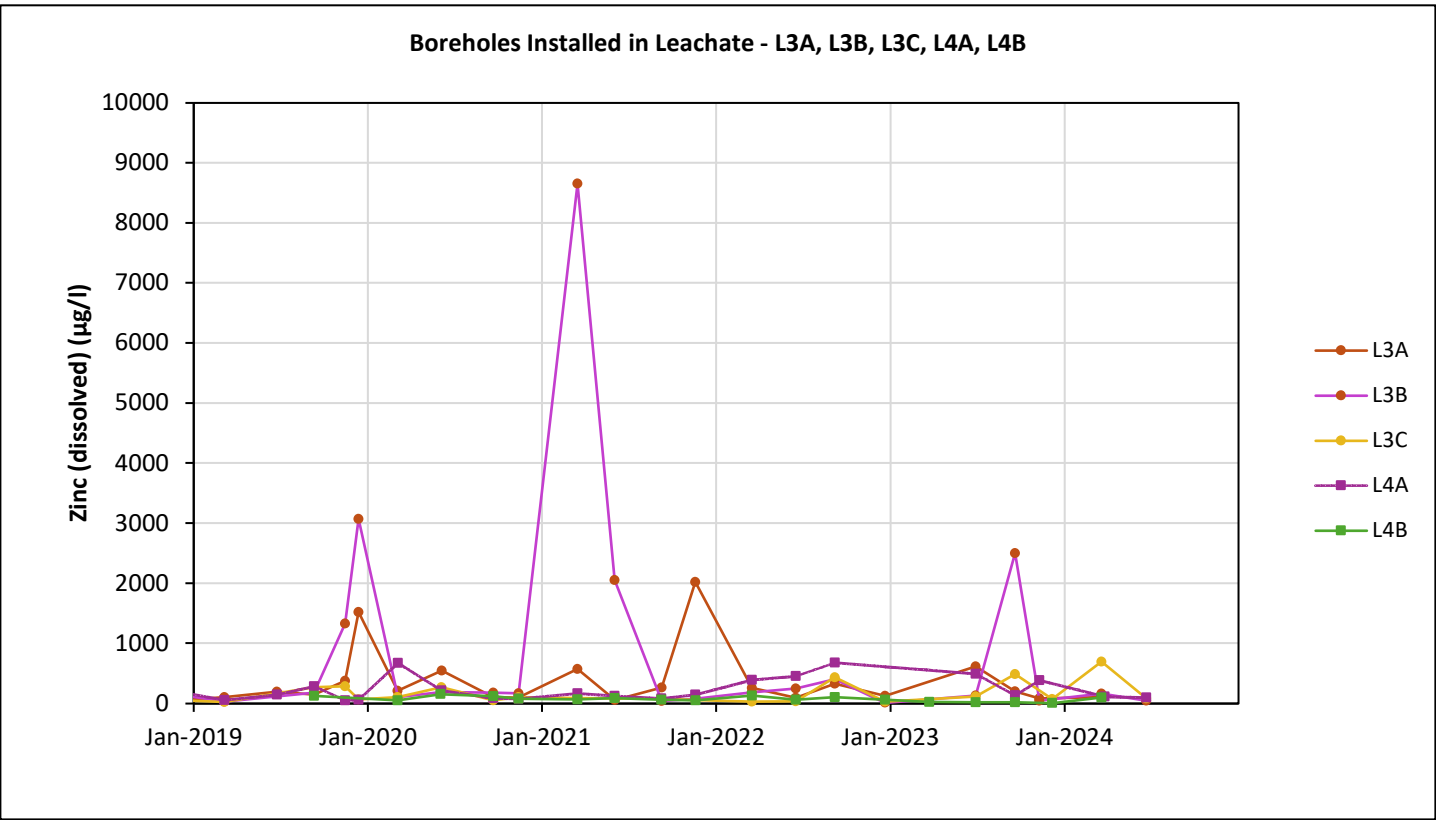
Note: Total Aliphatics and Aromatics concentrations recorded at 10µg/l and 100µg/l correspond to LOD.

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Note: Total Aromatics concentrations recorded at 10µg/l and 100µg/l correspond to LOD.

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Note: Zinc concentrations recorded at 11µg/l and 100µg/l correspond to LOD.

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FIGURE TITLE	Leachate, Groundwater and Surface Water Quality Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
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APPENDIX 6

Environmental Assessment Limits

Table A6.1 Environmental Assessment Limits

Table A6.1: Environmental Assessment Limits											
Determinand	Units	Hazardous Substance/Non-Hazardous Pollutant	UK Drinking Water Standard (UKDWS)	Background Groundwater Quality (2019-July 2024) - Sherwood Sandstone (mg/l)*	Background Groundwater Quality - Glaciofluvial Deposits (mg/l)	Minimum Reporting Value (MRV) for Hazardous Substances	2019 HRAR EAL (mg/l)	2024 HRAR EAL - Sherwood Sandstone (mg/l)	Source of 2024 HRAR EAL - Sherwood Sandstone	2024 HRAR EAL - Glaciofluvial Deposits (mg/l)	Source of 2024 HRAR EAL - Glaciofluvial Deposits
Mercury	mg/l	Hazardous Substance	0.001	0.01	-	1.00E-05	1.00E-05	1.00E-05	MRV	1.00E-05	MRV
Total Phenols	mg/l	Hazardous Substance	-	0.045	-	0.1	0.1	0.1	MRV	0.1	MRV
Total TPH	mg/l	Hazardous Substance	-	2.05	-	-	1	1	2019 HRAR EAL	0.01	LOD
Ammoniacal Nitrogen**	mg/l	Non-Hazardous Substance	0.39	6.03	-	-	9	9	2019 HRAR EAL	0.39	UKDWS
Chloride	mg/l	Non-Hazardous Substance	250	48.2	-	-	250	250	UKDWS	250	UKDWS
Notes:											
* Maximum for up-gradient groundwater monitoring boreholes BH106A and BH111A											
** UKDWS for ammonium (as NH ₄) is 0.5mg/l. pH is around neutral so ammoniacal nitrogen as N will be predominantly NH ₄ . Converting UKDWS to as N (by multiplying by 14/18) gives 0.39mg/l.											
No background groundwater quality data is available for the Glaciofluvial Deposits due to uncertainty regarding the groundwater monitoring data for borehole BH106S.											

APPENDIX 7

Source Term Assessment and Model Parameterisation

Table A7.1 List of Wastes (LoW) Codes

Table A7.2 Summary of Leachate Concentrations

Table A7.3 Summary of Leachate Concentrations – Speciated Phenols and Speciated TPH

Table A7.4 Input Parameters for LandSim Modelling

Table A7.5 Input Parameters for Hydraulic Containment Modelling

Table A7.1 List of Wastes (LoW) Codes	
LoW Code	LoW Description
01 01 01	Wastes from mineral metalliferous excavation
01 01 02	Wastes from mineral non-metalliferous excavation
01 03 06	Tailings other than those mentioned in 01 03 04 and 01 03 05
01 03 08	Dusty and powdery wastes other than those mentioned in 01 03 07
01 03 09	Red mud from alumina production other than the wastes mentioned in 01 03 07
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	Waste sand and clays
01 04 10	Dusty and powdery wastes other than those mentioned in 01 04 07
01 04 11	Wastes from potash and rock salt processing other than those mentioned in 01 04 07
01 04 12	Tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11
01 04 13	Wastes from stone cutting and sawing other than those mentioned in 01 04 07
02 01 01	Sludges from washing and cleaning
02 01 03	Plant-tissue waste
02 01 04	Waste plastics (except packaging)
02 01 07	Waste from forestry
02 03 01	Sludges from washing, cleaning, peeling, centrifuging and separation
02 03 02	Wastes from preserving agents
02 03 03	Wastes from solvent extraction
02 03 04	Materials unsuitable for consumption or processing
02 03 05	Sludges from on-site effluent treatment
02 04 01	Soil from cleaning and washing beet
02 04 02	Off-specification calcium carbonate

02 04 03	Sludges from on-site effluent treatment
02 05 01	Materials unsuitable for consumption or processing
02 05 02	Sludges from on-site effluent treatment
02 06 01	Materials unsuitable for consumption or processing
02 06 02	Wastes from preserving agents
02 06 03	Sludges from on-site effluent treatment
02 07 01	Wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 03	Wastes from chemical treatment
02 07 04	Materials unsuitable for consumption or processing
02 07 05	Sludges from on-site
03 01 01	Waste bark and cork
03 01 05	Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03 01	Waste bark and wood
03 03 02	Green liquor sludge (from recovery of cooking liquor)
03 03 05	De-inking sludges from paper recycling
03 03 07	Mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	Wastes from sorting of paper and cardboard destined for recycling
03 03 09	Lime mud waste
03 03 10	Fibre rejects, fibre-, filler- and coating- sludges from mechanical separation
03 03 11	Sludges from on-site effluent treatment other than those mentioned in 03 03 10
04 02 09	Wastes from composite materials (impregnated textiles, elastomer, plastomer)
04 02 10	Organic matter from natural products (for example grease, wax)
04 02 15	Wastes from finishing other than those mentioned in 04 02 14
04 02 17	Dyestuffs and pigments other than those mentioned in 04 02 16

04 02 20	Sludges from on-site effluent treatment other than those mentioned in 04 02 19
04 02 21	Wastes from unprocessed textile fibres
04 02 22	Wastes from processed textile fibres
06 03 14	Solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13
06 03 16	Metallic oxides other than those mentioned in 06 03 15
06 05 03	Sludges from on-site effluent treatment other than those mentioned in 06 05 02
06 06 03	Wastes containing sulphides other than those mentioned in 06 06 02
06 11 01	Calcium-based reaction wastes from titanium dioxide production
07 01 12	Sludges from on-site effluent treatment other than those mentioned in 07 01 11
07 02 12	Sludges from on-site effluent treatment other than those mentioned in 07 02 11
07 02 13	Waste plastic
07 02 15	Wastes from additives other than those mentioned in 07 02 14
07 03 12	Sludges from on-site effluent treatment other than those mentioned in 07 03 11
08 01 12	Waste paint and varnish other than those mentioned in 08 01 11
08 01 14	Sludges from paint or varnish other than those mentioned in 08 01 13
08 01 18	Wastes from paint or varnish removal other than those mentioned in 08 01 17
08 02 01	Waste coating powders
08 03 07	Aqueous sludges containing ink
08 03 13	Waste ink other than those mentioned in 08 03 12
08 03 18	Waste printing toner other than those mentioned in 08 03 17
08 04 10	Waste adhesives and sealants other than those mentioned in 08 04 09

08 04 12	Adhesives and sealant sludges other than those mentioned in 08 04 11
08 04 14	Aqueous sludges containing adhesives or sealants other than those mentioned in 08 04 13
09 01 07	Photographic film and paper containing silver or silver compounds
09 01 08	Photographic film and paper free of silver or silver compounds
09 01 10	Single-use cameras without batteries
09 01 12	Single-use cameras containing batteries other than those mentioned in 09 01 11
10 01 05	Calcium-based reaction wastes from flue-gas desulphurisation in solid form
10 01 07	Calcium-based reaction wastes from flue-gas desulphurisation in sludge form
10 01 15	Bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14
10 01 17	Fly ash from co-incineration other than those mentioned in 10 01 16
10 01 19	Wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
10 01 21	Sludges from on-site effluent treatment other than those mentioned in 10 01 20
10 01 23	Aqueous sludges from boiler cleansing other than those mentioned in 10 01 22
10 01 24	Sands from fluidised beds
10 01 25	Wastes from fuel storage and preparation of coal-fired power plants
10 02 01	Wastes from the processing of slag
10 02 02	Unprocessed slag
10 02 08	Solid wastes from gas treatment other than those mentioned in 10 02 07
10 02 10	Mill scales
10 02 12	Wastes from cooling-water treatment other than those mentioned in 10 02 11

10 02 14	Sludges and filter cakes from gas treatment other than those mentioned in 10 02 13
10 02 15	Other sludges and filter cakes
10 03 02	Anode scraps
10 03 05	Waste alumina
10 03 16	Skimmings other than those mentioned in 10 03 15
10 03 18	Carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17
10 03 20	Flue-gas dust other than those mentioned in 10 03 19
10 03 22	Other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21
10 03 24	Solid wastes from gas treatment other than those mentioned in 10 03 23
10 03 26	Sludges and filter cakes from gas treatment other than those mentioned in 10 03 25
10 03 28	Wastes from cooling-water treatment other than those mentioned in 10 03 27
10 03 30	Wastes from treatment of salt slags and black drosses other than those mentioned in 10 0 29
10 05 01	Slags from primary and secondary production
10 05 04	Other particulates and dust
10 05 09	Wastes from cooling-water treatment other than those mentioned in 10 05 08
10 06 01	Slags from primary and secondary production
10 06 02	Dross and skimmings from primary and secondary production
10 06 04	Other particulates and dust
10 06 10	Wastes from cooling-water treatment other than those mentioned in 10 06 09
10 07 01	Slags from primary and secondary production
10 07 02	Dross and skimming from primary and secondary production
10 07 03	Solid wastes from gas treatment
10 07 04	Other particulates and dust
10 07 05	Sludges and filter cakes from gas treatment

10 07 08	Wastes from cooling-water treatment other than those mentioned in 10 07 07
10 08 04	Particulates and dust
10 08 09	Other slags
10 08 11	Dross and skimmings other than those mentioned in 10 08 10
10 08 13	Carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12
10 08 14	Anode scrap
10 08 16	Flue-gas dust other than those mentioned in 10 08 15
10 08 18	Sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17
10 08 20	Wastes from cooling-water treatment other than those mentioned in 10 08 19
10 09 03	Furnace slag
10 09 06	Casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 08	Casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07
10 09 10	Flue-gas dust other than those mentioned in 10 09 09
10 09 12	Other particulates other than those mentioned in 10 09 11
10 09 14	Waste binders other than those mentioned in 10 09 13
10 10 03	Furnace slag
10 10 06	Casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07
10 10 10	Flue-gas dust other than those mentioned in 10 10 09
10 10 12	Other particulates other than those mentioned in 10 10 11
10 10 14	Waste binders other than those mentioned in 10 10 13
10 11 03	Waste glass-based fibrous materials
10 11 05	Particulates and dust
10 11 10	Waste preparation mixture before thermal processing, other than those mentioned in 10 11 09
10 11 12	Waste glass other than those mentioned 10 11 11

10 11 16	Solid wastes from flue-gas treatment other than those mentioned in 10 11 15
10 11 18	Sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17
10 12 01	Waste preparation mixture before thermal processing
10 12 03	Particulates and dust
10 12 05	Sludges and filter cakes from gas treatment
10 12 06	Discarded moulds
10 12 08	Waste ceramics, bricks, tiles and construction products (after thermal processing)
10 12 10	Solid wastes from gas treatment other than those mentioned in 10 12 09
10 12 12	Waste from glazing other than those mentioned in 10 12 11
10 12 13	Sludges from on-site effluent treatment
10 13 01	Waste preparation mixture before thermal processing
10 13 04	Waste from calcination and hydration of lime
10 13 06	Particulates and dust (except 10 13 12 and 10 13 13)
10 13 07	Sludges and filter cakes from gas treatment
10 13 10	Wastes from asbestos-cement manufacture other than those mentioned in 10 13 09
10 13 11	Wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10
10 13 13	Solid wastes from gas treatment other than those mentioned in 10 13 12
11 01 10	Sludges and filter cakes other than those mentioned in 11 01 09
11 01 14	Degreasing wastes other than those mentioned in 11 01 13
11 02 03	Wastes from the production of anodes for aqueous electrolytical processes
11 05 01	Hard zinc
11 05 02	Zincash
12 01 01	Ferrous metal filings and turnings
12 01 02	Ferrous metal dust and particles

12 01 03	Non-ferrous metal filings and turnings
12 01 04	Non-ferrous metal dust and particles
12 01 05	Plastics shavings and turnings
12 01 13	Welding wastes
12 01 15	Machining sludges other than those mentioned in 12 01 14
12 01 17	Waste blasting material other than those mentioned in 12 01 16
12 01 21	Spent grinding bodies and grinding materials other than those mentioned in 12 01 20
15 01 01	Paper and cardboard packaging
15 01 02	Plastic packaging
15 01 03	Wooden packaging
15 01 04	Metallic packaging
15 01 05	Composite packaging
15 01 06	Mixed packaging
15 01 07	Glass packaging
15 01 09	Textile packaging
15 02 03	Absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16 01 03	End-of-life tyres
16 01 12	Brake pads other than those mentioned in 16 01 11
16 01 17	Ferrous metal
16 01 18	Non-ferrous metal
16 01 19	Plastic
16 01 20	Glass
16 02 14	Discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 16	Components removed from discarded equipment other than those mentioned in 16 02 15
16 03 04	Inorganic wastes other than those mentioned in 16 03 03
16 03 06	Organic wastes other than those mentioned in 16 03 05
16 08 01	Spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)

16 08 03	Spent catalysts containing transition metals or transition metal compounds not otherwise specified
17 01 01	Concrete
17 01 02	Bricks
17 01 03	Tiles and ceramics
17 01 07	Mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02 01	Wood
17 02 02	Glass
17 02 03	Plastic
17 03 02	Bituminous mixtures other than those mentioned in 17 03 01
17 04 01	Copper, bronze, brass
17 04 02	Aluminium
17 04 03	Lead
17 04 04	Zinc
17 04 05	Iron and steel
17 04 06	Tin
17 04 07	Mixed metals
17 04 11	Cables other than those mentioned in 17 04 10
17 05 04	Soils and stones other than those mentioned in 17 05 03
17 05 06	Dredging spoil other than those mentioned in 17 05 05
17 05 08	Track ballast other than those mentioned in 17 05 07
17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 09 04	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
18 01 04	Wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, linen, disposable clothing, diapers)
18 02 03	Wastes whose collection and disposal is not subject to special requirements in order to prevent infection
19 01 02	Ferrous materials removed from bottom ash
19 01 12	Bottom ash and slag other than those mentioned in 19 01 11

19 01 14	Fly ash other than those mentioned in 19 01 13
19 01 16	Boiler dust other than those mentioned in 19 01 15
19 01 18	Pyrolysis wastes other than those mentioned in 19 01 17
19 01 19	Sands from fluidised beds
19 02 03	Premixed wastes composed only of non-hazardous wastes
19 02 06	Sludges from physico/chemical treatment other than those mentioned in 19 02 05
19 03 05	Stabilised wastes other than those mentioned in 19 03 04
19 03 07	Solidified wastes other than those mentioned in 19 03 06
19 04 01	Vitrified waste
19 05 01	Non-composted fraction of municipal and similar wastes
19 05 02	Non-composted fraction of animal and vegetable waste
19 05 03	Off-specification compost
19 08 01	Screenings
19 08 02	Waste from desanding
19 08 05	Sludges from treatment of urban waste water
19 08 09	Grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 12	Sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11
19 08 14	Sludges from other treatment of industrial waste water other than those mentioned in 19 08 13
19 09 01	Solid waste from primary filtration and screenings
19 09 02	Sludges from water clarification
19 09 03	Sludges from decarbonation
19 09 04	Spent activated carbon
19 09 05	Saturated or spent ion exchange resins
19 09 06	Solutions and sludges from regeneration of ion exchangers
19 10 01	Iron and steel waste
19 10 02	Non-ferrous waste
19 10 04	Fluff-light fraction and dust other than those mentioned in 19 10 03

19 10 06	Other fractions other than those mentioned in 19 10 05
19 11 06	Sludges from on-site effluent treatment other than those mentioned in 19 11 05
19 12 01	Paper and cardboard
19 12 02	Ferrous metal
19 12 03	Non-ferrous metal
19 12 04	Plastic and rubber
19 12 05	Glass
19 12 07	Wood other than that mentioned in 19 12 06
19 12 08	Textiles
19 12 09	Minerals (for example sand, stones)
19 12 10	Combustible waste (refuse derived fuel)
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
19 13 02	Solid wastes from solid remediation other than those mentioned in 19 13 01
19 13 04	Sludges from soil remediation other than those mentioned in 19 13 03
20 01 01	Paper and cardboard
20 01 02	Glass
20 01 08	Biodegradable kitchen and canteen waste
20 01 10	Clothes
20 01 11	Textiles
20 01 25	Edible oil and fat
20 01 28	Paint, inks, adhesives and resins other than those mentioned in 20 01 27
20 01 30	Detergents other than those mentioned in 20 01 29
20 01 36	Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
20 01 38	Wood other than that mentioned in 20 01 37
20 01 39	Plastics
20 01 40	Metals
20 01 41	Wastes from chimney sweeping

20 01 99	Other fractions not otherwise specified (compromising only of non-clinical human and animal offensive/hygiene waste (not arising from healthcare and/or relate research i.e. not including waste from natal care, diagnosis, treatment or prevention of disease) which is not subject to special requirements in order to prevent infection.
20 02 01	Biodegradable waste
20 02 02	Soil and stones
20 02 03	Other non-biodegradable wastes
20 03 01	Mixed municipal waste
20 03 02	Waste from markets
20 03 03	Street-cleaning residues
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	Waste sand and clays
02 04 01	Soil from cleaning and washing beet
03 03 05	De-inking sludges from paper recycling
03 03 09	Lime mud waste
17 05 04	Soil and stones other than those mentioned in 17 05 03
17 05 06	Dredging spoil other than those mentioned in 17 05 05
19 05 03	Off-specification compost
19 08 05	Sludges from treatment of urban waste water
19 09 02	Sludges from waste clarification
19 12 09	Minerals (for example sand, stones)
19 13 02	Solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 04	Sludges from soil remediation other than those mentioned in 19 13 03
20 02 02	Soil and stones

Table A7.2 Summary of Leachate Concentrations					
HRAR Report / Date Range	Determinand	Units	Minimum	Likely	Maximum
2003 HRA	Ammonical Nitrogen	mg/l	1	237	1190
	Chloride	mg/l	200	921	4610
	Mercury	mg/l	Not detected	Not detected	0.02
	Phenols	mg/l	0.01	0.07	0.35
	Fuel Oils (Hydrocarbons)	mg/l	1	16	80
	Pesticides	mg/l	0.001	0.012	0.06
2006	Ammonical Nitrogen	mg/l	9.3	485	856
	Chloride	mg/l	292	517	731
	Mercury	mg/l	Not detected	Not detected	Not detected
	Phenols	mg/l	0.01	0.5	2.5
	Fuel Oils (Hydrocarbons)	mg/l	1	3.9	8
	Pesticides	mg/l	Not detected	Not detected	Not detected
2007-2008	Ammonical Nitrogen	mg/l	7.5	1042	1600
	Chloride	mg/l	780	780	780
	Mercury	mg/l	Not detected	Not detected	Not detected
	Phenols	mg/l	0.01	0.8	2.6
	Fuel Oils (Hydrocarbons)	mg/l	1	8.8	26
	Pesticides	mg/l	No available data	No available data	No available data
2008 HRA	Ammonical Nitrogen	mg/l	7.5	860	1600
	Chloride	mg/l	Not Modelled	Not Modelled	Not Modelled
	Mercury	mg/l	Not Modelled	Not Modelled	Not Modelled
	Phenols	mg/l	0.01	0.55	2.6
	Fuel Oils (Hydrocarbons)	mg/l	Not Modelled	Not Modelled	Not Modelled
	Pesticides	mg/l	Not Modelled	Not Modelled	Not Modelled
2008-2016	Ammonical Nitrogen	mg/l	2.4	1461	4620
	Chloride	mg/l	2	1228	3410
	Mercury	mg/l	0.001	0.01	0.1
	Phenols	mg/l	0.01	7	59
	Fuel Oils (Hydrocarbons)*	mg/l	20	45	91
	Pesticides**	mg/l	0.00001	0.00001	0.0008
May 2017-September 2018	Ammonical Nitrogen	mg/l	1,600	-	3,810
	Chloride***	mg/l	1,710	-	1,960
	Mercury****	mg/l	<0.00001	-	<0.00001
	Phenols [§]	mg/l	-	-	-
	Fuel Oils (Hydrocarbons) [#]	mg/l	0.58	-	1.76
	Pesticides [%]	mg/l	<0.0001	-	0.0018

Table A7.2 Summary of Leachate Concentrations					
2019 HRAR	Ammonical Nitrogen	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	Chloride	mg/l	2	1,228	3,410
	Mercury	mg/l	1.00E-05	1.00E-05	0.1
	Phenols group 1 - phenol	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	Phenols group 2 - cresols	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	Phenols group 3 - xlenols	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	Phenols group 4 - chlorophenols	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	Phenols group 5 - nitrophenols	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aliphatic C5-6	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aliphatic C6-8	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aliphatic C8-10	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aliphatic C10-12	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aliphatic C12-16	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aliphatic C16-35	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aromatic C5-7	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aromatic C7-8	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aromatic C8-10	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aromatic C10-12	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aromatic C12-16	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aromatic C16-21	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	TPH Aromatic C21-35	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	Pesticides	mg/l	Not Modelled		
January 2019-June 2024	Ammonical Nitrogen	mg/l	Concentrations by cell in Table A7.2 in Appendix 7		
	Chloride	mg/l	133	2,058	4,670
	Mercury	mg/l	0.005	0.29	1.75
	Phenols	mg/l	Speciated phenol concentrations by cell in Table A7.2 in Appendix 7		
	Fuel Oils (Hydrocarbons)	mg/l	Speciated TPH concentrations by cell in Table A7.2 in Appendix 7		
2024 HRAR	Ammonical Nitrogen	mg/l	Modelled by cell (see Table A7.2 in Appendix 7)		
	Chloride	mg/l	133	2,058	4,670
	Mercury	µg/l	0.005	0.29	1.75
	Phenols	mg/l	Speciated phenol modelled by cell (see Table A7.2 in Appendix 7)		
	Fuel Oils (Hydrocarbons)	mg/l	Speciated TPH modelled by cell (see Table A7.2 in Appendix 7)		

Notes:

2003 HRA, 2006, 2007-2008, 2008 HRA updated values, 2008-2016, May 2017-September 2018 data taken from 2019 HRAR.

*2008-2016 data for Fuel Oils (Hydrocarbons) based on laboratory results for 'TPH oil and grease'

** Likely value estimated in the 2019 HRAR based on data 2008-2016. Pesticides were rarely detected above laboratory reporting limits.

***Based on a limited dataset of two results per cell. Concentrations detected lie within the range modelled in 2016 (based on 2018 to 2014 data); therefore the 2008 to 2014 source in/out is considered to remain appropriate.

**** Based on a dataset of four results per cell.

\$ A number of phenol compounds were detected by speciated analysis.

Sum of all TPH fractions based on speciated analysis.

% Only p,p-TDE (DDD) detected by speciated analysis (detected on one occasion at 0.0018mg/l). All other pesticides were less than 0.001mg/l.

Bold indicates 2024 HRAR concentrations updated, otherwise 2019 HRAR concentrations used in 2024 HRAR modelling.

Table A7.4: Input Parameters for LandSim Modelling											
Parameter		Units	2024 HRAR					Derivation and Justification			
			Cell 3A	Cell 3B	Cell 3C	Cell 4A	Cell 4B				
Source											
Location (x-axis)		m	1111.5	1064	1064	1000	950	Cells 3A, 3B and 3C: Based on 2019 HRAR as cell dimensions remain unchanged. Cell 4 split into Cell 4A and Cell 4B and extension (Cell 4B Phase 4) added. Cell 4B Phase 4: Based on design.			
Location (y-axis)		m	1000	1029	983.5	1000	1000				
Receptor location (x-axis)		m			1700						
Receptor location (y-axis)		m			1000						
Length (x-axis)		m	25	70	70	58	42				
Width (y-axis)		m	50	58	33	78	78				
Infiltration (open waste)		mm/year			Normal(650,50)				Based on 2019 HRAR.		
Infiltration (capped areas)		mm/year			Normal(50,20)				Based on 2019 HRAR.		
PE Cap		-			Yes				Based on 2019 HRAR.		
Infiltration to grassland		mm/year			Normal(350,50)				Based on 2019 HRAR.		
Start of cap degradation (years from end of waste disposal)		years			250				Based on 2019 HRAR. Landsim default values.		
End of cap degradation (years from end of waste disposal)		years			1000				Based on 2019 HRAR. Landsim default values.		
End of filling (years from start of waste disposal)		years			Single(20)				Based on 2019 HRAR.		
Waste Field Capacity		fraction			Uniform(0.2,0.4)				Based on 2019 HRAR. Landsim default values.		
Waste Porosity		fraction			Uniform(0.1,0.15)				Based on 2019 HRAR.		
Waste Density		kg/l			Uniform(1.1,2)				Based on 2019 HRAR.		
Leachate head acting on basal barrier (m)		m			Triangular(0.25,1.3)				Based on 2019 HRAR. Maximum reflects leachate head compliance limits.		
Head of leachate when surface water breakout occurs		m		Single(30)		Single(16)	Single(11)		Cells 3A, 3B, 3C, 4A: Based on 2019 HRAR as cell dimensions remain unchanged. Cell 4B: Based on design.		
Number of cells		-	1	1	1	1	1		Each LandSim phase modelled as a single cell.		
Cap Area		Ha	1.2	1.1	1.4	2.0	1.5		Cells 3A, 3B, 3C, 4A: Based on 2019 HRAR as cell dimensions remain unchanged. Cell 4B: Based on design.		
Basal Area		Ha	0.125	0.406	0.231	0.4524	0.3276		Cells 3A, 3B, 3C, 4A: Based on 2019 HRAR as cell dimensions remain unchanged. Cell 4B: Based on design.		
Final Waste Thickness		m	Uniform(10,43)	Unifrom(10,48)	Uniform(10,46)	Uniform(10,43)	Uniform(16.6,26.6)		Cells 3A, 3B, 3C, 4A: Based on 2019 HRAR. Cell 4B: Based on design.		
Time offset		years			0				Based on 2019 HRAR. No time offset.		
Duration of management control (years from start waste disposal)		years			30				Based on 2019 HRAR.		
Leachate recirculation		m ³ /hr			0.5				Based on 2019 HRAR.		
Leachate source kappa values	Mercury	m	kg/l		Single(0.0767)			Based on 2019 HRAR. Landsim default values.			
		c	kg/l		Single(0.1643)						
	Ammoniacal Nitrogen	m	kg/l		Single(0)						
		c	kg/l		Single(0.59)						
	Chloride	m	kg/l		Single(0.0767)						
		c	kg/l		Single(0.1643)						
Leachate concentrations	Mercury	mg/l	LogTriangular(Se-6,0.000287,0.00175)							See source term assessment.	
	Pesticides	mg/l									
	Phenols group 1 - phenol	mg/l	LogTriangular(5.5,8.4,11.3)	LogTriangular(0.88,4.2,7.8)	Logtriangular(6.2,6.84,7.48)	Logtriangular(0.02,0.32,1.1)	Logtriangular(0.08,8.00,20.10)				
	Phenols group 2 - cresols	mg/l	LogTriangular(0.001,0.091,0.299)	LogTriangular(2.6,10.3,16.8)	Logtriangular(0.1,0.377,1.11)	Logtriangular(0.008,2.58,9.13)	Logtriangular(0.01,1.31,3.87)				
	Phenols group 3 - xlenols	mg/l	LogTriangular(0.08,0.16,0.34)	LogTriangular(0.006,0.311,1.17)	Logtriangular(0.08,0.176,0.25)	Logtriangular(0.05,0.15,0.33)	Logtriangular(0.01,0.14,0.55)				
	Phenols group 4 - chlorophenols	mg/l	LogTriangular(0.001,0.089,0.352)	LogTriangular(0.006,0.134,0.522)	Logtriangular(0.001,0.014,0.055)	Logtriangular(0.001,0.002,0.010)	Logtriangular(0.01,0.05,0.1)				
	Phenols group 5 - nitrophenols	mg/l	Single(0.001)	Single(0.001)	Logtriangular(0.001,0.014,0.055)	Single(0.001)	Logtriangular(0.01,0.05,0.1)				
	TPH Aliphatic C5-6	mg/l	LogTriangular(0.232,0.277,0.316)	LogTriangular(0.164,0.181,0.231)	Single(0.266)	Logtriangular(0.268,0.277,0.316)	Logtriangular(0.005,0.009,0.01)				
	TPH Aliphatic C6-8	mg/l	LogTriangular(0.052,0.077,0.079)	LogTriangular(0.046,0.059,0.096)	Single(0.082)	Logtriangular(0.077,0.087,0.112)	Logtriangular(0.005,0.009,0.01)				
	TPH Aliphatic C8-10	mg/l	LogTriangular(0.028,0.045,0.097)	LogTriangular(0.036,0.045,0.07)	Logtriangular(0.042,0.071,0.08)	Logtriangular(0.068,0.078,0.108)	Logtriangular(0.005,0.009,0.01)				
	TPH Aliphatic C10-12	mg/l	LogTriangular(0.038,0.101,0.126)	LogTriangular(0.057,0.065,0.09)	Logtriangular(0.068,0.097,0.106)	Logtriangular(0.137,0.162,0.186)	Logtriangular(0.005,0.009,0.01)				
	TPH Aliphatic C12-16	mg/l	LogTriangular(0.056,0.067,0.1)	LogTriangular(0.005,0.031,0.1)	Logtriangular(0.039,0.054,0.1)	Logtriangular(0.039,0.054,0.1)	Logtriangular(0.005,0.009,0.01)				
	TPH Aliphatic C16-35	mg/l	Single(0.308)	LogTriangular(0.005,0.008,0.01)	Logtriangular(0.005,0.008,0.01)	Logtriangular(0.01,0.063,0.685)	Logtriangular(0.005,0.009,0.01)				
	TPH Aromatic C5-7	mg/l	LogTriangular(0.007,0.01,0.01)	LogTriangular(0.01,0.011,0.011)	Logtriangular(0.012,0.013,0.013)	Logtriangular(0.007,0.01,0.01)	Logtriangular(0.005,0.009,0.01)				
	TPH Aromatic C7-8	mg/l	LogTriangular(0.004,0.01,0.01)	LogTriangular(0.005,0.009,0.011)	Single(0.01)	Logtriangular(0.005,0.012,0.023)	Logtriangular(0.005,0.009,0.01)				
	TPH Aromatic C8-10	mg/l	LogTriangular(0.032,0.045,0.084)	LogTriangular(0.058,0.066,0.088)	Logtriangular(0.104,0.151,0.166)	Logtriangular(0.117,0.138,0.201)	Logtriangular(0.005,0.009,0.01)				
	TPH Aromatic C10-12	mg/l	LogTriangular(0.025,0.068,0.084)	LogTriangular(0.038,0.044,0.06)	Logtriangular(0.045,0.065,0.071)	Logtriangular(0.091,0.108,0.124)	Logtriangular(0.005,0.009,0.01)				
	TPH Aromatic C12-16	mg/l	LogTriangular(0.025,0.043,0.235)	LogTriangular(0.114,0.140,0.149)	Logtriangular(0.1,0.127,0.136)	Logtriangular(0.1,0.129,0.138)	Logtriangular(0.005,0.009,0.012)				
	TPH Aromatic C16-21	mg/l	LogTriangular(0.01,0.03,0.183)	LogTriangular(0.005,0.031,0.1)	Logtriangular(0.1,0.181,0.208)	Logtriangular(0.05,0.065,0.127)	Logtriangular(0.005,0.010,0.013)				
	TPH Aromatic C21-35	mg/l	LogTriangular(0.1,0.184,0.212)	LogTriangular(0.005,0.058,0.208)	Logtriangular(0.099,0.09925,0.1)	Logtriangular(0.05,0.066,0.183)	Logtriangular(0.005,0.010,0.013)				
	Ammoniacal Nitrogen	mg/l	LogTriangular(2090,2565,3750)	LogTriangular(1700,2371,4490)	Logtriangular(1710,2354,4840)	Logtriangular(1680,1995,2690)	Logtriangular(43,968,1790)				
	Chloride	mg/l			LogTriangular(133,2058,4670)						
	Retardation	Clay liner	-			No			Based on 2019 HRAR.		
		Unsaturated pathway	-			Yes					
		Aquifer pathway	-			Yes					
	Partition Coefficient	Mercury (Kd)	l/kg			LogUniform(450,3835)			Based on 2019 HRAR. LandSim default values for mercury, ammoniacal nitrogen and chloride. Literature values for phenols and TPH.		
		Pesticides (Koc)	l/kg			Triangular(5.3,200,1164)					
Phenols group 1 - phenol (Koc)		ml/g			Triangular(10,28.8,117)						
Phenols group 2 - cresols (Koc)		ml/g			Triangular(22,158,316)						
Phenols group 3 - xlenols (Koc)		ml/g			Triangular(170,430,800)						
Phenols group 4 - chlorophenols (Koc)		ml/g			Triangular(140,500,3000)						
Phenols group 5 - nitrophenols (Koc)		ml/g			Triangular(10,60,500)						
TPH Aliphatic C5-6 (Koc)		ml/g			Single(812)						
TPH Aliphatic C6-8 (Koc)		ml/g			Single(3802)						
TPH Aliphatic C8-10 (Koc)		ml/g			Single(30200)						
TPH Aliphatic C10-12 (Koc)		ml/g			Single(239883)						
TPH Aliphatic C12-16 (Koc)		ml/g			Single(5370318)						
TPH Aliphatic C16-35 (Koc)		ml/g			Single(5.75e+008)						
TPH Aromatic C5-7 (Koc)		ml/g			Single(67.6)						
TPH Aromatic C7-8 (Koc)		ml/g			Single(204)						
TPH Aromatic C8-10 (Koc)		ml/g			Single(1585)						
TPH Aromatic C10-12 (Koc)		ml/g			Single(2512)						
TPH Aromatic C12-16 (Koc)		ml/g			Single(5012)						
TPH Aromatic C16-21 (Koc)		ml/g			Single(14125)						
TPH Aromatic C21-35 (Koc)		ml/g			Single(125892)						
Ammoniacal Nitrogen (Kd)		l/kg			LogUniform(0.5,2)						
Chloride (Kd)		l/kg			Single(0)						
Biodegradation	Clay liner	-			No			Based on 2019 HRAR.			
	Unsaturated pathway	-			Yes						
	Aquifer pathway	-			Yes						
Half Lives	Mercury	years			Single(1e+009)			Based on 2019 HRAR. LandSim default values for mercury, ammoniacal nitrogen and chloride. Literature values for phenols and TPH.			
	Pesticides	years									
	Phenols group 1 - phenol	years			Single(1)						
	Phenols group 2 - cresols	years			Single(1)						
	Phenols group 3 - xlenols	years			Single(1)						
	Phenols group 4 - chlorophenols	years			Single(1e+009)						
	Phenols group 5 - nitrophenols	years			Single(1)						
	TPH Aliphatic C5-6	years			Uniform(0.3,6)						
	TPH Aliphatic C6-8	years			Uniform(0.3,6)						
	TPH Aliphatic C8-10	years			Uniform(0.3,6)						
	TPH Aliphatic C10-12	years			Uniform(0.3,6)						
	TPH Aliphatic C12-16	years			Uniform(0.3,6)						
	TPH Aliphatic C16-35	years			Uniform(4,10)						
	TPH Aromatic C5-7	years			Uniform(0.2,1,4)						
	TPH Aromatic C7-8	years			Uniform(0.1,1)						
	TPH Aromatic C8-10	years			Uniform(0.2,2)						
	TPH Aromatic C10-12	years			Uniform(0.3,3)						

Table A7.4: Input Parameters for LandSim Modelling									
Parameter		Units	2024 HRAR					Derivation and Justification	
			Cell 3A	Cell 3B	Cell 3C	Cell 4A	Cell 4B		
	TPH Aromatic C12-16	years			Uniform(1,3)				
	TPH Aromatic C16-21	years			Uniform(1,10)				
	TPH Aromatic C21-35	years			Uniform(4,10)				
	Ammoniacal Nitrogen	years			Single(1e+009)				
	Chloride	years			Single(1e+009)				
Background groundwater concentrations	Mercury	mg/l							
	Pesticides	mg/l							
	Phenols group 1 - phenol	mg/l							
	Phenols group 2 - cresols	mg/l							
	Phenols group 3 - xylenols	mg/l							
	Phenols group 4 - chlorophenols	mg/l							
	Phenols group 5 - nitrophenols	mg/l							
	TPH Aliphatic C5-6	mg/l							
	TPH Aliphatic C6-8	mg/l							
	TPH Aliphatic C8-10	mg/l							
	TPH Aliphatic C10-12	mg/l							
	TPH Aliphatic C12-16	mg/l							
	TPH Aliphatic C16-35	mg/l							
	TPH Aromatic C5-7	mg/l							
	TPH Aromatic C7-8	mg/l							
	TPH Aromatic C8-10	mg/l							
	TPH Aromatic C10-12	mg/l							
	TPH Aromatic C12-16	mg/l							
	TPH Aromatic C16-21	mg/l							
	TPH Aromatic C21-35	mg/l							
	Ammoniacal Nitrogen	mg/l							
	Chloride	mg/l							
Engineered Barrier									
Engineered barrier system		-	Single clay EBS	Composite EBS				Cells 3A, 3B, 3C, 4A: Based on 2019 HRAR . Cell 4B: Based on design.	
Clay substrate	Construction includes a CQA System	-	-	Yes					
	Thickness of geological mineral liner	m	Single(2)	Uniform(0.3,0.35)			Single(0.5)		
	Density of clay	kg/l	Undefined	Undefined					
	Hydraulic Conductivity	m/s	LogTriangular(1e-010,1e-009,1e-008)	LogUniform(4e-011,1e-010)			Single(5e-010)		
	Moisture Content	-	Uniform(0.18,0.22)	Uniform(0.18,0.22)					
Longitudinal Dispersion	m	Single(0.2)	Uniform(0.03,0.035)			Single(0.05)			
Flexible membrane liner	Number of pin hole defects (0.1-5mm ² /ha)	-	-	Minimum 0, Maximum 5				Based on 2019 HRAR. LandSim default values.	
	Number of hole defects (5-100mm ² /ha)	-	-	Minimum 0, Maximum 2					
	Number of tear defects (100-10000mm ² /ha)	-	-	Minimum 0, Most Likely 0.0001, Maximum 0.0001					
	Onset of FML degradation (years since filling commenced)	years	-	150					
	Time for area of defects to double	years	-	100					
Start of cap degradation (years from end of waste emplacement)		years			250			Based on 2019 HRAR. LandSim default values.	
End of cap degradation (years from end of waste emplacement)		years			1000				
Unsaturated Pathway								Based on 2019 HRAR.	
Hydraulic Conductivity		m/s	LogTriangular(1e-007,5e-005,0.0001)						
Pathway moisture content		-	Triangular(0.05,0.1,0.15)						
Pathway Density		kg/l	Uniform(1.7,2.1)						
Fraction Organic Carbon		-	Uniform(0.0005,0.001)						
Pathway Length		m	Single(2)						
Longitudinal Dispersivity		m	Single(0.2)						
Aquifer Pathway								Based on 2019 HRAR.	
Pathway Length		m	Uniform(566,591)	Uniform(591,661)	Uniform(591,661)	Uniform(671,729)	Uniform(729,771)		
Pathway Width		m	Single(55.9)	Single(90.9)	Single(77.38)	Single(97.2)	Single(88.58)		
Hydraulic Conductivity		m/s	LogTriangular(1e-007,5e-005,0.0001)						
Regional Gradient		-	Triangular(0.002,0.004,0.01)						
Pathway Porosity		-	Uniform(0.2,0.3)						
Pathway Density		kg/l	Uniform(1.6,1.8)						
Fraction Organic Carbon		-	Uniform(0.0005,0.001)						
Longitudinal Dispersivity		m	Uniform(50,90)						
Transverse Dispersivity		m	Uniform(15,25)						
Mixing Zone Thickness		m	Uniform(1,6)						
Estimate based on 10% pathway length longitudinal and 3% for transverse dispersivity									

Table A7.4 Input Parameters for Cell 4B (Phase 4) Hydraulic Containment Models				
Parameter	Symbol	Unit	Value	Derivation
Conceptual Model and Landfill Construction				
Scenario	-	-	2	Based on Hydrogeological Conceptual Site Model.
Is a geomembrane present?	-	-	No	Conservative assumption
Basal width perpendicular to groundwater flow	Width_LF	m	78	Width of Cell 4B perpendicular to groundwater flow direction.
Basal length parallel to groundwater flow	Length_LF	m	42	Length of pCell 4B parallel to groundwater flow direction.
Elevation of base of landfill	LFbase_elev	maOD	52	Based on landfill design
Elevation of base of aquifer	Aqbound_elev	maOD	26.5	Based on elevation of base of Glaciofluvial Deposits in borehole BH106A.
Leachate head inside landfill	Head_inLF	maOD	55.5	Based on landfill design. Base of landfill (52mAOD) plus 0.5m thick liner plus 3m leachate head (compliance limit for leachate levels).
Groundwater head outside landfill	Head_outLF	maOD	58.2	Maximum groundwater elevation recorded in Glaciofluvial Deposits groundwater monitoring boreholes BH106S between April 2019 and September 2019
Contaminant Parameters				
Contaminant name	Cont_Nme	-	Ammoniacal Nitrogen	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List II	i.e. non-hazardous pollutant
Concentration in landfill leachate	Conc_LF	mg/l	1790	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.96E-09	Buss <i>et al</i> (2004)
Partition coefficient in clay	Kd_cl	l/kg	2	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a LogUniform(0.5,2) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	Chloride	-
Contaminant type	Cont_Type	-	Inorganic	-
Contaminant classification	Cont_Class	-	List II	i.e. non-hazardous pollutant
Concentration in landfill leachate	Conc_LF	mg/l	4670	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	2.03E-09	Buss <i>et al</i> (2004)
Partition coefficient in clay	Kd_cl	l/kg	0	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(0) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	Mercury	-
Contaminant type	Cont_Type	-	Inorganic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	0.00175	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	8.47E-10	Buffle <i>et al</i> (2007)
Partition coefficient in clay	Kd_cl	l/kg	3835	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a LogUniform(450,3835) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	Phenols group 1 - phenol	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	Single (0.01)	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	117	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Triangular(10,28.8,117) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	Phenols group 2 - cresols	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	Logtriangular(0.01, 1.31,3.87)	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	316	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Triangular(22,158,316) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	Phenols group 3 - xlenols	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	Logtriangular(0.01,0.14,0.55)	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	800	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Triangular(170,430,800) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	Phenols group 4 - chlorophenols	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	Logtriangular(0.01, 0.05, 0.1)	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	3000	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Triangular(140,500,3000) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	Phenols group 5 - nitrophenols	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	Logtriangular(0.01, 0.05,0.1)	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	500	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Triangular(10,60,500) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aliphatic C5-6	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	Logtriangular(0.005,0.009,0.01)	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	812	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(812) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure

Table A7.4 Input Parameters for Cell 4B (Phase 4) Hydraulic Containment Models				
Parameter	Symbol	Unit	Value	Derivation
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aliphatic C6-8	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	Logtriangular(0.005,0.009,0.01)	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	3802	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(3802) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aliphatic C8-10	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	Logtriangular(0.005,0.009,0.01)	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	30200	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(30200) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aliphatic C10-12	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	0.01	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	239883	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(239883) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aliphatic C12-16	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	0.01	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	5370318	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(5370318) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aliphatic C16-35	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	0.01	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	5.75E+08	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(5.75e+008) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aromatic C5-7	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	0.01	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	67.6	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(67.6) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aromatic C7-8	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	0.01	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	204	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(204) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aromatic C8-10	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	0.01	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	1585	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(1585) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aromatic C10-12	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	0.01	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	2512	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(2512) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aromatic C12-16	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	0.012	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	5012	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(5012) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aromatic C16-21	-
Contaminant type	Cont_Type	-	Organic	-

Table A7.4 Input Parameters for Cell 4B (Phase 4) Hydraulic Containment Models				
Parameter	Symbol	Unit	Value	Derivation
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	0.013	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	14125	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(14125) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Contaminant name	Cont_Nme	-	TPH Aromatic C21-35	-
Contaminant type	Cont_Type	-	Organic	-
Contaminant classification	Cont_Class	-	List I	i.e. hazardous substance
Concentration in landfill leachate	Conc_LF	mg/l	Logtriangular(0.005, 0.010,0.013)	Maximum concentration from source term assessment
Free water diffusion coefficient	Dw_cl	m ² /s	1.00E-09	-
Partition coefficient in clay	Kd_cl	l/kg	125892	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a Single(125892) distribution)
Half life in clay (0 for no decay)	thalf_cl	days	0	No degradation assumed as a conservative measure
Decay in sorbed phase?	Decay_sorb	-	No	No decay assumed as a conservative measure
Mineral Liner				
Thickness of mineral liner	thick_clbr	m	0.5	Based on landfill design
Hydraulic conductivity	k_cl	m/s	5.00E-10	Based on design maximum.
Average pore radius	pore_radius	m	0.00001	Default value
Effective porosity	n	-	0.162	Default value
Dry bulk density	rho	kg/m ³	1.93E-06	CQA Validation Report for Cell 4B Phase 3
Tortuosity	tau_cl	-	5	Default value
Aquifer Pathway				
Hydraulic gradient in the aquifer	aq_l	-	0.15	Based on baseline groundwater monitoring for BH106S, water levels in the Bryning Brook and elevation of water seepage.
Hydraulic conductivity of the aquifer	k_aq	m/s	5.00E-05	Based on 2019 HRAR. LandSim default value (LandSim modelled considered a LogTriangular(1E-007,5E-005,0.0001) distribution)
Downgradient distance of compliance point from landfill	dist_cp	m	590	Based on 2019 HRAR.
References:				
Buss, SR, Herbert, AW, Green, KM and Atkinson, C (2004) Contaminant fluxes from hydraulic containment landfills - a review. Environment Agency Science Report SC0310/SR				
Buffle, J, Zhang, Z and Startchev, K (2007) Metal Flux and Dynamic Speciation at (Bio)interfaces. Part I: Critical Evaluation and Compilation of Physicochemical Parameters for Complexes with Simple Ligands and Fulvic/Humic Substances. Environmental Science & Technology, 41, 22, pp7609–7620. https://doi.org/10.1021/es070702p				

APPENDIX 8

LandSim Model Inputs

Calculation Settings

Number of iterations: 1001

Results calculated using sampled PDFs

Full Calculation

Clay Liner:

Unretarded values used for simulation

No Biodegradation

Unsaturated Pathway:

Retarded values used for simulation

Biodegradation

Saturated Vertical Pathway:

No Vertical Pathway

Aquifer Pathway:

Retarded values used for simulation

Biodegradation

Timeslices at: 30, 100, 300, 1000

Decline in Contaminant Concentration in Leachate

Phenols group 5 - nitrophenols Half life (years): 10	Volatile
TPH Aliphatic C5-6 Half life (years): 10	Volatile
TPH Aliphatic C6-8 Half life (years): 10	Volatile
TPH Aliphatic C8-10 Half life (years): 10	Volatile
TPH Aliphatic C10-12 Half life (years): 10	Volatile
TPH Aliphatic C12-16 Half life (years): 10	Volatile
TPH Aliphatic C16-35 c (kg/l): 0	Non-Volatile m (kg/l): 0
TPH Aromatic C5-7 Half life (years): 10	Volatile
TPH Aromatic C7-8 Half life (years): 10	Volatile
TPH Aromatic C8-10 Half life (years): 10	Volatile
TPH Aromatic C10-12 Half life (years): 10	Volatile
TPH Aromatic C12-C16 Half life (years): 10	Volatile
TPH Aromatic C16-21 c (kg/l): 0	Non-Volatile m (kg/l): 0
TPH Aromatic C21-35 c (kg/l): 0	Non-Volatile m (kg/l): 0

Contaminant Half-lives (years)

Unsaturated Pathway:

Chloride	SINGLE(1e+009)
Mercury	SINGLE(1e+009)
Phenols group 1 - phenol	SINGLE(1)
Phenols group 2 - cresols	SINGLE(1)
Phenols group 3 - xylenols	SINGLE(1)
Phenols group 4 - chlorophenols	SINGLE(1e+009)
Phenols group 5 - nitrophenols	SINGLE(1)
TPH Aliphatic C5-6	UNIFORM(0.3,6)
TPH Aliphatic C6-8	UNIFORM(0.3,6)
TPH Aliphatic C8-10	UNIFORM(0.3,6)
TPH Aliphatic C10-12	UNIFORM(0.3,6)
TPH Aliphatic C12-16	UNIFORM(0.3,6)
TPH Aliphatic C16-35	UNIFORM(4,10)
TPH Aromatic C5-7	UNIFORM(0.2,1.4)
TPH Aromatic C7-8	UNIFORM(0.1,1)
TPH Aromatic C8-10	UNIFORM(0.2,2)
TPH Aromatic C10-12	UNIFORM(0.3,3)
TPH Aromatic C12-C16	UNIFORM(1,3)
TPH Aromatic C16-21	UNIFORM(1,10)

Contaminant Half-lives (years)

Aquifer Pathway:

TPH Aromatic C21-35

UNIFORM(4,10)

Background Concentrations of Contaminants

Justification for Contaminant Properties

Based on 2019 HRAR, 2019-2024 monitoring results and LandSim default values. [CHANGED]

All units in milligrams per litre

Phase: Cell3A**Infiltration Information**

Cap design infiltration (mm/year):	NORMAL(50,20)
Infiltration to waste (mm/year):	NORMAL(650,50)
Infiltration to grassland (mm/year):	NORMAL(350,50)
End of filling (years from start of waste deposit):	20
Start of cap degradation (years from end of waste deposit):	250
End of cap degradation (years from end of waste deposit):	1000

Justification for Specified Infiltration

Based on 2019 HRAR and LandSim default values.

Duration of management control (years from the start of waste disposal): 30

Leachate recirculated AND TREATED (m³/hr for this phase) SINGLE(0.5)

Cell dimensions

Cell width (m):	50
Cell length (m):	25
Cell top area (ha):	1.2
Cell base area (ha):	0.125
Number of cells:	1
Total base area (ha):	0.125
Total top area (ha):	1.2
Head of Leachate when surface water breakout occurs (m)	SINGLE(30)
Waste porosity (fraction)	UNIFORM(0.1,0.15)
Final waste thickness (m):	UNIFORM(10,43)
Field capacity (fraction):	UNIFORM(0.2,0.4)
Waste dry density (kg/l)	UNIFORM(1,1.2)

Justification for Landfill Geometry

Based on 2019 HRAR and LandSim default values.

Source concentrations of contaminants*All units in milligrams per litre*

Declining source term

Ammoniacal_N	LOGTRIANGULAR(2090,2565,3750) <i>Substance to be treated as List 1</i>
Chloride	LOGTRIANGULAR(133,2058,4670) <i>Substance to be treated as List 1</i>
Mercury	LOGTRIANGULAR(5e-006,0.000287,0.00175) <i>Substance to be treated as List 1</i>
Phenols group 1 - phenol	LOGTRIANGULAR(5.5,8.4,11.3) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols	LOGTRIANGULAR(0.001,0.091,0.299) <i>Substance to be treated as List 1</i>
Phenols group 3 - xylenols	LOGTRIANGULAR(0.08,0.16,0.34) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols	LOGTRIANGULAR(0.001,0.089,0.352) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols	SINGLE(0.001) <i>Substance to be treated as List 1</i>
TPH Aliphatic C5-6	LOGTRIANGULAR(0.232,0.277,0.316) <i>Substance to be treated as List 1</i>
TPH Aliphatic C6-8	LOGTRIANGULAR(0.052,0.077,0.079) <i>Substance to be treated as List 1</i>
TPH Aliphatic C8-10	LOGTRIANGULAR(0.028,0.045,0.097) <i>Substance to be treated as List 1</i>
TPH Aliphatic C10-12	LOGTRIANGULAR(0.038,0.101,0.126) <i>Substance to be treated as List 1</i>
TPH Aliphatic C12-16	LOGTRIANGULAR(0.056,0.067,0.1) <i>Substance to be treated as List 1</i>
TPH Aliphatic C16-35	SINGLE(0.308) <i>Substance to be treated as List 1</i>
TPH Aromatic C5-7	LOGTRIANGULAR(0.007,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH Aromatic C7-8	LOGTRIANGULAR(0.004,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH Aromatic C8-10	LOGTRIANGULAR(0.032,0.045,0.084) <i>Substance to be treated as List 1</i>
TPH Aromatic C10-12	LOGTRIANGULAR(0.025,0.068,0.084) <i>Substance to be treated as List 1</i>
TPH Aromatic C12-C16	LOGTRIANGULAR(0.025,0.043,0.235) <i>Substance to be treated as List 1</i>
TPH Aromatic C16-21	LOGTRIANGULAR(0.01,0.03,0.183) <i>Substance to be treated as List 1</i>
TPH Aromatic C21-35	LOGTRIANGULAR(0.1,0.184,0.212) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

Based on 2019 HRAR, 2019-2024 monitoring results and LandSim default values. [CHANGED] [CHANGED]

Source concentrations of contaminants*All units in milligrams per litre*

TPH Aromatic C21-35

LOGTRIANGULAR(0.1,0.184,0.212)

Substance to be treated as List 1

Justification for Species Concentration in Leachate

Based on 2019 HRAR, 2019-2024 monitoring results and LandSim default values. [CHANGED] [CHANGED]

Drainage Information

Fixed Head.

Head on EBS is given as (m):

TRIANGULAR(0.25,1,3)

Justification for Specified Head

Based on 2019 HRAR and Permit

Barrier Information

There is a single clay barrier

Justification for Engineered Barrier Type

Based on 2019 HRAR as Cell3A design remains unchanged.

Design thickness of clay (m):

SINGLE(2)

Density of clay (kg/l):

UNDEFINED

Pathway moisture content (fraction):

UNIFORM(0.18,0.22)

Justification for Clay: Liner Thickness

Unjustified value

Hydraulic conductivity of liner (m/s):

LOGTRIANGULAR(1e-010,1e-009,1e-008)

Pathway longitudinal dispersivity (m):

SINGLE(0.2)

Justification for Clay: Hydraulics Properties

Unjustified value

Retardation parameters for clay liner

No retardation values used in this simulation.

Check 'Unretarded Contaminant Transport' setting under simulation preferences.

Glaciofluvial Deposits pathway parameters

Modelled as unsaturated pathway

Pathway length (m):	SINGLE(2)
Flow Model:	porous medium
Pathway moisture content (fraction):	TRIANGULAR(0.05,0.1,0.15)
Pathway Density (kg/l):	UNIFORM(1.7,2.1)

Justification for Unsat Zone Geometry
Unjustified value

Pathway hydraulic conductivity values (m/s):	LOGTRIANGULAR(1e-007,5e-005,0.0001)
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Justification for Unsat Zone Hydraulics Properties
Unjustified value

Pathway longitudinal dispersivity (m):	SINGLE(0.2)
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Justification for Unsat Zone Dispersion Properties
Based on 2010 and 2019 HRARs.

Retardation parameters for Glaciofluvial Deposits pathway

Modelled as unsaturated pathway

Uncertainty in Kd (l/kg):

Ammoniacal_N	LOGUNIFORM(0.5,2)
Chloride	SINGLE(0)
Mercury	LOGUNIFORM(450,3835)
Phenols group 1 - phenol: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,28.8,117)
Phenols group 2 - cresols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(22,158,316)
Phenols group 3 - xylenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(170,430,800)
Phenols group 4 - chlorophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(140,500,3000)
Phenols group 5 - nitrophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,60,500)
TPH Aliphatic C5-6: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(812)
TPH Aliphatic C6-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(3802)
TPH Aliphatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(30200)
TPH Aliphatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(239883)
TPH Aliphatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.37032e+006)
TPH Aliphatic C16-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.75e+008)
TPH Aromatic C5-7: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(67.6)
TPH Aromatic C7-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(204)
TPH Aromatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(1585)
TPH Aromatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(2512)
TPH Aromatic C12-C16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5012)
TPH Aromatic C16-21: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(14125)
TPH Aromatic C21-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(125892)
Fraction of Organic Carbon (fraction)	UNIFORM(0.0005,0.001)

Justification for Kd Values by Species

Based on 2019 HRAR. LandSim default values for mercury, ammoniacal nitrogen and chloride. Literature values for phenols and TPH. [CHANGED] [CHANGED]

Phase: Cell3B**Infiltration Information**

Cap design infiltration (mm/year):	NORMAL(50,20)
Infiltration to waste (mm/year):	NORMAL(650,50)
Infiltration to grassland (mm/year):	NORMAL(350,50)
End of filling (years from start of waste deposit):	20
Start of cap degradation (years from end of waste deposit):	250
End of cap degradation (years from end of waste deposit):	1000

Justification for Specified Infiltration

Based on 2019 HRA. Default LandSim values.

Duration of management control (years from the start of waste disposal): 30

Leachate recirculated AND TREATED (m³/hr for this phase) SINGLE(0.5)

Cell dimensions

Cell width (m):	58
Cell length (m):	70
Cell top area (ha):	1.1
Cell base area (ha):	0.406
Number of cells:	1
Total base area (ha):	0.406
Total top area (ha):	1.1
Head of Leachate when surface water breakout occurs (m)	SINGLE(30)
Waste porosity (fraction)	UNIFORM(0.1,0.15)
Final waste thickness (m):	UNIFORM(10,48)
Field capacity (fraction):	UNIFORM(0.2,0.4)
Waste dry density (kg/l)	UNIFORM(1,1.2)

Justification for Landfill Geometry

Based on 2019 HRAR and LandSim default values.

Source concentrations of contaminants

All units in milligrams per litre

Declining source term

Ammoniacal_N	LOGTRIANGULAR(1700,2371,4490) <i>Substance to be treated as List 1</i>
Chloride	LOGTRIANGULAR(133,2058,4670) <i>Substance to be treated as List 1</i>
Mercury	LOGTRIANGULAR(5e-006,0.000287,0.00175) <i>Substance to be treated as List 1</i>
Phenols group 1 - phenol	LOGTRIANGULAR(0.88,4.2,7.8) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols	LOGTRIANGULAR(2.6,10.3,16.8) <i>Substance to be treated as List 1</i>
Phenols group 3 - xylenols	LOGTRIANGULAR(0.006,0.311,1.17) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols	LOGTRIANGULAR(0.006,0.134,0.522) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols	SINGLE(0.001) <i>Substance to be treated as List 1</i>
TPH Aliphatic C5-6	LOGTRIANGULAR(0.164,0.181,0.231) <i>Substance to be treated as List 1</i>
TPH Aliphatic C6-8	LOGTRIANGULAR(0.046,0.059,0.096) <i>Substance to be treated as List 1</i>
TPH Aliphatic C8-10	LOGTRIANGULAR(0.036,0.045,0.07) <i>Substance to be treated as List 1</i>
TPH Aliphatic C10-12	LOGTRIANGULAR(0.057,0.065,0.09) <i>Substance to be treated as List 1</i>
TPH Aliphatic C12-16	LOGTRIANGULAR(0.005,0.031,0.1) <i>Substance to be treated as List 1</i>
TPH Aliphatic C16-35	LOGTRIANGULAR(0.005,0.008,0.01) <i>Substance to be treated as List 1</i>
TPH Aromatic C5-7	LOGTRIANGULAR(0.01,0.011,0.011) <i>Substance to be treated as List 1</i>
TPH Aromatic C7-8	LOGTRIANGULAR(0.005,0.009,0.011) <i>Substance to be treated as List 1</i>
TPH Aromatic C8-10	LOGTRIANGULAR(0.058,0.066,0.088) <i>Substance to be treated as List 1</i>
TPH Aromatic C10-12	LOGTRIANGULAR(0.038,0.044,0.06) <i>Substance to be treated as List 1</i>
TPH Aromatic C12-C16	LOGTRIANGULAR(0.114,0.14,0.149) <i>Substance to be treated as List 1</i>
TPH Aromatic C16-21	LOGTRIANGULAR(0.005,0.031,0.1) <i>Substance to be treated as List 1</i>
TPH Aromatic C21-35	LOGTRIANGULAR(0.005,0.058,0.208) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

Unjustified value

Source concentrations of contaminants

All units in milligrams per litre

TPH Aromatic C21-35

LOGTRIANGULAR(0.005,0.058,0.208)
Substance to be treated as List 1

Justification for Species Concentration in Leachate
Unjustified value

Drainage Information

Fixed Head.
Head on EBS is given as (m):

TRIANGULAR(0.25,1,3)

Justification for Specified Head
Unjustified value

Barrier Information

There is a composite barrier

Justification for Engineered Barrier Type

Unjustified value

Liner installed under CQA

Design thickness of clay (m): UNIFORM(0.3,0.35)

Density of clay (kg/l): UNDEFINED

Pathway moisture content (fraction): UNIFORM(0.18,0.22)

Onset of FML degradation (years since filling commenced) 150

Pathway longitudinal dispersivity (m): UNIFORM(0.03,0.035)

Time for area of defects to double (years) 100

Membrane defects (number per hectare):

Pin holes: Minimum 0, Maximum 5

Holes: Minimum 0, Maximum 2

Tears: Minimum 0, Most Likely 0.0001, Maximum 0.0001

The most likely value for the PDFs representing the density of pinholes and holes will move from the minimum value selected above to the maximum value selected above over the time period before FML degradation commences

Justification for Composite: Flexible Membrane Liner

Unjustified value

Hydraulic conductivity of mineral lower liner (m/s): LOGUNIFORM(4e-011,1e-010)

Justification for Composite: Clay or BES Substrate Properties

Unjustified value

Retardation parameters for clay liner

No retardation values used in this simulation.

Check 'Unretarded Contaminant Transport' setting under simulation preferences.

Glaciofluvial Deposits pathway parameters

Modelled as unsaturated pathway

Pathway length (m):	SINGLE(2)
Flow Model:	porous medium
Pathway moisture content (fraction):	TRIANGULAR(0.05,0.1,0.15)
Pathway Density (kg/l):	UNIFORM(1.7,2.1)

Justification for Unsat Zone Geometry
Unjustified value

Pathway hydraulic conductivity values (m/s):	TRIANGULAR(1e-007,5e-005,0.0001)
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Justification for Unsat Zone Hydraulics Properties
Unjustified value

Pathway longitudinal dispersivity (m):	SINGLE(0.2)
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Justification for Unsat Zone Dispersion Properties
Unjustified value

Retardation parameters for Glaciofluvial Deposits pathway

Modelled as unsaturated pathway

Uncertainty in Kd (l/kg):

Ammoniacal_N	LOGUNIFORM(0.5,2)
Chloride	SINGLE(0)
Mercury	LOGUNIFORM(450,3835)
Phenols group 1 - phenol: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,28.8,117)
Phenols group 2 - cresols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(22,158,316)
Phenols group 3 - xylenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(170,430,800)
Phenols group 4 - chlorophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(140,500,3000)
Phenols group 5 - nitrophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,60,500)
TPH Aliphatic C5-6: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(812)
TPH Aliphatic C6-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(3802)
TPH Aliphatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(30200)
TPH Aliphatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(239883)
TPH Aliphatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.37032e+006)
TPH Aliphatic C16-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.75e+008)
TPH Aromatic C5-7: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(67.6)
TPH Aromatic C7-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(204)
TPH Aromatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(1585)
TPH Aromatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(2512)
TPH Aromatic C12-C16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5012)
TPH Aromatic C16-21: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(14125)
TPH Aromatic C21-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(125892)
Fraction of Organic Carbon (fraction)	UNIFORM(0.0005,0.001)

Justification for Kd Values by Species

Unjustified value

Aquifer Pathway Dimensions for Phase

Pathway length (m):

UNIFORM(601,671)

Phase: Cell3C**Infiltration Information**

Cap design infiltration (mm/year):	NORMAL(50,20)
Infiltration to waste (mm/year):	NORMAL(650,50)
Infiltration to grassland (mm/year):	NORMAL(350,50)
End of filling (years from start of waste deposit):	20
Start of cap degradation (years from end of waste deposit):	250
End of cap degradation (years from end of waste deposit):	1000

Justification for Specified Infiltration

Unjustified value

Duration of management control (years from the start of waste disposal): 30

Leachate recirculated AND TREATED (m³/hr for this phase) SINGLE(0.5)**Cell dimensions**

Cell width (m):	33
Cell length (m):	70
Cell top area (ha):	1.4
Cell base area (ha):	0.231
Number of cells:	1
Total base area (ha):	0.231
Total top area (ha):	1.4
Head of Leachate when surface water breakout occurs (m)	SINGLE(30)
Waste porosity (fraction)	UNIFORM(0.1,0.15)
Final waste thickness (m):	UNIFORM(10,46)
Field capacity (fraction):	UNIFORM(0.2,0.4)
Waste dry density (kg/l)	UNIFORM(1,1.2)

Justification for Landfill Geometry

Unjustified value

Source concentrations of contaminants*All units in milligrams per litre*

Declining source term

Ammoniacal_N	LOGTRIANGULAR(1710,2354,4840) <i>Substance to be treated as List 1</i>
Chloride	LOGTRIANGULAR(133,2058,4670) <i>Substance to be treated as List 1</i>
Mercury	LOGTRIANGULAR(5e-006,0.000287,0.00175) <i>Substance to be treated as List 1</i>
Phenols group 1 - phenol	LOGTRIANGULAR(6.2,6.84,7.48) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols	LOGTRIANGULAR(0.1,0.377,1.11) <i>Substance to be treated as List 1</i>
Phenols group 3 - xylenols	LOGTRIANGULAR(0.08,0.176,0.25) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols	LOGTRIANGULAR(0.001,0.014,0.055) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols	LOGTRIANGULAR(0.001,0.014,0.055) <i>Substance to be treated as List 1</i>
TPH Aliphatic C5-6	SINGLE(0.266) <i>Substance to be treated as List 1</i>
TPH Aliphatic C6-8	SINGLE(0.082) <i>Substance to be treated as List 1</i>
TPH Aliphatic C8-10	LOGTRIANGULAR(0.042,0.071,0.08) <i>Substance to be treated as List 1</i>
TPH Aliphatic C10-12	LOGTRIANGULAR(0.068,0.097,0.106) <i>Substance to be treated as List 1</i>
TPH Aliphatic C12-16	LOGTRIANGULAR(0.039,0.054,0.1) <i>Substance to be treated as List 1</i>
TPH Aliphatic C16-35	LOGTRIANGULAR(0.005,0.008,0.01) <i>Substance to be treated as List 1</i>
TPH Aromatic C5-7	LOGTRIANGULAR(0.012,0.013,0.013) <i>Substance to be treated as List 1</i>
TPH Aromatic C7-8	SINGLE(0.01) <i>Substance to be treated as List 1</i>
TPH Aromatic C8-10	LOGTRIANGULAR(0.104,0.151,0.166) <i>Substance to be treated as List 1</i>
TPH Aromatic C10-12	LOGTRIANGULAR(0.045,0.065,0.071) <i>Substance to be treated as List 1</i>
TPH Aromatic C12-C16	LOGTRIANGULAR(0.1,0.127,0.136) <i>Substance to be treated as List 1</i>
TPH Aromatic C16-21	LOGTRIANGULAR(0.1,0.181,0.208) <i>Substance to be treated as List 1</i>
TPH Aromatic C21-35	LOGTRIANGULAR(0.099,0.09925,0.1) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

Unjustified value

Source concentrations of contaminants

All units in milligrams per litre

TPH Aromatic C21-35
LOGTRIANGULAR(0.099,0.09925,0.1)
Substance to be treated as List 1

Justification for Species Concentration in Leachate
Unjustified value

Drainage Information

Fixed Head.
Head on EBS is given as (m):
TRIANGULAR(0.25,1,3)

Justification for Specified Head
Unjustified value

Barrier Information

There is a composite barrier

Justification for Engineered Barrier Type

Unjustified value

Liner installed under CQA

Design thickness of clay (m): UNIFORM(0.3,0.35)

Density of clay (kg/l): UNDEFINED

Pathway moisture content (fraction): UNIFORM(0.18,0.22)

Onset of FML degradation (years since filling commenced) 150

Pathway longitudinal dispersivity (m): UNIFORM(0.03,0.035)

Time for area of defects to double (years) 100

Membrane defects (number per hectare):

Pin holes: Minimum 0, Maximum 5

Holes: Minimum 0, Maximum 2

Tears: Minimum 0, Most Likely 0.0001, Maximum 0.0001

The most likely value for the PDFs representing the density of pinholes and holes will move from the minimum value selected above to the maximum value selected above over the time period before FML degradation commences

Justification for Composite: Flexible Membrane Liner

Unjustified value

Hydraulic conductivity of mineral lower liner (m/s): LOGUNIFORM(4e-011,1e-010)

Justification for Composite: Clay or BES Substrate Properties

Unjustified value

Retardation parameters for clay liner

No retardation values used in this simulation.

Check 'Unretarded Contaminant Transport' setting under simulation preferences.

Glaciofluvial Deposits pathway parameters

Modelled as unsaturated pathway

Pathway length (m):	SINGLE(2)
Flow Model:	porous medium
Pathway moisture content (fraction):	TRIANGULAR(0.05,0.1,0.15)
Pathway Density (kg/l):	UNIFORM(1.7,2.1)

Justification for Unsat Zone Geometry
Unjustified value

Pathway hydraulic conductivity values (m/s):	LOGTRIANGULAR(1e-007,5e-005,0.0001)
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Justification for Unsat Zone Hydraulics Properties
Unjustified value

Pathway longitudinal dispersivity (m):	SINGLE(0.2)
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Justification for Unsat Zone Dispersion Properties
Unjustified value

Retardation parameters for Glaciofluvial Deposits pathway

Modelled as unsaturated pathway

Uncertainty in Kd (l/kg):

Ammoniacal_N	LOGUNIFORM(0.5,2)
Chloride	SINGLE(0)
Mercury	LOGUNIFORM(450,3835)
Phenols group 1 - phenol: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,28.8,117)
Phenols group 2 - cresols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(22,158,316)
Phenols group 3 - xylenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(170,430,800)
Phenols group 4 - chlorophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(140,500,3000)
Phenols group 5 - nitrophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,60,500)
TPH Aliphatic C5-6: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(812)
TPH Aliphatic C6-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(3802)
TPH Aliphatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(30200)
TPH Aliphatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(239883)
TPH Aliphatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.37032e+006)
TPH Aliphatic C16-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.75e+008)
TPH Aromatic C5-7: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(67.6)
TPH Aromatic C7-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(204)
TPH Aromatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(1585)
TPH Aromatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(2512)
TPH Aromatic C12-C16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5012)
TPH Aromatic C16-21: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(14125)
TPH Aromatic C21-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(125892)
Fraction of Organic Carbon (fraction)	UNIFORM(0.0005,0.001)

Justification for Kd Values by Species

Unjustified value

Aquifer Pathway Dimensions for Phase

Pathway length (m):

UNIFORM(601,671)

Phase: Cell4A**Infiltration Information**

Cap design infiltration (mm/year):	NORMAL(50,20)
Infiltration to waste (mm/year):	NORMAL(650,50)
Infiltration to grassland (mm/year):	NORMAL(350,50)
End of filling (years from start of waste deposit):	20
Start of cap degradation (years from end of waste deposit):	250
End of cap degradation (years from end of waste deposit):	1000

Justification for Specified Infiltration

Unjustified value

Duration of management control (years from the start of waste disposal): 30

Leachate recirculated AND TREATED (m³/hr for this phase) SINGLE(0.5)**Cell dimensions**

Cell width (m):	78
Cell length (m):	58
Cell top area (ha):	2
Cell base area (ha):	0.4524
Number of cells:	1
Total base area (ha):	0.4524
Total top area (ha):	2
Head of Leachate when surface water breakout occurs (m)	SINGLE(16)
Waste porosity (fraction)	UNIFORM(0.1,0.15)
Final waste thickness (m):	UNIFORM(10,43)
Field capacity (fraction):	UNIFORM(0.2,0.4)
Waste dry density (kg/l)	UNIFORM(1,1.2)

Justification for Landfill Geometry

Unjustified value

Source concentrations of contaminants*All units in milligrams per litre*

Declining source term

Ammoniacal_N	LOGTRIANGULAR(1680,1995,2690) <i>Substance to be treated as List 1</i>
Chloride	LOGTRIANGULAR(133,2058,4670) <i>Substance to be treated as List 1</i>
Mercury	LOGTRIANGULAR(5e-006,0.000287,0.00175) <i>Substance to be treated as List 1</i>
Phenols group 1 - phenol	LOGTRIANGULAR(0.02,0.32,1.1) <i>Substance to be treated as List 1</i>
Phenols group 2 - cresols	LOGTRIANGULAR(0.008,2.58,9.13) <i>Substance to be treated as List 1</i>
Phenols group 3 - xylenols	LOGTRIANGULAR(0.05,0.15,0.33) <i>Substance to be treated as List 1</i>
Phenols group 4 - chlorophenols	LOGTRIANGULAR(0.001,0.002,0.01) <i>Substance to be treated as List 1</i>
Phenols group 5 - nitrophenols	SINGLE(0.001) <i>Substance to be treated as List 1</i>
TPH Aliphatic C5-6	LOGTRIANGULAR(0.268,0.277,0.316) <i>Substance to be treated as List 1</i>
TPH Aliphatic C6-8	LOGTRIANGULAR(0.077,0.087,0.112) <i>Substance to be treated as List 1</i>
TPH Aliphatic C8-10	LOGTRIANGULAR(0.068,0.078,0.108) <i>Substance to be treated as List 1</i>
TPH Aliphatic C10-12	LOGTRIANGULAR(0.137,0.162,0.186) <i>Substance to be treated as List 1</i>
TPH Aliphatic C12-16	LOGTRIANGULAR(0.039,0.054,0.1) <i>Substance to be treated as List 1</i>
TPH Aliphatic C16-35	LOGTRIANGULAR(0.01,0.063,0.685) <i>Substance to be treated as List 1</i>
TPH Aromatic C5-7	LOGTRIANGULAR(0.007,0.01,0.01) <i>Substance to be treated as List 1</i>
TPH Aromatic C7-8	LOGTRIANGULAR(0.005,0.012,0.023) <i>Substance to be treated as List 1</i>
TPH Aromatic C8-10	LOGTRIANGULAR(0.117,0.138,0.201) <i>Substance to be treated as List 1</i>
TPH Aromatic C10-12	LOGTRIANGULAR(0.091,0.108,0.124) <i>Substance to be treated as List 1</i>
TPH Aromatic C12-C16	LOGTRIANGULAR(0.1,0.129,0.138) <i>Substance to be treated as List 1</i>
TPH Aromatic C16-21	LOGTRIANGULAR(0.05,0.065,0.127) <i>Substance to be treated as List 1</i>
TPH Aromatic C21-35	LOGTRIANGULAR(0.05,0.066,0.183) <i>Substance to be treated as List 1</i>

Justification for Species Concentration in Leachate

Unjustified value

Source concentrations of contaminants

All units in milligrams per litre

TPH Aromatic C21-35

LOGTRIANGULAR(0.05,0.066,0.183)
Substance to be treated as List 1

Justification for Species Concentration in Leachate
Unjustified value

Drainage Information

Fixed Head.
Head on EBS is given as (m):

TRIANGULAR(0.25,1,3)

Justification for Specified Head
Unjustified value

Barrier Information

There is a composite barrier

Justification for Engineered Barrier Type

Unjustified value

Liner installed under CQA

Design thickness of clay (m): UNIFORM(0.3,0.35)

Density of clay (kg/l): UNDEFINED

Pathway moisture content (fraction): UNIFORM(0.18,0.22)

Onset of FML degradation (years since filling commenced) 150

Pathway longitudinal dispersivity (m): UNIFORM(0.03,0.035)

Time for area of defects to double (years) 100

Membrane defects (number per hectare):

Pin holes: Minimum 0, Maximum 5

Holes: Minimum 0, Maximum 2

Tears: Minimum 0, Most Likely 0.0001, Maximum 0.0001

The most likely value for the PDFs representing the density of pinholes and holes will move from the minimum value selected above to the maximum value selected above over the time period before FML degradation commences

Justification for Composite: Flexible Membrane Liner

Unjustified value

Hydraulic conductivity of mineral lower liner (m/s): LOGUNIFORM(4e-011,1e-010)

Justification for Composite: Clay or BES Substrate Properties

Unjustified value

Retardation parameters for clay liner

No retardation values used in this simulation.

Check 'Unretarded Contaminant Transport' setting under simulation preferences.

Glaciofluvial Deposits pathway parameters

Modelled as unsaturated pathway

Pathway length (m):	SINGLE(2)
Flow Model:	porous medium
Pathway moisture content (fraction):	TRIANGULAR(0.05,0.1,0.15)
Pathway Density (kg/l):	UNIFORM(1.7,2.1)

Justification for Unsat Zone Geometry
Unjustified value

Pathway hydraulic conductivity values (m/s):	LOGTRIANGULAR(1e-007,5e-005,0.0001)
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Justification for Unsat Zone Hydraulics Properties
Unjustified value

Pathway longitudinal dispersivity (m):	SINGLE(0.2)
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Justification for Unsat Zone Dispersion Properties
Unjustified value

Retardation parameters for Glaciofluvial Deposits pathway

Modelled as unsaturated pathway

Uncertainty in Kd (l/kg):

Ammoniacal_N	LOGUNIFORM(0.5,2)
Chloride	SINGLE(0)
Mercury	LOGUNIFORM(450,3835)
Phenols group 1 - phenol: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,28.8,117)
Phenols group 2 - cresols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(22,158,316)
Phenols group 3 - xylenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(170,430,800)
Phenols group 4 - chlorophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(140,500,3000)
Phenols group 5 - nitrophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,60,500)
TPH Aliphatic C5-6: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(812)
TPH Aliphatic C6-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(3802)
TPH Aliphatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(30200)
TPH Aliphatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(239883)
TPH Aliphatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.37032e+006)
TPH Aliphatic C16-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.75e+008)
TPH Aromatic C5-7: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(67.6)
TPH Aromatic C7-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(204)
TPH Aromatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(1585)
TPH Aromatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(2512)
TPH Aromatic C12-C16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5012)
TPH Aromatic C16-21: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(14125)
TPH Aromatic C21-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(125892)
Fraction of Organic Carbon (fraction)	UNIFORM(0.0005,0.001)

Justification for Kd Values by Species

Unjustified value

Aquifer Pathway Dimensions for Phase

Pathway length (m):

UNIFORM(671,729)

Phase: Cell4B**Infiltration Information**

Cap design infiltration (mm/year):	NORMAL(50,20)
Infiltration to waste (mm/year):	NORMAL(650,50)
Infiltration to grassland (mm/year):	NORMAL(350,50)
End of filling (years from start of waste deposit):	20
Start of cap degradation (years from end of waste deposit):	250
End of cap degradation (years from end of waste deposit):	1000

Justification for Specified Infiltration

Unjustified value

Duration of management control (years from the start of waste disposal): 30

Leachate recirculated AND TREATED (m³/hr for this phase) SINGLE(0.5)**Cell dimensions**

Cell width (m):	78
Cell length (m):	42
Cell top area (ha):	1.5
Cell base area (ha):	0.3276
Number of cells:	1
Total base area (ha):	0.3276
Total top area (ha):	1.5
Head of Leachate when surface water breakout occurs (m)	SINGLE(11)
Waste porosity (fraction)	UNIFORM(0.1,0.15)
Final waste thickness (m):	UNIFORM(16.6,26.6)
Field capacity (fraction):	UNIFORM(0.2,0.4)
Waste dry density (kg/l)	UNIFORM(1,1.2)

Justification for Landfill Geometry

Unjustified value

Source concentrations of contaminants*All units in milligrams per litre*

Declining source term

Ammoniacal_N

LOGTRIANGULAR(43,968,1790)

Substance to be treated as List 1

Chloride

LOGTRIANGULAR(133,2058,4670)

Substance to be treated as List 1

Mercury

LOGTRIANGULAR(5e-006,0.000287,0.00175)

Substance to be treated as List 1

Phenols group 1 - phenol

LOGTRIANGULAR(0.08,8,20.1)

Substance to be treated as List 1

Phenols group 2 - cresols

LOGTRIANGULAR(0.01,1.31,3.87)

Substance to be treated as List 1

Phenols group 3 - xylenols

LOGTRIANGULAR(0.01,0.14,0.55)

Substance to be treated as List 1

Phenols group 4 - chlorophenols

LOGTRIANGULAR(0.01,0.05,0.1)

Substance to be treated as List 1

Phenols group 5 - nitrophenols

LOGTRIANGULAR(0.01,0.05,0.1)

Substance to be treated as List 1

TPH Aliphatic C5-6

LOGTRIANGULAR(0.005,0.009,0.01)

Substance to be treated as List 1

TPH Aliphatic C6-8

LOGTRIANGULAR(0.005,0.009,0.01)

Substance to be treated as List 1

TPH Aliphatic C8-10

LOGTRIANGULAR(0.005,0.009,0.01)

Substance to be treated as List 1

TPH Aliphatic C10-12

LOGTRIANGULAR(0.005,0.009,0.01)

Substance to be treated as List 1

TPH Aliphatic C12-16

LOGTRIANGULAR(0.005,0.009,0.01)

Substance to be treated as List 1

TPH Aliphatic C16-35

LOGTRIANGULAR(0.005,0.008,0.01)

Substance to be treated as List 1

TPH Aromatic C5-7

LOGTRIANGULAR(0.005,0.009,0.01)

Substance to be treated as List 1

TPH Aromatic C7-8

LOGTRIANGULAR(0.005,0.009,0.01)

Substance to be treated as List 1

TPH Aromatic C8-10

LOGTRIANGULAR(0.005,0.009,0.01)

Substance to be treated as List 1

TPH Aromatic C10-12

LOGTRIANGULAR(0.005,0.009,0.01)

Substance to be treated as List 1

TPH Aromatic C12-C16

LOGTRIANGULAR(0.005,0.009,0.012)

Substance to be treated as List 1

TPH Aromatic C16-21

LOGTRIANGULAR(0.005,0.01,0.013)

Substance to be treated as List 1

TPH Aromatic C21-35

LOGTRIANGULAR(0.005,0.014,0.031)

Substance to be treated as List 1

Justification for Species Concentration in Leachate

Unjustified value

Source concentrations of contaminants

All units in milligrams per litre

TPH Aromatic C21-35

LOGTRIANGULAR(0.005,0.014,0.031)
Substance to be treated as List 1

Justification for Species Concentration in Leachate
Unjustified value

Drainage Information

Fixed Head.
Head on EBS is given as (m):

TRIANGULAR(0.25,1,3)

Justification for Specified Head
Unjustified value

Barrier Information

There is a composite barrier

Justification for Engineered Barrier Type

Unjustified value

Liner installed under CQA

Design thickness of clay (m):

SINGLE(0.5)

Density of clay (kg/l):

UNDEFINED

Pathway moisture content (fraction):

UNIFORM(0.18,0.22)

Onset of FML degradation (years since filling commenced)

150

Pathway longitudinal dispersivity (m):

SINGLE(0.05)

Time for area of defects to double (years)

100

Membrane defects (number per hectare):

Pin holes:

Minimum 0, Maximum 5

Holes:

Minimum 0, Maximum 2

Tears:

Minimum 0, Most Likely 0.0001, Maximum 0.0001

The most likely value for the PDFs representing the density of pinholes and holes will move from the minimum value selected above to the maximum value selected above over the time period before FML degradation commences

Justification for Composite: Flexible Membrane Liner

Unjustified value

Hydraulic conductivity of mineral lower liner (m/s):

SINGLE(5e-010)

Justification for Composite: Clay or BES Substrate Properties

Unjustified value

Retardation parameters for clay liner

No retardation values used in this simulation.

Check 'Unretarded Contaminant Transport' setting under simulation preferences.

Glaciofluvial Deposits pathway parameters

Modelled as unsaturated pathway

Pathway length (m):	SINGLE(2)
Flow Model:	porous medium
Pathway moisture content (fraction):	TRIANGULAR(0.05,0.1,0.15)
Pathway Density (kg/l):	UNIFORM(1.7,2.1)

Justification for Unsat Zone Geometry
Unjustified value

Pathway hydraulic conductivity values (m/s):	LOGTRIANGULAR(1e-007,5e-005,0.0001)
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Justification for Unsat Zone Hydraulics Properties
Unjustified value

Pathway longitudinal dispersivity (m):	SINGLE(0.2)
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Justification for Unsat Zone Dispersion Properties
Unjustified value

Retardation parameters for Glaciofluvial Deposits pathway

Modelled as unsaturated pathway

Uncertainty in Kd (l/kg):

Ammoniacal_N	LOGUNIFORM(0.5,2)
Chloride	SINGLE(0)
Mercury	LOGUNIFORM(450,3585)
Phenols group 1 - phenol: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,28.8,117)
Phenols group 2 - cresols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(22,158,316)
Phenols group 3 - xylenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(170,430,800)
Phenols group 4 - chlorophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(140,500,3000)
Phenols group 5 - nitrophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,60,500)
TPH Aliphatic C5-6: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(812)
TPH Aliphatic C6-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(3802)
TPH Aliphatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(30200)
TPH Aliphatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(239883)
TPH Aliphatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.37032e+006)
TPH Aliphatic C16-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.75e+008)
TPH Aromatic C5-7: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(67.6)
TPH Aromatic C7-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(204)
TPH Aromatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(1585)
TPH Aromatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(2512)
TPH Aromatic C12-C16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5012)
TPH Aromatic C16-21: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(14125)
TPH Aromatic C21-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(125892)
Fraction of Organic Carbon (fraction)	UNIFORM(0.0005,0.001)

Justification for Kd Values by Species

Unjustified value

Aquifer Pathway Dimensions for Phase

Pathway length (m):

UNIFORM(729,771)

Sherwood Sandstone pathway parameters

Modelled as aquifer pathway.

Mixing zone (m): UNIFORM(1,6)

Justification for Aquifer Geometry

Unjustified value

Pathway regional gradient (-): TRIANGULAR(0.002,0.004,0.01)

Pathway hydraulic conductivity values (m/s): LOGTRIANGULAR(1e-007,5e-005,0.0001)

Pathway porosity (fraction): UNIFORM(0.2,0.3)

Justification for Aquifer Hydraulics Properties

Unjustified value

Pathway longitudinal dispersivity (m): UNIFORM(50,90)

Pathway transverse dispersivity (m): UNIFORM(15,25)

Justification for Aquifer Dispersion Details

Estimate based on 10% pathway length longitudinal and 3% for transverse dispersivity.

Retardation parameters for Sherwood Sandstone pathway

Modelled as aquifer pathway.

Uncertainty in Kd (l/kg):

Ammoniacal_N	LOGUNIFORM(0.5,2)
Chloride	SINGLE(0)
Mercury	LOGUNIFORM(430,3835)
Phenols group 1 - phenol: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,28.8,117)
Phenols group 2 - cresols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(22,158,316)
Phenols group 3 - xylenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(170,430,800)
Phenols group 4 - chlorophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(140,500,3000)
Phenols group 5 - nitrophenols: Calculated kd	
Partition to Organic Carbon ml/g	TRIANGULAR(10,60,500)
TPH Aliphatic C5-6: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(812)
TPH Aliphatic C6-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(3802)
TPH Aliphatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(30200)
TPH Aliphatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(239883)
TPH Aliphatic C12-16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.37032e+006)
TPH Aliphatic C16-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5.75e+008)
TPH Aromatic C5-7: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(67.6)
TPH Aromatic C7-8: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(204)
TPH Aromatic C8-10: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(1585)
TPH Aromatic C10-12: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(2512)
TPH Aromatic C12-C16: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(5012)
TPH Aromatic C16-21: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(14125)
TPH Aromatic C21-35: Calculated kd	
Partition to Organic Carbon ml/g	SINGLE(125892)
Fraction of Organic Carbon (fraction)	UNIFORM(0.0005,0.001)

Justification for Aquifer Kd Values by Species

Based on 2019 HRAR. LandSim default values for mercury, ammoniacal nitrogen and chloride. Literature values for phenols and TPH.

Pathway Density (kg/l):

UNIFORM(1.6,1.8)

APPENDIX 9

LandSim Model Files (Electronic Appendix)

APPENDIX 10

LandSim Model Results

Table A10.1 – Sherwood Sandstone (LandSim) Modelled Concentrations

Figure A10.1 – LandSim Hydraulic Results

Concentration of Ammoniacal_N in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.42369E-013

90% of values less than 8.3143E-006

95% of values less than 0.000702341

99% of values less than 0.21186

Minimum 0

Maximum 25.3666

Mean 0.0555086

Std. Dev. 0.918468

Variance 0.843583

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 2.09257E-016

50% of values less than 0.000782387

90% of values less than 17.1924

95% of values less than 59.6878

99% of values less than 337.74

Minimum 0

Maximum 3560.03

Mean 20.3717

Std. Dev. 150.227

Variance 22568

At 300 years

01% of values less than 9.62573E-014

05% of values less than 1.00938E-007

10% of values less than 0.0231257

50% of values less than 31.2346

90% of values less than 464.918

95% of values less than 993.659

99% of values less than 5147.41

Minimum 0

Maximum 47227.1

Mean 385.366

Std. Dev. 2471.74

Variance 6.10952E+006

At 1000 years

01% of values less than 5.02758E-007

05% of values less than 2.34634

10% of values less than 8.57066

50% of values less than 79.7864

90% of values less than 1027.05

95% of values less than 2519.83

99% of values less than 9065.46

Minimum 2.80828E-012

Maximum 64967.5

Mean 657.66

Std. Dev. 3213.73

Variance 1.03281E+007

Concentration of Ammoniacal_N in groundwater [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.10869E-012

95% of values less than 3.87031E-010

99% of values less than 0.00463571

Minimum 0

Maximum 0.289589

Mean 0.000604877

Std. Dev. 0.0100912

Variance 0.000101832

Concentration of Chloride in groundwater [mg/l]

At 30 years

01% of values less than 6.05799E-016

05% of values less than 5.22363E-014

10% of values less than 2.70456E-012

50% of values less than 0.0319422

90% of values less than 10.5063

95% of values less than 36.4452

99% of values less than 404.767

Minimum 0

Maximum 5816.81

Mean 18.3901

Std. Dev. 197.815

Variance 39130.9

At 100 years

01% of values less than 0

05% of values less than 2.8349E-005

10% of values less than 0.20489

50% of values less than 10.2376

90% of values less than 161.385

95% of values less than 484.921

99% of values less than 2575.69

Minimum 0

Maximum 20928.9

Mean 162.003

Std. Dev. 1031.11

Variance 1.06319E+006

At 300 years

01% of values less than 0.250338

05% of values less than 1.49653

10% of values less than 3.06952

50% of values less than 20.3563

90% of values less than 236.141

95% of values less than 528.395

99% of values less than 2876.49

Minimum 4.9247E-011

Maximum 14751

Mean 168.058

Std. Dev. 821.7

Variance 675192

At 1000 years

01% of values less than 0.0451726

05% of values less than 0.265719

10% of values less than 0.522479

50% of values less than 5.66616

90% of values less than 86.1728

95% of values less than 188.678

99% of values less than 937.842

Minimum 0.00197061

Maximum 6253.92

Mean 53.2269

Std. Dev. 270.193

Variance 73004.1

Concentration of Chloride in groundwater [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 5.48523E-016

90% of values less than 1.48988E-013

95% of values less than 2.65492E-013

99% of values less than 1.90047E-008

Minimum 0

Maximum 0.000403811

Mean 4.27187E-007

Std. Dev. 1.27741E-005

Variance 1.63178E-010

Concentration of Mercury in groundwater [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

Concentration of Mercury in groundwater [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.04026E-008

95% of values less than 1.1843E-006

99% of values less than 9.69012E-005

Minimum 0

Maximum 0.00775591

Mean 1.78933E-005

Std. Dev. 0.000295559

Variance 8.73551E-008

Concentration of Phenols group 1 - phenol in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.55893E-010

90% of values less than 1.54151E-005

95% of values less than 4.97124E-005

99% of values less than 0.000408027

Minimum 0

Maximum 0.0024429

Mean 1.96542E-005

Std. Dev. 0.000139692

Variance 1.95139E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.20809E-014

90% of values less than 1.0644E-007

95% of values less than 1.1123E-006

99% of values less than 1.97684E-005

Minimum 0

Maximum 0.00107633

Mean 2.80121E-006

Std. Dev. 4.63639E-005

Variance 2.14961E-009

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.57108E-017

90% of values less than 6.58644E-011

95% of values less than 4.03916E-010

99% of values less than 8.828E-007

Minimum 0

Maximum 0.00145522

Mean 2.78682E-006

Std. Dev. 5.78977E-005

Variance 3.35214E-009

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.19813E-006

Minimum 0

Maximum 0.00206741

Mean 3.82671E-006

Std. Dev. 8.02283E-005

Variance 6.43657E-009

Concentration of Phenols group 1 - phenol in groundwater [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.19813E-006

Minimum 0

Maximum 0.00206741

Mean 3.82671E-006

Std. Dev. 8.02282E-005

Variance 6.43657E-009

Concentration of Phenols group 2 - cresols in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 5.83219E-015

90% of values less than 5.39354E-009

95% of values less than 3.08845E-008

99% of values less than 5.21631E-007

Minimum 0

Maximum 3.62086E-006

Mean 2.35809E-008

Std. Dev. 1.9629E-007

Variance 3.85298E-014

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.54385E-016

90% of values less than 9.52352E-010

95% of values less than 7.6954E-009

99% of values less than 8.0932E-008

Minimum 0

Maximum 1.50244E-006

Mean 6.45821E-009

Std. Dev. 7.21506E-008

Variance 5.20571E-015

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.7805E-012

95% of values less than 1.38199E-011

99% of values less than 1.89969E-010

Minimum 0

Maximum 1.64293E-006

Mean 1.94055E-009

Std. Dev. 5.24207E-008

Variance 2.74793E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 3.62087E-013

Minimum 0

Maximum 2.17683E-006

Mean 2.56215E-009

Std. Dev. 6.94201E-008

Variance 4.81916E-015

Concentration of Phenols group 2 - cresols in groundwater [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 3.62083E-013

Minimum 0

Maximum 2.17683E-006

Mean 2.56215E-009

Std. Dev. 6.94201E-008

Variance 4.81916E-015

Concentration of Phenols group 3 - xlenols in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.22599E-010

95% of values less than 1.01225E-009

99% of values less than 3.50982E-008

Minimum 0

Maximum 3.37829E-006

Mean 7.88719E-009

Std. Dev. 1.45687E-007

Variance 2.12247E-014

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.03662E-013

95% of values less than 4.57577E-012

99% of values less than 6.37039E-010

Minimum 0

Maximum 1.76406E-006

Mean 2.23742E-009

Std. Dev. 5.70607E-008

Variance 3.25592E-015

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.14514E-016

95% of values less than 2.09519E-015

99% of values less than 2.10059E-013

Minimum 0

Maximum 2.02547E-006

Mean 2.03438E-009

Std. Dev. 6.40192E-008

Variance 4.09846E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 2.68355E-006

Mean 2.69512E-009

Std. Dev. 8.48191E-008

Variance 7.19428E-015

Concentration of Phenols group 3 - xlenols in groundwater [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 2.68355E-006	
Mean 2.69512E-009	Std. Dev. 8.48191E-008	Variance 7.19428E-015

Concentration of Phenols group 4 - chlorophenols in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.68019E-009

95% of values less than 3.37699E-007

99% of values less than 1.77886E-005

Minimum 0

Maximum 0.00282214

Mean 6.4348E-006

Std. Dev. 0.000116324

Variance 1.35313E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.09974E-009

90% of values less than 0.000138891

95% of values less than 0.000464682

99% of values less than 0.00256848

Minimum 0

Maximum 0.0422451

Mean 0.000211931

Std. Dev. 0.00204387

Variance 4.17742E-006

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 6.59957E-007

90% of values less than 3.60865E-005

95% of values less than 9.85909E-005

99% of values less than 0.00108458

Minimum 0

Maximum 0.587349

Mean 0.00112519

Std. Dev. 0.0216253

Variance 0.000467655

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.42305E-014

50% of values less than 5.04449E-008

90% of values less than 6.79512E-006

95% of values less than 2.46981E-005

99% of values less than 0.000461222

Minimum 0

Maximum 0.294412

Mean 0.000444762

Std. Dev. 0.0098065

Variance 9.61674E-005

Concentration of Phenols group 4 - chlorophenols in groundwater [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.37849E-011

95% of values less than 2.01248E-009

99% of values less than 1.46069E-007

Minimum 0

Maximum 5.19056E-007

Mean 5.01621E-009

Std. Dev. 4.01018E-008

Variance 1.60815E-015

Concentration of Phenols group 5 - nitrophenols in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 5.1133E-017

90% of values less than 1.6047E-010

95% of values less than 6.43429E-010

99% of values less than 1.14168E-008

Minimum 0

Maximum 1.45243E-007

Mean 6.40502E-010

Std. Dev. 6.68046E-009

Variance 4.46285E-017

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.04351E-012

95% of values less than 1.68224E-011

99% of values less than 4.10376E-010

Minimum 0

Maximum 7.26418E-008

Mean 1.21276E-010

Std. Dev. 2.47061E-009

Variance 6.10389E-018

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.12832E-015

95% of values less than 3.62551E-014

99% of values less than 8.9868E-013

Minimum 0

Maximum 8.24132E-008

Mean 1.22811E-010

Std. Dev. 2.86625E-009

Variance 8.21539E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.44343E-017

Minimum 0

Maximum 1.09195E-007

Mean 1.66195E-010

Std. Dev. 3.84664E-009

Variance 1.47966E-017

Concentration of Phenols group 5 - nitrophenols in groundwater [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.44339E-017

Minimum 0

Maximum 1.09195E-007

Mean 1.66195E-010

Std. Dev. 3.84664E-009

Variance 1.47966E-017

Concentration of TPH Aliphatic C5-6 in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.11766E-009

95% of values less than 3.59374E-008

99% of values less than 1.14991E-006

Minimum 0

Maximum 3.39469E-005

Mean 1.03467E-007

Std. Dev. 1.31204E-006

Variance 1.72146E-012

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.4643E-017

90% of values less than 3.54749E-008

95% of values less than 2.15646E-007

99% of values less than 3.60818E-006

Minimum 0

Maximum 0.000633682

Mean 8.02129E-007

Std. Dev. 2.01072E-005

Variance 4.04298E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.99853E-013

95% of values less than 4.17976E-012

99% of values less than 3.35959E-010

Minimum 0

Maximum 2.44955E-006

Mean 5.46409E-009

Std. Dev. 9.37675E-008

Variance 8.79234E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.09725E-013

Minimum 0

Maximum 3.47993E-006

Mean 8.38514E-009

Std. Dev. 1.43976E-007

Variance 2.07291E-014

Concentration of TPH Aliphatic C5-6 in groundwater [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.09661E-013

Minimum 0

Maximum 3.47993E-006

Mean 8.38478E-009

Std. Dev. 1.4397E-007

Variance 2.07275E-014

Concentration of TPH Aliphatic C6-8 in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 4.56442E-016

Minimum 0

Maximum 4.67902E-011

Mean 4.91608E-014

Std. Dev. 1.47974E-012

Variance 2.18962E-024

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.31994E-016

95% of values less than 4.91241E-014

99% of values less than 1.01773E-010

Minimum 0

Maximum 4.22161E-008

Mean 5.60501E-011

Std. Dev. 1.34378E-009

Variance 1.80575E-018

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 6.20857E-016

Minimum 0

Maximum 4.4654E-012

Mean 6.61248E-015

Std. Dev. 1.53873E-013

Variance 2.36769E-026

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 5.6896E-012

Mean 5.95357E-015

Std. Dev. 1.79944E-013

Variance 3.23797E-026

Concentration of TPH Aliphatic C6-8 in groundwater [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 5.6896E-012	
Mean 5.95355E-015	Std. Dev. 1.79944E-013	Variance 3.23797E-026

Concentration of TPH Aliphatic C8-10 in groundwater [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

Concentration of TPH Aliphatic C8-10 in groundwater [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0
- Minimum 0
- Mean 0

Maximum 0
Std. Dev. 0

Variance 0

Concentration of TPH Aliphatic C10-12 in groundwater [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

Concentration of TPH Aliphatic C10-12 in groundwater [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Concentration of TPH Aliphatic C12-16 in groundwater [mg/l]

At 30 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Concentration of TPH Aliphatic C12-16 in groundwater [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0
- Minimum 0
- Mean 0

Maximum 0
Std. Dev. 0

Variance 0

Concentration of TPH Aliphatic C16-35 in groundwater [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

Concentration of TPH Aliphatic C16-35 in groundwater [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0
- Minimum 0
- Mean 0

Maximum 0
Std. Dev. 0

Variance 0

Concentration of TPH Aromatic C5-7 in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.13513E-015

90% of values less than 2.89466E-009

95% of values less than 2.13873E-008

99% of values less than 2.59446E-007

Minimum 0

Maximum 3.91551E-006

Mean 1.8803E-008

Std. Dev. 1.96485E-007

Variance 3.86064E-014

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.60795E-011

95% of values less than 2.19314E-010

99% of values less than 5.8266E-009

Minimum 0

Maximum 1.15042E-006

Mean 1.91132E-009

Std. Dev. 3.80634E-008

Variance 1.44882E-015

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.2047E-014

95% of values less than 2.28546E-013

99% of values less than 1.27798E-011

Minimum 0

Maximum 1.30447E-006

Mean 1.74491E-009

Std. Dev. 4.25584E-008

Variance 1.81121E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.18067E-011

Minimum 0

Maximum 1.72842E-006

Mean 2.35647E-009

Std. Dev. 5.66607E-008

Variance 3.21044E-015

Concentration of TPH Aromatic C5-7 in groundwater [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.18053E-011

Minimum 0

Maximum 1.72842E-006

Mean 2.35646E-009

Std. Dev. 5.66607E-008

Variance 3.21043E-015

Concentration of TPH Aromatic C7-8 in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.23917E-012

95% of values less than 3.0061E-011

99% of values less than 1.38297E-009

Minimum 0

Maximum 1.4167E-007

Mean 2.6593E-010

Std. Dev. 4.74632E-009

Variance 2.25275E-017

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.41308E-015

95% of values less than 1.33703E-013

99% of values less than 5.8709E-011

Minimum 0

Maximum 8.12298E-008

Mean 1.10845E-010

Std. Dev. 2.70473E-009

Variance 7.31558E-018

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 6.3261E-017

99% of values less than 5.22852E-014

Minimum 0

Maximum 9.34165E-008

Mean 9.35434E-011

Std. Dev. 2.95261E-009

Variance 8.71792E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 1.23769E-007

Mean 1.23927E-010

Std. Dev. 3.91198E-009

Variance 1.53036E-017

Concentration of TPH Aromatic C7-8 in groundwater [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0
- Minimum 0
- Mean 1.23927E-010

Maximum 1.23769E-007	
Std. Dev. 3.91198E-009	Variance 1.53036E-017

Concentration of TPH Aromatic C8-10 in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 3.59445E-016

99% of values less than 2.05721E-012

Minimum 0

Maximum 1.57115E-008

Mean 1.58756E-011

Std. Dev. 4.96597E-010

Variance 2.46608E-019

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.08307E-015

99% of values less than 5.18615E-013

Minimum 0

Maximum 9.13912E-009

Mean 1.1751E-011

Std. Dev. 2.98874E-010

Variance 8.93256E-020

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.71703E-017

Minimum 0

Maximum 1.05717E-008

Mean 1.0576E-011

Std. Dev. 3.3414E-010

Variance 1.1165E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 1.40035E-008

Mean 1.40092E-011

Std. Dev. 4.42609E-010

Variance 1.95903E-019

Concentration of TPH Aromatic C8-10 in groundwater [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 1.40035E-008	
Mean 1.40092E-011	Std. Dev. 4.42609E-010	Variance 1.95903E-019

Concentration of TPH Aromatic C10-12 in groundwater [mg/l]

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 4.74676E-014

Minimum 0

Maximum 5.89622E-011

Mean 1.41597E-013

Std. Dev. 2.61583E-012

Variance 6.84256E-024

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.07345E-017

95% of values less than 3.57898E-015

99% of values less than 4.47571E-012

Minimum 0

Maximum 4.15607E-010

Mean 7.02261E-013

Std. Dev. 1.38339E-011

Variance 1.91377E-022

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 5.27375E-011

Mean 5.33986E-014

Std. Dev. 1.66697E-012

Variance 2.7788E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 6.7198E-011

Mean 6.79319E-014

Std. Dev. 2.12403E-012

Variance 4.51152E-024

Concentration of TPH Aromatic C10-12 in groundwater [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0
- Minimum 0
- Mean 6.79319E-014

Maximum 6.7198E-011
Std. Dev. 2.12403E-012
Variance 4.51152E-024

Concentration of TPH Aromatic C12-C16 in groundwater [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 4.50671E-013

Mean 4.51357E-016

Std. Dev. 1.42444E-014

Variance 2.02902E-028

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 1.28802E-015

Minimum 0

Maximum 3.60474E-011

Mean 3.6555E-014

Std. Dev. 1.13938E-012

Variance 1.29818E-024

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 4.12923E-011

Mean 4.12536E-014

Std. Dev. 1.30513E-012

Variance 1.70335E-024

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 5.4658E-011

Mean 5.46062E-014

Std. Dev. 1.72757E-012

Variance 2.98451E-024

Concentration of TPH Aromatic C12-C16 in groundwater [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 5.4658E-011	
Mean 5.46062E-014	Std. Dev. 1.72757E-012	Variance 2.98451E-024

Concentration of TPH Aromatic C16-21 in groundwater [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 2.23903E-015

Minimum 0

Maximum 3.78837E-010

Mean 3.82368E-013

Std. Dev. 1.1974E-011

Variance 1.43376E-022

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 5.95918E-016
99% of values less than 1.2442E-012

Minimum 0

Maximum 1.12862E-009

Mean 2.57977E-012

Std. Dev. 4.76361E-011

Variance 2.2692E-021

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 2.19701E-014
95% of values less than 5.06682E-012
99% of values less than 2.65242E-009

Minimum 0

Maximum 1.35683E-006

Mean 1.72038E-009

Std. Dev. 4.33525E-008

Variance 1.87944E-015

Concentration of TPH Aromatic C16-21 in groundwater [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.56755E-013

95% of values less than 1.36156E-011

99% of values less than 8.95902E-009

Minimum 0

Maximum 3.23525E-006

Mean 6.14345E-009

Std. Dev. 1.22201E-007

Variance 1.4933E-014

Concentration of TPH Aromatic C21-35 in groundwater [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 0

Maximum 0
Std. Dev. 0
Variance 0

Concentration of TPH Aromatic C21-35 in groundwater [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 8.90806E-015	
Mean 8.89916E-018	Std. Dev. 2.81557E-016	Variance 7.92743E-032

Approx. time to Peak Conc. Ammoniacal_N at Offsite Compliance Point [years]

01% of values less than 172

05% of values less than 282

10% of values less than 312

50% of values less than 761

90% of values less than 1249

95% of values less than 1681

99% of values less than 3046

Minimum 100

Maximum 9999

Mean 814.581

Std. Dev. 600.492

Variance 360591

Approx. time to Peak Conc. Chloride at Offsite Compliance Point [years]

01% of values less than 30

05% of values less than 52

10% of values less than 95

50% of values less than 232

90% of values less than 689

95% of values less than 689

99% of values less than 1131

Minimum 17

Maximum 1856

Mean 306.612

Std. Dev. 238.867

Variance 57057.6

Approx. time to Peak Conc. Mercury at Offsite Compliance Point [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 20000

95% of values less than 20000

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 9152.08

Std. Dev. 9954.84

Variance 9.90988E+007

Approx. time to Peak Conc. Phenols group 1 - phenol at Offsite Compliance Point [years]

01% of values less than 0

05% of values less than 17

10% of values less than 21

50% of values less than 70

90% of values less than 86

95% of values less than 86

99% of values less than 100

Minimum 0

Maximum 1024

Mean 64.6823

Std. Dev. 77.0491

Variance 5936.56

Approx. time to Peak Conc. Phenols group 2 - cresols at Offsite Compliance Point [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 70
90% of values less than 86
95% of values less than 95
99% of values less than 232
Minimum 0
Mean 91.6933

Maximum 16406
Std. Dev. 670.723

Variance 449869

Approx. time to Peak Conc. Phenols group 3 - xlenols at Offsite Compliance Point [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 64
90% of values less than 86
95% of values less than 86
99% of values less than 100
Minimum 0
Mean 67.7303

Maximum 18114
Std. Dev. 574.28

Variance 329797

Approx. time to Peak Conc. Phenols group 4 - chlorophenols at Offsite Compliance Point [years]

01% of values less than 78
05% of values less than 100
10% of values less than 116
50% of values less than 282
90% of values less than 2263
95% of values less than 4100
99% of values less than 7428
Minimum 0
Mean 868.89

Maximum 20000
Std. Dev. 1536.25

Variance 2.36007E+006

Approx. time to Peak Conc. Phenols group 5 - nitrophenols at Offsite Compliance Point [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 70
90% of values less than 78
95% of values less than 86
99% of values less than 141
Minimum 0
Mean 71.2308

Maximum 16406
Std. Dev. 522.813

Variance 273333

Approx. time to Peak Conc. TPH Aliphatic C5-6 at Offsite Compliance Point [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 78

90% of values less than 116

95% of values less than 141

99% of values less than 282

Minimum 0

Maximum 11039

Mean 79.2018

Std. Dev. 355.784

Variance 126582

Approx. time to Peak Conc. TPH Aliphatic C6-8 at Offsite Compliance Point [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 116

95% of values less than 141

99% of values less than 172

Minimum 0

Maximum 761

Mean 26.032

Std. Dev. 61.3247

Variance 3760.72

Approx. time to Peak Conc. TPH Aliphatic C8-10 at Offsite Compliance Point [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aliphatic C10-12 at Offsite Compliance Point [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Offsite Compliance Point [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aliphatic C16-35 at Offsite Compliance Point [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aromatic C5-7 at Offsite Compliance Point [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 64
90% of values less than 78
95% of values less than 86
99% of values less than 95

Minimum 0

Maximum 12189

Mean 74.3217

Std. Dev. 545.224

Variance 297269

Approx. time to Peak Conc. TPH Aromatic C7-8 at Offsite Compliance Point [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 17
90% of values less than 78
95% of values less than 78
99% of values less than 86

Minimum 0

Maximum 1131

Mean 32.3866

Std. Dev. 59.6223

Variance 3554.82

Approx. time to Peak Conc. TPH Aromatic C8-10 at Offsite Compliance Point [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 78

95% of values less than 86

99% of values less than 100

Minimum 0

Maximum 624

Mean 15.2727

Std. Dev. 40.4214

Variance 1633.89

Approx. time to Peak Conc. TPH Aromatic C10-12 at Offsite Compliance Point [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 86

95% of values less than 100

99% of values less than 116

Minimum 0

Maximum 761

Mean 18.0919

Std. Dev. 50.3852

Variance 2538.67

Approx. time to Peak Conc. TPH Aromatic C12-C16 at Offsite Compliance Point [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 86

99% of values less than 116

Minimum 0

Maximum 1024

Mean 8.7013

Std. Dev. 54.3149

Variance 2950.11

Approx. time to Peak Conc. TPH Aromatic C16-21 at Offsite Compliance Point [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1856

95% of values less than 9999

99% of values less than 18114

Minimum 0

Maximum 20000

Mean 1135.18

Std. Dev. 3545.15

Variance 1.25681E+007

Approx. time to Peak Conc. TPH Aromatic C21-35 at Offsite Compliance Point [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0
Minimum 0
Mean 2.75624

Maximum 2759
Std. Dev. 87.2036

Variance 7604.48

Phase: Cell3A*Source Concentration of Ammoniacal_N [mg/l]*

At 30 years

01% of values less than 278.976

05% of values less than 419.142

10% of values less than 521.872

50% of values less than 1160.17

90% of values less than 1619.43

95% of values less than 1763.45

99% of values less than 1927.04

Minimum 234.305

Maximum 2148.5

Mean 1116.43

Std. Dev. 408.365

Variance 166762

At 100 years

01% of values less than 194.455

05% of values less than 325.262

10% of values less than 402.108

50% of values less than 1019.89

90% of values less than 1480.37

95% of values less than 1621.88

99% of values less than 1825.63

Minimum 140.608

Maximum 2067.99

Mean 983.271

Std. Dev. 400.21

Variance 160168

At 300 years

01% of values less than 61.2298

05% of values less than 129.384

10% of values less than 178.081

50% of values less than 672.05

90% of values less than 1164.78

95% of values less than 1290.18

99% of values less than 1556.19

Minimum 28.8461

Maximum 1768.36

Mean 673.19

Std. Dev. 367.238

Variance 134864

At 1000 years

01% of values less than 1.05592E-005

05% of values less than 0.000466626

10% of values less than 0.00290859

50% of values less than 2.19658

90% of values less than 27.1473

95% of values less than 38.1876

99% of values less than 68.1094

Minimum 3.95428E-007

Maximum 117.892

Mean 8.9507

Std. Dev. 14.8412

Variance 220.26

Phase: Cell3A

Source Concentration of Ammoniacal_N [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of Chloride [mg/l]*

At 30 years

01% of values less than 7.98797

05% of values less than 18.3561

10% of values less than 30.0716

50% of values less than 148.36

90% of values less than 523.093

95% of values less than 616.634

99% of values less than 930.16

Minimum 3.38838

Maximum 1211.52

Mean 218.178

Std. Dev. 205.552

Variance 42251.7

At 100 years

01% of values less than 3.558

05% of values less than 11.2911

10% of values less than 19.313

50% of values less than 112.637

90% of values less than 431.552

95% of values less than 522.914

99% of values less than 784.95

Minimum 1.69172

Maximum 978.616

Mean 171.61

Std. Dev. 170.304

Variance 29003.6

At 300 years

01% of values less than 0.415871

05% of values less than 1.55796

10% of values less than 3.66068

50% of values less than 47.0789

90% of values less than 236.968

95% of values less than 295.153

99% of values less than 429.702

Minimum 0.0480333

Maximum 711.803

Mean 86.3756

Std. Dev. 103.425

Variance 10696.8

At 1000 years

01% of values less than 4.65123E-015

05% of values less than 5.49058E-012

10% of values less than 5.20748E-010

50% of values less than 0.000351811

90% of values less than 0.0748079

95% of values less than 0.169527

99% of values less than 0.583808

Minimum 2.70149E-018

Maximum 1.41145

Mean 0.0295924

Std. Dev. 0.0989423

Variance 0.00978958

Phase: Cell3A

Source Concentration of Chloride [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A*Source Concentration of Mercury [mg/l]*

At 30 years

01% of values less than 8.61027E-006

05% of values less than 1.41174E-005

10% of values less than 2.16473E-005

50% of values less than 0.00014681

90% of values less than 0.00049618

95% of values less than 0.000658293

99% of values less than 0.000981576

Minimum 5.23855E-006

Maximum 0.00121083

Mean 0.000211855

Std. Dev. 0.00021388

Variance 4.57446E-008

At 100 years

01% of values less than 8.61027E-006

05% of values less than 1.41174E-005

10% of values less than 2.16473E-005

50% of values less than 0.000146279

90% of values less than 0.000476903

95% of values less than 0.000630419

99% of values less than 0.000957837

Minimum 5.23855E-006

Maximum 0.00117832

Mean 0.000207142

Std. Dev. 0.00020675

Variance 4.27457E-008

At 300 years

01% of values less than 8.61027E-006

05% of values less than 1.41174E-005

10% of values less than 2.16473E-005

50% of values less than 0.000141565

90% of values less than 0.000425926

95% of values less than 0.000570429

99% of values less than 0.000872705

Minimum 5.23855E-006

Maximum 0.00107735

Mean 0.000193124

Std. Dev. 0.000186002

Variance 3.45967E-008

At 1000 years

01% of values less than 8.01173E-006

05% of values less than 1.33152E-005

10% of values less than 2.01189E-005

50% of values less than 8.8171E-005

90% of values less than 0.000160701

95% of values less than 0.000194436

99% of values less than 0.000294932

Minimum 5.23855E-006

Maximum 0.0004048

Mean 9.20302E-005

Std. Dev. 5.96904E-005

Variance 3.56294E-009

Phase: Cell3A

Source Concentration of Mercury [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.78439E-008

90% of values less than 7.84322E-005

95% of values less than 9.71777E-005

99% of values less than 0.000111879

Minimum 0

Maximum 0.00011739

Mean 2.24424E-005

Std. Dev. 3.25171E-005

Variance 1.05736E-009

Phase: Cell3A*Source Concentration of Phenols group 1 - phenol [mg/l]*

At 30 years

01% of values less than 0.725562

05% of values less than 0.783865

10% of values less than 0.81644

50% of values less than 1.00541

90% of values less than 1.21754

95% of values less than 1.26502

99% of values less than 1.36379

Minimum 0.698688

Maximum 1.40006

Mean 1.01225

Std. Dev. 0.149378

Variance 0.0223137

At 100 years

01% of values less than 0.00566845

05% of values less than 0.00612395

10% of values less than 0.00637844

50% of values less than 0.00785476

90% of values less than 0.00951204

95% of values less than 0.00988293

99% of values less than 0.0106546

Minimum 0.0054585

Maximum 0.010938

Mean 0.00790818

Std. Dev. 0.00116701

Variance 1.36192E-006

At 300 years

01% of values less than 5.40585E-009

05% of values less than 5.84025E-009

10% of values less than 6.08295E-009

50% of values less than 7.49088E-009

90% of values less than 9.07139E-009

95% of values less than 9.4251E-009

99% of values less than 1.0161E-008

Minimum 5.20563E-009

Maximum 1.04313E-008

Mean 7.54183E-009

Std. Dev. 1.11295E-009

Variance 1.23866E-018

At 1000 years

01% of values less than 4.57894E-030

05% of values less than 4.94688E-030

10% of values less than 5.15246E-030

50% of values less than 6.34503E-030

90% of values less than 7.68376E-030

95% of values less than 7.98337E-030

99% of values less than 8.6067E-030

Minimum 4.40934E-030

Maximum 8.83564E-030

Mean 6.38818E-030

Std. Dev. 9.42705E-031

Variance 8.88693E-061

Phase: Cell3A

Source Concentration of Phenols group 1 - phenol [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of Phenols group 2 - cresols [mg/l]*

At 30 years

01% of values less than 0.000212217

05% of values less than 0.000378215

10% of values less than 0.000605041

50% of values less than 0.00429172

90% of values less than 0.0160906

95% of values less than 0.0215339

99% of values less than 0.0275922

Minimum 0.000164244

Maximum 0.0334339

Mean 0.00681983

Std. Dev. 0.00676596

Variance 4.57782E-005

At 100 years

01% of values less than 1.65795E-006

05% of values less than 2.95481E-006

10% of values less than 4.72688E-006

50% of values less than 3.3529E-005

90% of values less than 0.000125708

95% of values less than 0.000168234

99% of values less than 0.000215564

Minimum 1.28316E-006

Maximum 0.000261202

Mean 5.32799E-005

Std. Dev. 5.28591E-005

Variance 2.79408E-009

At 300 years

01% of values less than 1.58114E-012

05% of values less than 2.81792E-012

10% of values less than 4.5079E-012

50% of values less than 3.19758E-011

90% of values less than 1.19884E-010

95% of values less than 1.6044E-010

99% of values less than 2.05578E-010

Minimum 1.22371E-012

Maximum 2.49102E-010

Mean 5.08117E-011

Std. Dev. 5.04103E-011

Variance 2.5412E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of Phenols group 2 - cresols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of Phenols group 3 - xlenols [mg/l]*

At 30 years

01% of values less than 0.0110756

05% of values less than 0.0127409

10% of values less than 0.0139893

50% of values less than 0.0201469

90% of values less than 0.029149

95% of values less than 0.032946

99% of values less than 0.0374734

Minimum 0.010679

Maximum 0.0412915

Mean 0.0210593

Std. Dev. 0.00600604

Variance 3.60725E-005

At 100 years

01% of values less than 8.65284E-005

05% of values less than 9.9538E-005

10% of values less than 0.000109291

50% of values less than 0.000157398

90% of values less than 0.000227726

95% of values less than 0.00025739

99% of values less than 0.000292761

Minimum 8.34297E-005

Maximum 0.00032259

Mean 0.000164526

Std. Dev. 4.69222E-005

Variance 2.20169E-009

At 300 years

01% of values less than 8.25199E-011

05% of values less than 9.49269E-011

10% of values less than 1.04228E-010

50% of values less than 1.50106E-010

90% of values less than 2.17177E-010

95% of values less than 2.45467E-010

99% of values less than 2.79199E-010

Minimum 7.95647E-011

Maximum 3.07646E-010

Mean 1.56904E-010

Std. Dev. 4.47485E-011

Variance 2.00243E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of Phenols group 3 - xylenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of Phenols group 4 - chlorophenols [mg/l]*

At 30 years

01% of values less than 0.000223285

05% of values less than 0.00040853

10% of values less than 0.000647485

50% of values less than 0.00508478

90% of values less than 0.0184604

95% of values less than 0.0240939

99% of values less than 0.0321392

Minimum 0.000145611

Maximum 0.0399958

Mean 0.00766535

Std. Dev. 0.00762707

Variance 5.81722E-005

At 100 years

01% of values less than 1.74441E-006

05% of values less than 3.19164E-006

10% of values less than 5.05848E-006

50% of values less than 3.97248E-005

90% of values less than 0.000144222

95% of values less than 0.000188233

99% of values less than 0.000251087

Minimum 1.13758E-006

Maximum 0.000312467

Mean 5.98855E-005

Std. Dev. 5.95865E-005

Variance 3.55055E-009

At 300 years

01% of values less than 1.6636E-012

05% of values less than 3.04379E-012

10% of values less than 4.82414E-012

50% of values less than 3.78846E-011

90% of values less than 1.3754E-010

95% of values less than 1.79513E-010

99% of values less than 2.39455E-010

Minimum 1.08488E-012

Maximum 2.97992E-010

Mean 5.71113E-011

Std. Dev. 5.68261E-011

Variance 3.2292E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of Phenols group 4 - chlorophenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of Phenols group 5 - nitrophenols [mg/l]*

At 30 years

01% of values less than 0.000125

05% of values less than 0.000125

10% of values less than 0.000125

50% of values less than 0.000125

90% of values less than 0.000125

95% of values less than 0.000125

99% of values less than 0.000125

Minimum 0.000125

Maximum 0.000125

Mean 0.000125

Std. Dev. 1.67807E-011

Variance -2.81592E-022

At 100 years

01% of values less than 9.76562E-007

05% of values less than 9.76562E-007

10% of values less than 9.76562E-007

50% of values less than 9.76562E-007

90% of values less than 9.76562E-007

95% of values less than 9.76562E-007

99% of values less than 9.76562E-007

Minimum 9.76562E-007

Maximum 9.76562E-007

Mean 9.76562E-007

Std. Dev. 5.14251E-014

Variance -2.64454E-027

At 300 years

01% of values less than 9.31323E-013

05% of values less than 9.31323E-013

10% of values less than 9.31323E-013

50% of values less than 9.31323E-013

90% of values less than 9.31323E-013

95% of values less than 9.31323E-013

99% of values less than 9.31323E-013

Minimum 9.31323E-013

Maximum 9.31323E-013

Mean 9.31323E-013

Std. Dev. 1.36272E-019

Variance -1.85699E-038

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of Phenols group 5 - nitrophenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of TPH Aliphatic C5-6 [mg/l]*

At 30 years

01% of values less than 0.0296678

05% of values less than 0.0303774

10% of values less than 0.0313962

50% of values less than 0.0343665

90% of values less than 0.0369573

95% of values less than 0.0376831

99% of values less than 0.0385781

Minimum 0.0291595

Maximum 0.0393923

Mean 0.0342637

Std. Dev. 0.00213423

Variance 4.55495E-006

At 100 years

01% of values less than 0.000231779

05% of values less than 0.000237324

10% of values less than 0.000245283

50% of values less than 0.000268488

90% of values less than 0.000288729

95% of values less than 0.000294399

99% of values less than 0.000301391

Minimum 0.000227809

Maximum 0.000307752

Mean 0.000267685

Std. Dev. 1.66737E-005

Variance 2.78012E-010

At 300 years

01% of values less than 2.21042E-010

05% of values less than 2.26329E-010

10% of values less than 2.3392E-010

50% of values less than 2.5605E-010

90% of values less than 2.75353E-010

95% of values less than 2.80761E-010

99% of values less than 2.87429E-010

Minimum 2.17255E-010

Maximum 2.93496E-010

Mean 2.55285E-010

Std. Dev. 1.59013E-011

Variance 2.5285E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of TPH Aliphatic C5-6 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of TPH Aliphatic C6-8 [mg/l]*

At 30 years

01% of values less than 0.00677512

05% of values less than 0.00713114

10% of values less than 0.00746279

50% of values less than 0.00868358

90% of values less than 0.00955421

95% of values less than 0.0096543

99% of values less than 0.00979405

Minimum 0.0065

Maximum 0.00985314

Mean 0.00857543

Std. Dev. 0.000786584

Variance 6.18714E-007

At 100 years

01% of values less than 5.29306E-005

05% of values less than 5.5712E-005

10% of values less than 5.8303E-005

50% of values less than 6.78405E-005

90% of values less than 7.46423E-005

95% of values less than 7.54242E-005

99% of values less than 7.65161E-005

Minimum 5.07812E-005

Maximum 7.69777E-005

Mean 6.69956E-005

Std. Dev. 6.14518E-006

Variance 3.77633E-011

At 300 years

01% of values less than 5.04786E-011

05% of values less than 5.31311E-011

10% of values less than 5.56021E-011

50% of values less than 6.46977E-011

90% of values less than 7.11844E-011

95% of values less than 7.19302E-011

99% of values less than 7.29714E-011

Minimum 4.84288E-011

Maximum 7.34116E-011

Mean 6.38919E-011

Std. Dev. 5.8605E-012

Variance 3.43455E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of TPH Aliphatic C6-8 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of TPH Aliphatic C8-10 [mg/l]*

At 30 years

01% of values less than 0.00374378

05% of values less than 0.00422523

10% of values less than 0.00446701

50% of values less than 0.00611916

90% of values less than 0.00898514

95% of values less than 0.00988602

99% of values less than 0.0107172

Minimum 0.00355797

Maximum 0.0115642

Mean 0.00646305

Std. Dev. 0.00168372

Variance 2.83493E-006

At 100 years

01% of values less than 2.92483E-005

05% of values less than 3.30096E-005

10% of values less than 3.48985E-005

50% of values less than 4.78059E-005

90% of values less than 7.01964E-005

95% of values less than 7.72345E-005

99% of values less than 8.37283E-005

Minimum 2.77967E-005

Maximum 9.03453E-005

Mean 5.04926E-005

Std. Dev. 1.31541E-005

Variance 1.7303E-010

At 300 years

01% of values less than 2.78933E-011

05% of values less than 3.14804E-011

10% of values less than 3.32818E-011

50% of values less than 4.55913E-011

90% of values less than 6.69445E-011

95% of values less than 7.36566E-011

99% of values less than 7.98495E-011

Minimum 2.6509E-011

Maximum 8.616E-011

Mean 4.81535E-011

Std. Dev. 1.25447E-011

Variance 1.5737E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of TPH Aliphatic C8-10 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of TPH Aliphatic C10-12 [mg/l]*

At 30 years

01% of values less than 0.00522888

05% of values less than 0.00595105

10% of values less than 0.00659876

50% of values less than 0.0101774

90% of values less than 0.0131628

95% of values less than 0.0138564

99% of values less than 0.0146951

Minimum 0.00482009

Maximum 0.0154798

Mean 0.0100157

Std. Dev. 0.00244154

Variance 5.96114E-006

At 100 years

01% of values less than 4.08507E-005

05% of values less than 4.64926E-005

10% of values less than 5.15528E-005

50% of values less than 7.95108E-005

90% of values less than 0.000102834

95% of values less than 0.000108253

99% of values less than 0.000114806

Minimum 3.7657E-005

Maximum 0.000120936

Mean 7.82475E-005

Std. Dev. 1.90746E-005

Variance 3.63839E-010

At 300 years

01% of values less than 3.89582E-011

05% of values less than 4.43388E-011

10% of values less than 4.91646E-011

50% of values less than 7.58274E-011

90% of values less than 9.80705E-011

95% of values less than 1.03238E-010

99% of values less than 1.09487E-010

Minimum 3.59125E-011

Maximum 1.15334E-010

Mean 7.46226E-011

Std. Dev. 1.81909E-011

Variance 3.3091E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of TPH Aliphatic C10-12 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of TPH Aliphatic C12-16 [mg/l]*

At 30 years

01% of values less than 0.00722558

05% of values less than 0.00755209

10% of values less than 0.00778093

50% of values less than 0.0089376

90% of values less than 0.0108154

95% of values less than 0.0113832

99% of values less than 0.0120314

Minimum 0.0070651

Maximum 0.0123484

Mean 0.00913133

Std. Dev. 0.00114643

Variance 1.3143E-006

At 100 years

01% of values less than 5.64498E-005

05% of values less than 5.90007E-005

10% of values less than 6.07885E-005

50% of values less than 6.9825E-005

90% of values less than 8.44953E-005

95% of values less than 8.89313E-005

99% of values less than 9.39954E-005

Minimum 5.51961E-005

Maximum 9.64722E-005

Mean 7.13385E-005

Std. Dev. 8.95647E-006

Variance 8.02184E-011

At 300 years

01% of values less than 5.38348E-011

05% of values less than 5.62675E-011

10% of values less than 5.79725E-011

50% of values less than 6.65903E-011

90% of values less than 8.0581E-011

95% of values less than 8.48115E-011

99% of values less than 8.9641E-011

Minimum 5.26391E-011

Maximum 9.2003E-011

Mean 6.80337E-011

Std. Dev. 8.54156E-012

Variance 7.29582E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of TPH Aliphatic C12-16 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of TPH Aliphatic C16-35 [mg/l]*

At 30 years

01% of values less than 0.308

05% of values less than 0.308

10% of values less than 0.308

50% of values less than 0.308

90% of values less than 0.308

95% of values less than 0.308

99% of values less than 0.308

Minimum 0.308

Maximum 0.308

Mean 0.308

Std. Dev. 3.46817E-008

Variance 1.20282E-015

At 100 years

01% of values less than 0.308

05% of values less than 0.308

10% of values less than 0.308

50% of values less than 0.308

90% of values less than 0.308

95% of values less than 0.308

99% of values less than 0.308

Minimum 0.308

Maximum 0.308

Mean 0.308

Std. Dev. 3.46817E-008

Variance 1.20282E-015

At 300 years

01% of values less than 0.308

05% of values less than 0.308

10% of values less than 0.308

50% of values less than 0.308

90% of values less than 0.308

95% of values less than 0.308

99% of values less than 0.308

Minimum 0.308

Maximum 0.308

Mean 0.308

Std. Dev. 3.46817E-008

Variance 1.20282E-015

At 1000 years

01% of values less than 0.308

05% of values less than 0.308

10% of values less than 0.308

50% of values less than 0.308

90% of values less than 0.308

95% of values less than 0.308

99% of values less than 0.308

Minimum 0.308

Maximum 0.308

Mean 0.308

Std. Dev. 3.46817E-008

Variance 1.20282E-015

Phase: Cell3A

Source Concentration of TPH Aliphatic C16-35 [mg/l]

At infinity

- 01% of values less than 0.308
- 05% of values less than 0.308
- 10% of values less than 0.308
- 50% of values less than 0.308
- 90% of values less than 0.308
- 95% of values less than 0.308
- 99% of values less than 0.308

Minimum 0.308	Maximum 0.308	
Mean 0.308	Std. Dev. 3.46817E-008	Variance 1.20282E-015

Phase: Cell3A*Source Concentration of TPH Aromatic C5-7 [mg/l]*

At 30 years

01% of values less than 0.000901188

05% of values less than 0.000939604

10% of values less than 0.000974401

50% of values less than 0.00111347

90% of values less than 0.00122843

95% of values less than 0.0012393

99% of values less than 0.00124705

Minimum 0.000877991

Maximum 0.0012498

Mean 0.00110878

Std. Dev. 9.45561E-005

Variance 8.94085E-009

At 100 years

01% of values less than 7.04053E-006

05% of values less than 7.34066E-006

10% of values less than 7.61251E-006

50% of values less than 8.69896E-006

90% of values less than 9.59712E-006

95% of values less than 9.68206E-006

99% of values less than 9.74262E-006

Minimum 6.85931E-006

Maximum 9.76408E-006

Mean 8.66235E-006

Std. Dev. 7.38719E-007

Variance 5.45706E-013

At 300 years

01% of values less than 6.71438E-012

05% of values less than 7.0006E-012

10% of values less than 7.25985E-012

50% of values less than 8.29597E-012

90% of values less than 9.15253E-012

95% of values less than 9.23353E-012

99% of values less than 9.29128E-012

Minimum 6.54155E-012

Maximum 9.31176E-012

Mean 8.26106E-012

Std. Dev. 7.04498E-013

Variance 4.96317E-025

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of TPH Aromatic C5-7 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of TPH Aromatic C7-8 [mg/l]*

At 30 years

01% of values less than 0.000546687

05% of values less than 0.000607095

10% of values less than 0.000650999

50% of values less than 0.000947583

90% of values less than 0.00118766

95% of values less than 0.00121654

99% of values less than 0.00124098

Minimum 0.000512287

Maximum 0.0012493

Mean 0.000930122

Std. Dev. 0.000193049

Variance 3.7268E-008

At 100 years

01% of values less than 4.27099E-006

05% of values less than 4.74293E-006

10% of values less than 5.08593E-006

50% of values less than 7.40299E-006

90% of values less than 9.27856E-006

95% of values less than 9.5042E-006

99% of values less than 9.69515E-006

Minimum 4.00224E-006

Maximum 9.76016E-006

Mean 7.26658E-006

Std. Dev. 1.5082E-006

Variance 2.27466E-012

At 300 years

01% of values less than 4.07313E-012

05% of values less than 4.52321E-012

10% of values less than 4.85032E-012

50% of values less than 7.06004E-012

90% of values less than 8.84873E-012

95% of values less than 9.06391E-012

99% of values less than 9.24601E-012

Minimum 3.81683E-012

Maximum 9.30802E-012

Mean 6.92995E-012

Std. Dev. 1.43833E-012

Variance 2.06879E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of TPH Aromatic C7-8 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of TPH Aromatic C8-10 [mg/l]*

At 30 years

01% of values less than 0.00420212

05% of values less than 0.00445834

10% of values less than 0.00468166

50% of values less than 0.00607968

90% of values less than 0.00808671

95% of values less than 0.00862175

99% of values less than 0.00975212

Minimum 0.00409245

Maximum 0.0101773

Mean 0.00623738

Std. Dev. 0.00128557

Variance 1.6527E-006

At 100 years

01% of values less than 3.28291E-005

05% of values less than 3.48308E-005

10% of values less than 3.65755E-005

50% of values less than 4.74975E-005

90% of values less than 6.31774E-005

95% of values less than 6.73574E-005

99% of values less than 7.61885E-005

Minimum 3.19723E-005

Maximum 7.95103E-005

Mean 4.87295E-005

Std. Dev. 1.00435E-005

Variance 1.00873E-010

At 300 years

01% of values less than 3.13082E-011

05% of values less than 3.32172E-011

10% of values less than 3.48811E-011

50% of values less than 4.52971E-011

90% of values less than 6.02506E-011

95% of values less than 6.4237E-011

99% of values less than 7.2659E-011

Minimum 3.04912E-011

Maximum 7.58269E-011

Mean 4.64721E-011

Std. Dev. 9.57826E-012

Variance 9.17431E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of TPH Aromatic C8-10 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A

Source Concentration of TPH Aromatic C10-12 [mg/l]

At 30 years

01% of values less than 0.00351571		
05% of values less than 0.00397866		
10% of values less than 0.00444069		
50% of values less than 0.00681746		
90% of values less than 0.00892188		
95% of values less than 0.00928086		
99% of values less than 0.00982899		
Minimum 0.00321335	Maximum 0.0102555	
Mean 0.0067449	Std. Dev. 0.00164837	Variance 2.71712E-006

At 100 years

01% of values less than 2.74665E-005		
05% of values less than 3.10833E-005		
10% of values less than 3.46929E-005		
50% of values less than 5.32614E-005		
90% of values less than 6.97022E-005		
95% of values less than 7.25068E-005		
99% of values less than 7.6789E-005		
Minimum 2.51043E-005	Maximum 8.01215E-005	
Mean 5.26946E-005	Std. Dev. 1.28779E-005	Variance 1.6584E-010

At 300 years

01% of values less than 2.61941E-011		
05% of values less than 2.96433E-011		
10% of values less than 3.30857E-011		
50% of values less than 5.0794E-011		
90% of values less than 6.64732E-011		
95% of values less than 6.91478E-011		
99% of values less than 7.32317E-011		
Minimum 2.39413E-011	Maximum 7.64098E-011	
Mean 5.02534E-011	Std. Dev. 1.22813E-011	Variance 1.50831E-022

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A

Source Concentration of TPH Aromatic C10-12 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Source Concentration of TPH Aromatic C12-C16 [mg/l]*

At 30 years

01% of values less than 0.00348997

05% of values less than 0.00403639

10% of values less than 0.00451134

50% of values less than 0.00743524

90% of values less than 0.0161757

95% of values less than 0.019192

99% of values less than 0.0235414

Minimum 0.00323964

Maximum 0.0273263

Mean 0.0090044

Std. Dev. 0.00473827

Variance 2.24512E-005

At 100 years

01% of values less than 2.72654E-005

05% of values less than 3.15343E-005

10% of values less than 3.52449E-005

50% of values less than 5.80878E-005

90% of values less than 0.000126373

95% of values less than 0.000149937

99% of values less than 0.000183917

Minimum 2.53097E-005

Maximum 0.000213487

Mean 7.03469E-005

Std. Dev. 3.70177E-005

Variance 1.37031E-009

At 300 years

01% of values less than 2.60023E-011

05% of values less than 3.00735E-011

10% of values less than 3.36121E-011

50% of values less than 5.53968E-011

90% of values less than 1.20518E-010

95% of values less than 1.42991E-010

99% of values less than 1.75397E-010

Minimum 2.41372E-011

Maximum 2.03597E-010

Mean 6.7088E-011

Std. Dev. 3.53028E-011

Variance 1.24629E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Source Concentration of TPH Aromatic C12-C16 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A

Source Concentration of TPH Aromatic C16-21 [mg/l]

At 30 years

01% of values less than 0.0126736		
05% of values less than 0.0151329		
10% of values less than 0.0178325		
50% of values less than 0.0377366		
90% of values less than 0.0928469		
95% of values less than 0.114064		
99% of values less than 0.142094		
Minimum 0.0105163	Maximum 0.172681	
Mean 0.0468543	Std. Dev. 0.030316	Variance 0.00091906

At 100 years

01% of values less than 0.0126736		
05% of values less than 0.0151329		
10% of values less than 0.0178325		
50% of values less than 0.0377366		
90% of values less than 0.0928469		
95% of values less than 0.114064		
99% of values less than 0.142094		
Minimum 0.0105163	Maximum 0.172681	
Mean 0.0468543	Std. Dev. 0.030316	Variance 0.00091906

At 300 years

01% of values less than 0.0126736		
05% of values less than 0.0151329		
10% of values less than 0.0178325		
50% of values less than 0.0377366		
90% of values less than 0.0928469		
95% of values less than 0.114064		
99% of values less than 0.142094		
Minimum 0.0105163	Maximum 0.172681	
Mean 0.0468543	Std. Dev. 0.030316	Variance 0.00091906

At 1000 years

01% of values less than 0.0126736		
05% of values less than 0.0151329		
10% of values less than 0.0178325		
50% of values less than 0.0377366		
90% of values less than 0.0928469		
95% of values less than 0.114064		
99% of values less than 0.142094		
Minimum 0.0105163	Maximum 0.172681	
Mean 0.0468543	Std. Dev. 0.030316	Variance 0.00091906

Phase: Cell3A

Source Concentration of TPH Aromatic C16-21 [mg/l]

At infinity

01% of values less than 0.0126736

05% of values less than 0.0151329

10% of values less than 0.0178325

50% of values less than 0.0377366

90% of values less than 0.0928469

95% of values less than 0.114064

99% of values less than 0.142094

Minimum 0.0105163

Maximum 0.172681

Mean 0.0468543

Std. Dev. 0.030316

Variance 0.00091906

Phase: Cell3A

Source Concentration of TPH Aromatic C21-35 [mg/l]

At 30 years

01% of values less than 0.106349		
05% of values less than 0.116215		
10% of values less than 0.125452		
50% of values less than 0.161457		
90% of values less than 0.191561		
95% of values less than 0.197683		
99% of values less than 0.205336		
Minimum 0.102733	Maximum 0.211339	
Mean 0.159781	Std. Dev. 0.0252568	Variance 0.000637906

At 100 years

01% of values less than 0.106349		
05% of values less than 0.116215		
10% of values less than 0.125452		
50% of values less than 0.161457		
90% of values less than 0.191561		
95% of values less than 0.197683		
99% of values less than 0.205336		
Minimum 0.102733	Maximum 0.211339	
Mean 0.159781	Std. Dev. 0.0252568	Variance 0.000637906

At 300 years

01% of values less than 0.106349		
05% of values less than 0.116215		
10% of values less than 0.125452		
50% of values less than 0.161457		
90% of values less than 0.191561		
95% of values less than 0.197683		
99% of values less than 0.205336		
Minimum 0.102733	Maximum 0.211339	
Mean 0.159781	Std. Dev. 0.0252568	Variance 0.000637906

At 1000 years

01% of values less than 0.106349		
05% of values less than 0.116215		
10% of values less than 0.125452		
50% of values less than 0.161457		
90% of values less than 0.191561		
95% of values less than 0.197683		
99% of values less than 0.205336		
Minimum 0.102733	Maximum 0.211339	
Mean 0.159781	Std. Dev. 0.0252568	Variance 0.000637906

Phase: Cell3A

Source Concentration of TPH Aromatic C21-35 [mg/l]

At infinity

01% of values less than 0.106349

05% of values less than 0.116215

10% of values less than 0.125452

50% of values less than 0.161457

90% of values less than 0.191561

95% of values less than 0.197683

99% of values less than 0.205336

Minimum 0.102733

Maximum 0.211339

Mean 0.159781

Std. Dev. 0.0252568

Variance 0.000637906

Phase: Cell3A*Concentration of Ammoniacal_N at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 167.414

05% of values less than 442.378

10% of values less than 602.711

50% of values less than 1252.24

90% of values less than 1756.72

95% of values less than 1896.08

99% of values less than 2124.73

Minimum 57.4359

Maximum 4117.84

Mean 1215.27

Std. Dev. 456.798

Variance 208664

At 100 years

01% of values less than 199.78

05% of values less than 333.044

10% of values less than 414.607

50% of values less than 1043.37

90% of values less than 1515.21

95% of values less than 1662.29

99% of values less than 1889.63

Minimum 149.76

Maximum 3019.1

Mean 1006.16

Std. Dev. 419.295

Variance 175808

At 300 years

01% of values less than 69.0845

05% of values less than 145.649

10% of values less than 197.067

50% of values less than 707.87

90% of values less than 1198.72

95% of values less than 1326.52

99% of values less than 1582.1

Minimum 34.2709

Maximum 1799.42

Mean 702.773

Std. Dev. 372.743

Variance 138937

At 1000 years

01% of values less than 0.00030241

05% of values less than 0.00381347

10% of values less than 0.0186067

50% of values less than 5.41195

90% of values less than 48.5258

95% of values less than 67.494

99% of values less than 112.39

Minimum 9.32818E-005

Maximum 175.175

Mean 16.7388

Std. Dev. 24.7992

Variance 615.002

Phase: Cell3A

Concentration of Ammoniacal_N at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 5.23772E-014

90% of values less than 1.45766E-012

95% of values less than 2.18469E-012

99% of values less than 5.01067E-012

Minimum 0

Maximum 1.62917E-011

Mean 5.08057E-013

Std. Dev. 1.14748E-012

Variance 1.3167E-024

Phase: Cell3A*Concentration of Chloride at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 11.1981

05% of values less than 32.2804

10% of values less than 46.5617

50% of values less than 211.549

90% of values less than 681.861

95% of values less than 853.417

99% of values less than 1145.82

Minimum 5.51174

Maximum 1568.24

Mean 294.365

Std. Dev. 265.848

Variance 70675

At 100 years

01% of values less than 3.91091

05% of values less than 11.7613

10% of values less than 20.3087

50% of values less than 115.939

90% of values less than 444.1

95% of values less than 545.484

99% of values less than 804.606

Minimum 1.84518

Maximum 985.446

Mean 177.347

Std. Dev. 176.165

Variance 31034.1

At 300 years

01% of values less than 0.539392

05% of values less than 1.982

10% of values less than 4.53494

50% of values less than 52.2318

90% of values less than 254.693

95% of values less than 317.099

99% of values less than 459.956

Minimum 0.0686788

Maximum 745.004

Mean 93.3282

Std. Dev. 109.592

Variance 12010.4

At 1000 years

01% of values less than 8.04951E-007

05% of values less than 3.26639E-006

10% of values less than 8.71094E-006

50% of values less than 0.00267292

90% of values less than 0.266382

95% of values less than 0.51693

99% of values less than 1.31965

Minimum 0

Maximum 3.31183

Mean 0.0934096

Std. Dev. 0.264446

Variance 0.0699317

Phase: Cell3A

Concentration of Chloride at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.43406E-013

95% of values less than 2.40569E-013

99% of values less than 5.27327E-013

Minimum 0

Maximum 1.00588E-012

Mean 4.82068E-014

Std. Dev. 1.05024E-013

Variance 1.103E-026

Phase: Cell3A*Concentration of Mercury at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 5.82568E-006

05% of values less than 1.07284E-005

10% of values less than 1.8491E-005

50% of values less than 0.000132375

90% of values less than 0.00046855

95% of values less than 0.00062505

99% of values less than 0.000983394

Minimum 9.55253E-007

Maximum 0.00124179

Mean 0.000196655

Std. Dev. 0.000208254

Variance 4.33696E-008

At 100 years

01% of values less than 8.61016E-006

05% of values less than 1.41164E-005

10% of values less than 2.16472E-005

50% of values less than 0.000147056

90% of values less than 0.000489178

95% of values less than 0.000655311

99% of values less than 0.000989682

Minimum 5.23851E-006

Maximum 0.00214435

Mean 0.000211034

Std. Dev. 0.000219907

Variance 4.83592E-008

At 300 years

01% of values less than 8.61027E-006

05% of values less than 1.41174E-005

10% of values less than 2.16473E-005

50% of values less than 0.00014187

90% of values less than 0.000431471

95% of values less than 0.000573645

99% of values less than 0.000889556

Minimum 5.23855E-006

Maximum 0.0010911

Mean 0.000194692

Std. Dev. 0.000188291

Variance 3.54534E-008

At 1000 years

01% of values less than 8.61027E-006

05% of values less than 1.40632E-005

10% of values less than 2.07706E-005

50% of values less than 9.73319E-005

90% of values less than 0.000183571

95% of values less than 0.000223165

99% of values less than 0.000333229

Minimum 5.23859E-006

Maximum 0.00046896

Mean 0.000101186

Std. Dev. 6.86663E-005

Variance 4.71507E-009

Phase: Cell3A

Concentration of Mercury at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.29497E-008

90% of values less than 7.84322E-005

95% of values less than 9.71777E-005

99% of values less than 0.000111879

Minimum 0

Maximum 0.00011739

Mean 2.25351E-005

Std. Dev. 3.25156E-005

Variance 1.05726E-009

Phase: Cell3A*Concentration of Phenols group 1 - phenol at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.422705

05% of values less than 1.03043

10% of values less than 1.15633

50% of values less than 1.8216

90% of values less than 3.12038

95% of values less than 3.43503

99% of values less than 3.9529

Minimum 0.135622

Maximum 6.54853

Mean 1.98536

Std. Dev. 0.780331

Variance 0.608917

At 100 years

01% of values less than 0.00805952

05% of values less than 0.00882196

10% of values less than 0.00925656

50% of values less than 0.0117212

90% of values less than 0.0165259

95% of values less than 0.0220131

99% of values less than 0.0465009

Minimum 0.00772175

Maximum 0.0931798

Mean 0.0131591

Std. Dev. 0.0069172

Variance 4.78476E-005

At 300 years

01% of values less than 1.89417E-008

05% of values less than 2.04808E-008

10% of values less than 2.14441E-008

50% of values less than 2.67099E-008

90% of values less than 3.31405E-008

95% of values less than 3.60367E-008

99% of values less than 3.36248E-006

Minimum 1.78204E-008

Maximum 2.94054E-005

Mean 1.82531E-007

Std. Dev. 1.73852E-006

Variance 3.02247E-012

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.56491E-015

95% of values less than 4.60067E-014

99% of values less than 3.50746E-013

Minimum 0

Maximum 1.56119E-012

Mean 1.29398E-014

Std. Dev. 8.69094E-014

Variance 7.55325E-027

Phase: Cell3A

Concentration of Phenols group 1 - phenol at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.6805E-016

95% of values less than 6.79954E-016

99% of values less than 1.10137E-015

Minimum 0

Maximum 1.66316E-015

Mean 1.35587E-016

Std. Dev. 2.45543E-016

Variance 6.02914E-032

Phase: Cell3A*Concentration of Phenols group 2 - cresols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.000313001

05% of values less than 0.000632523

10% of values less than 0.00101227

50% of values less than 0.00796792

90% of values less than 0.0331502

95% of values less than 0.0438163

99% of values less than 0.0692313

Minimum 0.000119292

Maximum 0.104533

Mean 0.0135174

Std. Dev. 0.0152778

Variance 0.000233412

At 100 years

01% of values less than 2.62826E-006

05% of values less than 4.30876E-006

10% of values less than 6.97417E-006

50% of values less than 5.24047E-005

90% of values less than 0.000208715

95% of values less than 0.000289599

99% of values less than 0.000407603

Minimum 1.87205E-006

Maximum 0.00128479

Mean 8.94782E-005

Std. Dev. 0.000109197

Variance 1.1924E-008

At 300 years

01% of values less than 5.75101E-012

05% of values less than 9.88118E-012

10% of values less than 1.59563E-011

50% of values less than 1.20702E-010

90% of values less than 4.86266E-010

95% of values less than 6.72208E-010

99% of values less than 8.4984E-009

Minimum 4.24808E-012

Maximum 2.64739E-007

Mean 9.05838E-010

Std. Dev. 1.02185E-008

Variance 1.04418E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.79596E-016

99% of values less than 1.72057E-015

Minimum 0

Maximum 1.36163E-014

Mean 8.982E-017

Std. Dev. 7.38948E-016

Variance 5.46044E-031

Phase: Cell3A

Concentration of Phenols group 2 - cresols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of Phenols group 3 - xlenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.00796079

05% of values less than 0.0180671

10% of values less than 0.0210294

50% of values less than 0.0368261

90% of values less than 0.0678248

95% of values less than 0.0806015

99% of values less than 0.102627

Minimum 0.00237545

Maximum 0.143669

Mean 0.0413543

Std. Dev. 0.0196186

Variance 0.000384891

At 100 years

01% of values less than 0.000122549

05% of values less than 0.000144672

10% of values less than 0.000161567

50% of values less than 0.000239059

90% of values less than 0.000388927

95% of values less than 0.000504605

99% of values less than 0.0010363

Minimum 0.000118265

Maximum 0.00209118

Mean 0.000274159

Std. Dev. 0.000163528

Variance 2.67414E-008

At 300 years

01% of values less than 2.8999E-010

05% of values less than 3.33824E-010

10% of values less than 3.6631E-010

50% of values less than 5.38393E-010

90% of values less than 8.37557E-010

95% of values less than 9.58141E-010

99% of values less than 5.19198E-008

Minimum 2.78903E-010

Maximum 6.10483E-007

Mean 3.81638E-009

Std. Dev. 3.68293E-008

Variance 1.3564E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 7.82595E-016

99% of values less than 7.09664E-015

Minimum 0

Maximum 8.70568E-014

Mean 3.62741E-016

Std. Dev. 3.38553E-015

Variance 1.14618E-029

Phase: Cell3A

Concentration of Phenols group 3 - xylenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 2.48915E-017	
Mean 7.21061E-020	Std. Dev. 1.10011E-018	Variance 1.21024E-036

Phase: Cell3A*Concentration of Phenols group 4 - chlorophenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.000353223

05% of values less than 0.000719817

10% of values less than 0.00125391

50% of values less than 0.00901037

90% of values less than 0.0351838

95% of values less than 0.0474878

99% of values less than 0.0801734

Minimum 7.03702E-005

Maximum 0.106113

Mean 0.0149399

Std. Dev. 0.0168414

Variance 0.000283631

At 100 years

01% of values less than 2.7385E-006

05% of values less than 4.90401E-006

10% of values less than 7.85876E-006

50% of values less than 6.25102E-005

90% of values less than 0.000241313

95% of values less than 0.000325656

99% of values less than 0.000554945

Minimum 1.66172E-006

Maximum 0.00162183

Mean 0.000101826

Std. Dev. 0.000131415

Variance 1.727E-008

At 300 years

01% of values less than 6.1532E-012

05% of values less than 1.1167E-011

10% of values less than 1.71383E-011

50% of values less than 1.43063E-010

90% of values less than 5.55964E-010

95% of values less than 7.29298E-010

99% of values less than 1.55744E-008

Minimum 3.92505E-012

Maximum 3.71447E-007

Mean 1.36818E-009

Std. Dev. 1.52643E-008

Variance 2.32998E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.14009E-016

99% of values less than 2.99301E-015

Minimum 0

Maximum 3.1964E-014

Mean 1.44576E-016

Std. Dev. 1.47299E-015

Variance 2.16971E-030

Phase: Cell3A

Concentration of Phenols group 4 - chlorophenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of Phenols group 5 - nitrophenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 6.04095E-005

05% of values less than 0.000145408

10% of values less than 0.000149526

50% of values less than 0.000223961

90% of values less than 0.00038513

95% of values less than 0.000395004

99% of values less than 0.000399404

Minimum 1.55837E-005

Maximum 0.000724804

Mean 0.000245161

Std. Dev. 8.78338E-005

Variance 7.71478E-009

At 100 years

01% of values less than 1.38101E-006

05% of values less than 1.38119E-006

10% of values less than 1.38127E-006

50% of values less than 1.38222E-006

90% of values less than 1.95243E-006

95% of values less than 2.71189E-006

99% of values less than 5.39369E-006

Minimum 1.34273E-006

Maximum 1.0657E-005

Mean 1.62701E-006

Std. Dev. 8.20651E-007

Variance 6.73468E-013

At 300 years

01% of values less than 3.14005E-012

05% of values less than 3.17732E-012

10% of values less than 3.22957E-012

50% of values less than 3.26682E-012

90% of values less than 3.33202E-012

95% of values less than 3.72443E-012

99% of values less than 4.17142E-010

Minimum 2.78857E-012

Maximum 3.71013E-009

Mean 2.2813E-011

Std. Dev. 2.16266E-010

Variance 4.67708E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 6.02271E-016

Mean 1.085E-018

Std. Dev. 2.13463E-017

Variance 4.55666E-034

Phase: Cell3A

Concentration of Phenols group 5 - nitrophenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aliphatic C5-6 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.0149843

05% of values less than 0.0382677

10% of values less than 0.0407329

50% of values less than 0.0611746

90% of values less than 0.104942

95% of values less than 0.110425

99% of values less than 0.117493

Minimum 0.00473971

Maximum 0.192128

Mean 0.0673003

Std. Dev. 0.0247036

Variance 0.000610269

At 100 years

01% of values less than 0.000330414

05% of values less than 0.000343803

10% of values less than 0.000353123

50% of values less than 0.000390319

90% of values less than 0.000543841

95% of values less than 0.000744812

99% of values less than 0.00153708

Minimum 0.000322246

Maximum 0.00278174

Mean 0.000445361

Std. Dev. 0.000221469

Variance 4.90483E-008

At 300 years

01% of values less than 7.67458E-010

05% of values less than 7.96782E-010

10% of values less than 8.2228E-010

50% of values less than 9.03091E-010

90% of values less than 9.85718E-010

95% of values less than 1.02771E-009

99% of values less than 1.09273E-007

Minimum 7.59514E-010

Maximum 1.02765E-006

Mean 6.16041E-009

Std. Dev. 5.85425E-008

Variance 3.42723E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.5894E-015

99% of values less than 1.21238E-014

Minimum 0

Maximum 1.14769E-013

Mean 5.44418E-016

Std. Dev. 4.52599E-015

Variance 2.04846E-029

Phase: Cell3A

Concentration of TPH Aliphatic C5-6 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 3.17454E-017	
Mean 1.63671E-019	Std. Dev. 1.85522E-018	Variance 3.44184E-036

Phase: Cell3A*Concentration of TPH Aliphatic C6-8 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.00377469

05% of values less than 0.00925828

10% of values less than 0.0101612

50% of values less than 0.0155215

90% of values less than 0.0260413

95% of values less than 0.0278838

99% of values less than 0.0302061

Minimum 0.00118315

Maximum 0.0562143

Mean 0.0168193

Std. Dev. 0.0062605

Variance 3.91938E-005

At 100 years

01% of values less than 7.55949E-005

05% of values less than 8.01647E-005

10% of values less than 8.4327E-005

50% of values less than 0.00010006

90% of values less than 0.000137858

95% of values less than 0.000186131

99% of values less than 0.000390942

Minimum 7.18372E-005

Maximum 0.000799031

Mean 0.000111499

Std. Dev. 5.66911E-005

Variance 3.21388E-009

At 300 years

01% of values less than 1.7692E-010

05% of values less than 1.87146E-010

10% of values less than 1.95349E-010

50% of values less than 2.28892E-010

90% of values less than 2.53149E-010

95% of values less than 2.60777E-010

99% of values less than 2.96045E-008

Minimum 1.6953E-010

Maximum 2.72878E-007

Mean 1.59983E-009

Std. Dev. 1.55313E-008

Variance 2.41222E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 3.99347E-016

99% of values less than 3.3552E-015

Minimum 0

Maximum 1.23954E-014

Mean 1.0959E-016

Std. Dev. 6.71609E-016

Variance 4.51059E-031

Phase: Cell3A

Concentration of TPH Aliphatic C6-8 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aliphatic C8-10 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.00271258

05% of values less than 0.00563061

10% of values less than 0.00653636

50% of values less than 0.0116675

90% of values less than 0.0201473

95% of values less than 0.0232831

99% of values less than 0.0302331

Minimum 0.000719989

Maximum 0.0381693

Mean 0.0126753

Std. Dev. 0.00566685

Variance 3.21132E-005

At 100 years

01% of values less than 4.13872E-005

05% of values less than 4.73216E-005

10% of values less than 5.21859E-005

50% of values less than 7.29223E-005

90% of values less than 0.00011417

95% of values less than 0.000143707

99% of values less than 0.000281374

Minimum 4.01624E-005

Maximum 0.000564351

Mean 8.34334E-005

Std. Dev. 4.41084E-005

Variance 1.94555E-009

At 300 years

01% of values less than 9.78983E-011

05% of values less than 1.10721E-010

10% of values less than 1.18647E-010

50% of values less than 1.64253E-010

90% of values less than 2.53782E-010

95% of values less than 2.77762E-010

99% of values less than 1.66029E-008

Minimum 9.30091E-011

Maximum 3.05568E-007

Mean 1.17278E-009

Std. Dev. 1.25011E-008

Variance 1.56277E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 3.39303E-016

99% of values less than 1.95204E-015

Minimum 0

Maximum 1.488E-014

Mean 8.68951E-017

Std. Dev. 7.16691E-016

Variance 5.13646E-031

Phase: Cell3A

Concentration of TPH Aliphatic C8-10 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aliphatic C10-12 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.00508615

05% of values less than 0.00842166

10% of values less than 0.0100625

50% of values less than 0.0178174

90% of values less than 0.0326354

95% of values less than 0.036144

99% of values less than 0.041636

Minimum 0.0014053

Maximum 0.0629144

Mean 0.0196032

Std. Dev. 0.00862404

Variance 7.4374E-005

At 100 years

01% of values less than 5.87444E-005

05% of values less than 6.81498E-005

10% of values less than 7.5716E-005

50% of values less than 0.000119866

90% of values less than 0.000168413

95% of values less than 0.000226072

99% of values less than 0.000464344

Minimum 5.32607E-005

Maximum 0.000971384

Mean 0.000130793

Std. Dev. 7.76307E-005

Variance 6.02653E-009

At 300 years

01% of values less than 1.36781E-010

05% of values less than 1.56324E-010

10% of values less than 1.72683E-010

50% of values less than 2.68709E-010

90% of values less than 3.59531E-010

95% of values less than 3.95783E-010

99% of values less than 3.51206E-008

Minimum 1.26014E-010

Maximum 3.46583E-007

Mean 1.99897E-009

Std. Dev. 1.95641E-008

Variance 3.82755E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 5.51951E-016

99% of values less than 3.37648E-015

Minimum 0

Maximum 1.70635E-014

Mean 1.6048E-016

Std. Dev. 1.12231E-015

Variance 1.25957E-030

Phase: Cell3A

Concentration of TPH Aliphatic C10-12 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aliphatic C12-16 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.00375532

05% of values less than 0.00947409

10% of values less than 0.0103937

50% of values less than 0.0167359

90% of values less than 0.0278875

95% of values less than 0.0304476

99% of values less than 0.0353145

Minimum 0.00112315

Maximum 0.050551

Mean 0.0179376

Std. Dev. 0.00691526

Variance 4.78208E-005

At 100 years

01% of values less than 8.03039E-005

05% of values less than 8.4983E-005

10% of values less than 8.72084E-005

50% of values less than 0.000103901

90% of values less than 0.000147654

95% of values less than 0.000210479

99% of values less than 0.000404174

Minimum 7.80993E-005

Maximum 0.000786523

Mean 0.000118954

Std. Dev. 6.26514E-005

Variance 3.9252E-009

At 300 years

01% of values less than 1.87978E-010

05% of values less than 1.97768E-010

10% of values less than 2.03767E-010

50% of values less than 2.35367E-010

90% of values less than 2.93989E-010

95% of values less than 3.15943E-010

99% of values less than 2.89333E-008

Minimum 1.80793E-010

Maximum 3.05533E-007

Mean 1.67765E-009

Std. Dev. 1.62184E-008

Variance 2.63037E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 4.87412E-016

99% of values less than 3.19899E-015

Minimum 0

Maximum 2.65279E-014

Mean 1.40876E-016

Std. Dev. 1.06712E-015

Variance 1.13875E-030

Phase: Cell3A

Concentration of TPH Aliphatic C12-16 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aliphatic C16-35 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.0257443

05% of values less than 0.109992

10% of values less than 0.200778

50% of values less than 0.307898

90% of values less than 0.308001

95% of values less than 0.308001

99% of values less than 0.308008

Minimum 0.00626939

Maximum 0.869891

Mean 0.280766

Std. Dev. 0.0659825

Variance 0.00435369

At 100 years

01% of values less than 0.303782

05% of values less than 0.307723

10% of values less than 0.307975

50% of values less than 0.307999

90% of values less than 0.307999

95% of values less than 0.314981

99% of values less than 0.418361

Minimum 0.295373

Maximum 0.584367

Mean 0.311016

Std. Dev. 0.0193549

Variance 0.000374611

At 300 years

01% of values less than 0.307986

05% of values less than 0.307998

10% of values less than 0.308

50% of values less than 0.308

90% of values less than 0.308

95% of values less than 0.308

99% of values less than 0.308

Minimum 0.307845

Maximum 0.308004

Mean 0.307999

Std. Dev. 5.46033E-006

Variance 2.98152E-011

At 1000 years

01% of values less than 0.307979

05% of values less than 0.307999

10% of values less than 0.308

50% of values less than 0.308

90% of values less than 0.308

95% of values less than 0.308001

99% of values less than 0.308002

Minimum 0.307952

Maximum 0.308004

Mean 0.308

Std. Dev. 3.55655E-006

Variance 1.26491E-011

Phase: Cell3A

Concentration of TPH Aliphatic C16-35 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0.308
- 05% of values less than 0.308
- 10% of values less than 0.308
- 50% of values less than 0.308
- 90% of values less than 0.308
- 95% of values less than 0.308
- 99% of values less than 0.308

Minimum 0.308
Mean 0.308

Maximum 0.308
Std. Dev. 1.39227E-008

Variance -1.93841E-016

Phase: Cell3A*Concentration of TPH Aromatic C5-7 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.000480538

05% of values less than 0.00118392

10% of values less than 0.00130959

50% of values less than 0.00197816

90% of values less than 0.00334208

95% of values less than 0.00359607

99% of values less than 0.00385343

Minimum 0.000120345

Maximum 0.00600395

Mean 0.00217101

Std. Dev. 0.000789914

Variance 6.23965E-007

At 100 years

01% of values less than 1.00155E-005

05% of values less than 1.0592E-005

10% of values less than 1.09608E-005

50% of values less than 1.2837E-005

90% of values less than 1.7506E-005

95% of values less than 2.3557E-005

99% of values less than 5.22688E-005

Minimum 9.79939E-006

Maximum 0.000104392

Mean 1.44414E-005

Std. Dev. 7.49249E-006

Variance 5.61373E-011

At 300 years

01% of values less than 2.36137E-011

05% of values less than 2.46556E-011

10% of values less than 2.54701E-011

50% of values less than 2.93438E-011

90% of values less than 3.24515E-011

95% of values less than 3.41893E-011

99% of values less than 3.49287E-009

Minimum 2.31912E-011

Maximum 3.4305E-008

Mean 2.01699E-010

Std. Dev. 1.92142E-009

Variance 3.69187E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.82508E-016

Minimum 0

Maximum 2.55532E-015

Mean 1.01164E-017

Std. Dev. 1.08397E-016

Variance 1.175E-032

Phase: Cell3A

Concentration of TPH Aromatic C5-7 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aromatic C7-8 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.000409939

05% of values less than 0.000804391

10% of values less than 0.00096623

50% of values less than 0.00165396

90% of values less than 0.00299926

95% of values less than 0.00336929

99% of values less than 0.00376585

Minimum 9.73518E-005

Maximum 0.0058159

Mean 0.0018328

Std. Dev. 0.000787597

Variance 6.20308E-007

At 100 years

01% of values less than 6.07555E-006

05% of values less than 6.99392E-006

10% of values less than 7.51411E-006

50% of values less than 1.09874E-005

90% of values less than 1.56944E-005

95% of values less than 2.04357E-005

99% of values less than 3.98104E-005

Minimum 5.70407E-006

Maximum 7.48532E-005

Mean 1.20482E-005

Std. Dev. 6.2365E-006

Variance 3.88939E-011

At 300 years

01% of values less than 1.42915E-011

05% of values less than 1.58953E-011

10% of values less than 1.71212E-011

50% of values less than 2.49897E-011

90% of values less than 3.16611E-011

95% of values less than 3.30571E-011

99% of values less than 3.17475E-009

Minimum 1.3002E-011

Maximum 3.24583E-008

Mean 1.56868E-010

Std. Dev. 1.5303E-009

Variance 2.3418E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.54841E-016

Minimum 0

Maximum 3.83684E-015

Mean 1.15516E-017

Std. Dev. 1.48675E-016

Variance 2.21042E-032

Phase: Cell3A

Concentration of TPH Aromatic C7-8 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aromatic C8-10 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.00314725

05% of values less than 0.00610928

10% of values less than 0.00689526

50% of values less than 0.0110801

90% of values less than 0.0195324

95% of values less than 0.0222836

99% of values less than 0.0263151

Minimum 0.000561927

Maximum 0.0487322

Mean 0.0122376

Std. Dev. 0.00521547

Variance 2.72011E-005

At 100 years

01% of values less than 4.64381E-005

05% of values less than 5.03293E-005

10% of values less than 5.30185E-005

50% of values less than 7.06406E-005

90% of values less than 0.000107836

95% of values less than 0.000145901

99% of values less than 0.000302849

Minimum 4.52229E-005

Maximum 0.000608573

Mean 8.1504E-005

Std. Dev. 4.70531E-005

Variance 2.214E-009

At 300 years

01% of values less than 1.0975E-010

05% of values less than 1.16589E-010

10% of values less than 1.23551E-010

50% of values less than 1.60564E-010

90% of values less than 2.23627E-010

95% of values less than 2.54094E-010

99% of values less than 2.30492E-008

Minimum 1.06735E-010

Maximum 2.24317E-007

Mean 1.15073E-009

Std. Dev. 1.11697E-008

Variance 1.24762E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 3.46148E-016

99% of values less than 2.09216E-015

Minimum 0

Maximum 4.58137E-015

Mean 7.62763E-017

Std. Dev. 3.96801E-016

Variance 1.57451E-031

Phase: Cell3A

Concentration of TPH Aromatic C8-10 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aromatic C10-12 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.00361957

05% of values less than 0.00575181

10% of values less than 0.00691431

50% of values less than 0.0120929

90% of values less than 0.0214277

95% of values less than 0.0249029

99% of values less than 0.0285278

Minimum 0.000983844

Maximum 0.0468202

Mean 0.0131631

Std. Dev. 0.00575748

Variance 3.31486E-005

At 100 years

01% of values less than 3.95849E-005

05% of values less than 4.54937E-005

10% of values less than 4.9769E-005

50% of values less than 7.91732E-005

90% of values less than 0.000112863

95% of values less than 0.000150624

99% of values less than 0.000327212

Minimum 3.5512E-005

Maximum 0.000861108

Mean 8.86474E-005

Std. Dev. 5.80786E-005

Variance 3.37313E-009

At 300 years

01% of values less than 9.25197E-011

05% of values less than 1.04199E-010

10% of values less than 1.16498E-010

50% of values less than 1.80043E-010

90% of values less than 2.41402E-010

95% of values less than 2.61526E-010

99% of values less than 2.57495E-008

Minimum 8.38376E-011

Maximum 2.96472E-007

Mean 1.48062E-009

Std. Dev. 1.5531E-008

Variance 2.41212E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 3.2361E-016

99% of values less than 2.56079E-015

Minimum 0

Maximum 1.9003E-014

Mean 1.02587E-016

Std. Dev. 7.97538E-016

Variance 6.36067E-031

Phase: Cell3A

Concentration of TPH Aromatic C10-12 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aromatic C12-C16 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.00370639

05% of values less than 0.00598089

10% of values less than 0.00691919

50% of values less than 0.0144029

90% of values less than 0.0321407

95% of values less than 0.0399012

99% of values less than 0.0569325

Minimum 0.000681227

Maximum 0.0726463

Mean 0.0175416

Std. Dev. 0.0112352

Variance 0.00012623

At 100 years

01% of values less than 3.97369E-005

05% of values less than 4.61049E-005

10% of values less than 5.18454E-005

50% of values less than 9.13046E-005

90% of values less than 0.000206394

95% of values less than 0.000246664

99% of values less than 0.000432038

Minimum 3.57871E-005

Maximum 0.00146601

Mean 0.000117203

Std. Dev. 9.54738E-005

Variance 9.11525E-009

At 300 years

01% of values less than 9.07347E-011

05% of values less than 1.06841E-010

10% of values less than 1.18729E-010

50% of values less than 2.02643E-010

90% of values less than 4.72702E-010

95% of values less than 5.86139E-010

99% of values less than 1.99897E-008

Minimum 8.43908E-011

Maximum 3.78859E-007

Mean 1.60493E-009

Std. Dev. 1.63043E-008

Variance 2.6583E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 4.27711E-016

99% of values less than 2.72725E-015

Minimum 0

Maximum 1.19395E-014

Mean 1.06872E-016

Std. Dev. 6.26157E-016

Variance 3.92073E-031

Phase: Cell3A

Concentration of TPH Aromatic C12-C16 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aromatic C16-21 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.00261683

05% of values less than 0.0106688

10% of values less than 0.0142645

50% of values less than 0.0339842

90% of values less than 0.0837895

95% of values less than 0.108992

99% of values less than 0.133237

Minimum 0.000262666

Maximum 0.170494

Mean 0.042658

Std. Dev. 0.029424

Variance 0.00086577

At 100 years

01% of values less than 0.0126833

05% of values less than 0.0152831

10% of values less than 0.018

50% of values less than 0.0378962

90% of values less than 0.0933215

95% of values less than 0.115065

99% of values less than 0.145489

Minimum 0.0105263

Maximum 0.19949

Mean 0.0472679

Std. Dev. 0.0307707

Variance 0.000946833

At 300 years

01% of values less than 0.0126736

05% of values less than 0.0151329

10% of values less than 0.0178325

50% of values less than 0.0377366

90% of values less than 0.0928469

95% of values less than 0.114064

99% of values less than 0.142094

Minimum 0.0105161

Maximum 0.172681

Mean 0.0468542

Std. Dev. 0.0303159

Variance 0.000919056

At 1000 years

01% of values less than 0.0126736

05% of values less than 0.0151329

10% of values less than 0.0178325

50% of values less than 0.0377366

90% of values less than 0.0928469

95% of values less than 0.114064

99% of values less than 0.142094

Minimum 0.0105163

Maximum 0.172681

Mean 0.0468542

Std. Dev. 0.0303159

Variance 0.000919056

Phase: Cell3A

Concentration of TPH Aromatic C16-21 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0.0126736

05% of values less than 0.0151329

10% of values less than 0.0178325

50% of values less than 0.0377366

90% of values less than 0.0928469

95% of values less than 0.114064

99% of values less than 0.142094

Minimum 0.0105163

Maximum 0.172681

Mean 0.0468543

Std. Dev. 0.030316

Variance 0.00091906

Phase: Cell3A*Concentration of TPH Aromatic C21-35 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0.0117076

05% of values less than 0.0572046

10% of values less than 0.101139

50% of values less than 0.151663

90% of values less than 0.187777

95% of values less than 0.193582

99% of values less than 0.201564

Minimum 0.0040889

Maximum 0.456046

Mean 0.145637

Std. Dev. 0.0414476

Variance 0.00171791

At 100 years

01% of values less than 0.106349

05% of values less than 0.117347

10% of values less than 0.125859

50% of values less than 0.162403

90% of values less than 0.193895

95% of values less than 0.201042

99% of values less than 0.224771

Minimum 0.102733

Maximum 0.388134

Mean 0.161367

Std. Dev. 0.0277545

Variance 0.000770313

At 300 years

01% of values less than 0.106349

05% of values less than 0.116215

10% of values less than 0.125452

50% of values less than 0.161457

90% of values less than 0.191545

95% of values less than 0.197683

99% of values less than 0.205336

Minimum 0.102733

Maximum 0.211339

Mean 0.159781

Std. Dev. 0.0252568

Variance 0.000637905

At 1000 years

01% of values less than 0.106349

05% of values less than 0.116216

10% of values less than 0.125452

50% of values less than 0.161457

90% of values less than 0.191548

95% of values less than 0.197683

99% of values less than 0.205336

Minimum 0.102733

Maximum 0.211339

Mean 0.159781

Std. Dev. 0.0252568

Variance 0.000637904

Phase: Cell3A

Concentration of TPH Aromatic C21-35 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0.106349

05% of values less than 0.116215

10% of values less than 0.125452

50% of values less than 0.161457

90% of values less than 0.191561

95% of values less than 0.197683

99% of values less than 0.205336

Minimum 0.102733

Maximum 0.211339

Mean 0.159781

Std. Dev. 0.0252568

Variance 0.000637906

Phase: Cell3A*Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 5.82234E-007

05% of values less than 0.0150351

10% of values less than 1.64788

50% of values less than 1262.39

90% of values less than 1993

95% of values less than 2116.54

99% of values less than 2374.11

Minimum 0

Maximum 2571.85

Mean 1093.38

Std. Dev. 740.851

Variance 548860

At 100 years

01% of values less than 72.7669

05% of values less than 247.475

10% of values less than 387.176

50% of values less than 1045.43

90% of values less than 1538.74

95% of values less than 1665.78

99% of values less than 1862.54

Minimum 0.0470465

Maximum 2227.51

Mean 995.853

Std. Dev. 438.45

Variance 192239

At 300 years

01% of values less than 131.726

05% of values less than 248.296

10% of values less than 303.983

50% of values less than 895.174

90% of values less than 1365.19

95% of values less than 1503.75

99% of values less than 1715

Minimum 91.8411

Maximum 1988.38

Mean 866.779

Std. Dev. 390.079

Variance 152162

At 1000 years

01% of values less than 1.9272

05% of values less than 7.6967

10% of values less than 14.573

50% of values less than 183.977

90% of values less than 501.77

95% of values less than 588.902

99% of values less than 766.028

Minimum 0.418189

Maximum 980.799

Mean 224.752

Std. Dev. 191.842

Variance 36803.3

Phase: Cell3A

Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.08765E-011

90% of values less than 1.5382E-010

95% of values less than 2.14416E-010

99% of values less than 1.10042E-009

Minimum 0

Maximum 4.85955E-009

Mean 8.51272E-011

Std. Dev. 3.22925E-010

Variance 1.0428E-019

Phase: Cell3A*Concentration of Chloride at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 2.69332

05% of values less than 35.9605

10% of values less than 59.7853

50% of values less than 280.492

90% of values less than 862.019

95% of values less than 1160.75

99% of values less than 1590.83

Minimum 0.176956

Maximum 2198.68

Mean 391.828

Std. Dev. 355.383

Variance 126297

At 100 years

01% of values less than 5.96641

05% of values less than 15.3576

10% of values less than 27.0162

50% of values less than 142.344

90% of values less than 519.96

95% of values less than 711.069

99% of values less than 1551.07

Minimum 3.24669

Maximum 3711.34

Mean 236.389

Std. Dev. 309.851

Variance 96007.9

At 300 years

01% of values less than 1.85159

05% of values less than 5.93954

10% of values less than 10.9353

50% of values less than 82.1403

90% of values less than 347.714

95% of values less than 420.214

99% of values less than 627.909

Minimum 0.420292

Maximum 886.238

Mean 133.453

Std. Dev. 141.219

Variance 19942.7

At 1000 years

01% of values less than 0.000315202

05% of values less than 0.0041458

10% of values less than 0.0231565

50% of values less than 3.07084

90% of values less than 34.9742

95% of values less than 49.5694

99% of values less than 83.0754

Minimum 1.45027E-005

Maximum 141.266

Mean 10.9331

Std. Dev. 18.2607

Variance 333.452

Phase: Cell3A

Concentration of Chloride at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.2698E-012

90% of values less than 1.87253E-011

95% of values less than 2.66664E-011

99% of values less than 6.16158E-011

Minimum 0

Maximum 1.63784E-010

Mean 7.37813E-012

Std. Dev. 1.25199E-011

Variance 1.56748E-022

Phase: Cell3A*Concentration of Mercury at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 3.22521E-014

Minimum 0

Maximum 2.81207E-011

Mean 3.55953E-014

Std. Dev. 8.97283E-013

Variance 8.05116E-025

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 2.24116E-015
95% of values less than 3.33073E-012
99% of values less than 2.14528E-007

Minimum 0

Maximum 4.30212E-006

Mean 1.20759E-008

Std. Dev. 1.61873E-007

Variance 2.62029E-014

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 2.13264E-007
95% of values less than 2.10662E-006
99% of values less than 4.54731E-005

Minimum 0

Maximum 0.000240652

Mean 1.81935E-006

Std. Dev. 1.40305E-005

Variance 1.96855E-010

Phase: Cell3A

Concentration of Mercury at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 3.47266E-014
- 05% of values less than 1.7236E-010
- 10% of values less than 1.40041E-008
- 50% of values less than 1.04485E-005
- 90% of values less than 5.88419E-005
- 95% of values less than 7.72284E-005
- 99% of values less than 0.00010766

Minimum 0	Maximum 0.000116264	
Mean 1.95574E-005	Std. Dev. 2.58384E-005	Variance 6.67622E-010

Phase: Cell3A*Concentration of Phenols group 1 - phenol at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0.000970178

05% of values less than 0.0407516

10% of values less than 0.213216

50% of values less than 1.7897

90% of values less than 2.4623

95% of values less than 2.64001

99% of values less than 3.0479

Minimum 3.09771E-005

Maximum 3.43755

Mean 1.58656

Std. Dev. 0.793408

Variance 0.629496

At 100 years

01% of values less than 0.00685195

05% of values less than 0.0161575

10% of values less than 0.0280321

50% of values less than 0.0821176

90% of values less than 0.128895

95% of values less than 0.192499

99% of values less than 0.353935

Minimum 0.000796433

Maximum 0.515299

Mean 0.0879667

Std. Dev. 0.0608232

Variance 0.00369946

At 300 years

01% of values less than 2.42308E-006

05% of values less than 6.18971E-006

10% of values less than 9.45745E-006

50% of values less than 2.79275E-005

90% of values less than 4.06454E-005

95% of values less than 4.30243E-005

99% of values less than 4.94075E-005

Minimum 2.42422E-007

Maximum 0.000279355

Mean 2.68171E-005

Std. Dev. 1.42359E-005

Variance 2.02661E-010

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.86696E-012

95% of values less than 9.64701E-012

99% of values less than 2.85743E-011

Minimum 0

Maximum 2.73141E-010

Mean 2.1318E-012

Std. Dev. 1.14792E-011

Variance 1.31772E-022

Phase: Cell3A

Concentration of Phenols group 1 - phenol at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.41415E-015

90% of values less than 1.88591E-014

95% of values less than 2.63081E-014

99% of values less than 4.96478E-014

Minimum 0

Maximum 1.20463E-013

Mean 7.17344E-015

Std. Dev. 1.112E-014

Variance 1.23654E-028

Phase: Cell3A*Concentration of Phenols group 2 - cresols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 2.40993E-007

05% of values less than 1.74227E-005

10% of values less than 0.000127694

50% of values less than 0.00323005

90% of values less than 0.0207651

95% of values less than 0.0269685

99% of values less than 0.0425758

Minimum 1.5022E-009

Maximum 0.0629068

Mean 0.00735764

Std. Dev. 0.00959343

Variance 9.20339E-005

At 100 years

01% of values less than 5.24396E-007

05% of values less than 5.72598E-006

10% of values less than 1.25679E-005

50% of values less than 0.000171096

90% of values less than 0.00112619

95% of values less than 0.00153876

99% of values less than 0.00271838

Minimum 1.35565E-007

Maximum 0.00589634

Mean 0.000401814

Std. Dev. 0.000596686

Variance 3.56034E-007

At 300 years

01% of values less than 3.43398E-010

05% of values less than 2.02457E-009

10% of values less than 4.57934E-009

50% of values less than 5.76474E-008

90% of values less than 3.46158E-007

95% of values less than 4.75455E-007

99% of values less than 7.6989E-007

Minimum 5.56369E-011

Maximum 9.69877E-007

Mean 1.24088E-007

Std. Dev. 1.62753E-007

Variance 2.64886E-014

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.57253E-014

95% of values less than 3.69498E-014

99% of values less than 1.52904E-013

Minimum 0

Maximum 1.65594E-012

Mean 8.92062E-015

Std. Dev. 5.97257E-014

Variance 3.56716E-027

Phase: Cell3A

Concentration of Phenols group 2 - cresols at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.2899E-017

95% of values less than 1.43263E-016

99% of values less than 4.51787E-016

Minimum 0

Maximum 1.2058E-015

Mean 2.33731E-017

Std. Dev. 8.23361E-017

Variance 6.77923E-033

Phase: Cell3A*Concentration of Phenols group 3 - xlenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 6.81482E-009

05% of values less than 2.47585E-006

10% of values less than 5.09055E-005

50% of values less than 0.00851464

90% of values less than 0.0317459

95% of values less than 0.0368962

99% of values less than 0.0489762

Minimum 5.25332E-015

Maximum 0.0628658

Mean 0.0122483

Std. Dev. 0.0126514

Variance 0.000160057

At 100 years

01% of values less than 1.64989E-007

05% of values less than 1.57943E-006

10% of values less than 7.77875E-006

50% of values less than 0.000335107

90% of values less than 0.00185399

95% of values less than 0.00239018

99% of values less than 0.00350318

Minimum 3.13084E-011

Maximum 0.00550432

Mean 0.000674544

Std. Dev. 0.000831736

Variance 6.91784E-007

At 300 years

01% of values less than 7.24745E-011

05% of values less than 6.09549E-010

10% of values less than 2.80125E-009

50% of values less than 1.14922E-007

90% of values less than 5.96857E-007

95% of values less than 7.23907E-007

99% of values less than 9.76764E-007

Minimum 1.55265E-013

Maximum 1.32625E-006

Mean 2.17578E-007

Std. Dev. 2.48144E-007

Variance 6.15756E-014

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.01019E-014

95% of values less than 3.7722E-014

99% of values less than 1.39317E-013

Minimum 0

Maximum 3.81865E-012

Mean 1.14149E-014

Std. Dev. 1.24574E-013

Variance 1.55186E-026

Phase: Cell3A

Concentration of Phenols group 3 - xlenols at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.50753E-016

95% of values less than 2.55125E-016

99% of values less than 5.65168E-016

Minimum 0

Maximum 2.96215E-015

Mean 4.69069E-017

Std. Dev. 1.45379E-016

Variance 2.11351E-032

Phase: Cell3A

Concentration of Phenols group 4 - chlorophenols at base of Unsaturated Zone [mg/l]

At 30 years

01% of values less than 1.74766E-010
05% of values less than 3.593E-007
10% of values less than 3.58913E-005
50% of values less than 0.008791
90% of values less than 0.0514744
95% of values less than 0.0738208
99% of values less than 0.102911

Minimum 0

Maximum 0.156399

Mean 0.0192156

Std. Dev. 0.0248351

Variance 0.00061678

At 100 years

01% of values less than 3.91041E-005
05% of values less than 7.3352E-005
10% of values less than 0.000120834
50% of values less than 0.000929039
90% of values less than 0.0037071
95% of values less than 0.00506708
99% of values less than 0.00858206

Minimum 2.53354E-005

Maximum 0.0130605

Mean 0.00154272

Std. Dev. 0.00177123

Variance 3.13726E-006

At 300 years

01% of values less than 1.28455E-008
05% of values less than 2.41459E-008
10% of values less than 3.91179E-008
50% of values less than 3.23075E-007
90% of values less than 1.52368E-006
95% of values less than 9.40029E-006
99% of values less than 0.000150345

Minimum 7.979E-009

Maximum 0.00360541

Mean 9.49329E-006

Std. Dev. 0.000127138

Variance 1.6164E-008

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 7.81625E-014
95% of values less than 2.37312E-012
99% of values less than 9.22995E-011

Minimum 0

Maximum 3.27512E-007

Mean 4.08168E-010

Std. Dev. 1.06071E-008

Variance 1.1251E-016

Phase: Cell3A

Concentration of Phenols group 4 - chlorophenols at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.78083E-016

95% of values less than 4.7929E-016

99% of values less than 1.33329E-015

Minimum 0

Maximum 3.95422E-015

Mean 9.85303E-017

Std. Dev. 2.89954E-016

Variance 8.40732E-032

Phase: Cell3A*Concentration of Phenols group 5 - nitrophenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 6.79375E-009

05% of values less than 7.2286E-007

10% of values less than 4.08884E-006

50% of values less than 0.000151844

90% of values less than 0.000246145

95% of values less than 0.000264377

99% of values less than 0.000309695

Minimum 6.4586E-012

Maximum 0.000331546

Mean 0.000137378

Std. Dev. 9.19483E-005

Variance 8.45449E-009

At 100 years

01% of values less than 2.90533E-008

05% of values less than 1.73951E-007

10% of values less than 5.37733E-007

50% of values less than 6.76248E-006

90% of values less than 1.35403E-005

95% of values less than 1.73224E-005

99% of values less than 3.23329E-005

Minimum 1.38476E-009

Maximum 4.2835E-005

Mean 7.49947E-006

Std. Dev. 6.4649E-006

Variance 4.17949E-011

At 300 years

01% of values less than 1.19343E-011

05% of values less than 6.3546E-011

10% of values less than 1.88999E-010

50% of values less than 2.32684E-009

90% of values less than 4.53224E-009

95% of values less than 4.66902E-009

99% of values less than 4.73368E-009

Minimum 3.27397E-012

Maximum 5.08416E-009

Mean 2.33152E-009

Std. Dev. 1.58217E-009

Variance 2.50328E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.64182E-016

95% of values less than 6.24229E-016

99% of values less than 3.14291E-015

Minimum 0

Maximum 5.70888E-014

Mean 1.98247E-016

Std. Dev. 1.90123E-015

Variance 3.61467E-030

Phase: Cell3A

Concentration of Phenols group 5 - nitrophenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 4.85618E-017	
Mean 4.85133E-020	Std. Dev. 1.53489E-018	Variance 2.35589E-036

Phase: Cell3A*Concentration of TPH Aliphatic C5-6 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 1.51162E-009

05% of values less than 9.97104E-007

10% of values less than 5.42988E-005

50% of values less than 0.0263564

90% of values less than 0.0705447

95% of values less than 0.0753319

99% of values less than 0.082357

Minimum 2.48522E-013

Maximum 0.102827

Mean 0.0315898

Std. Dev. 0.027347

Variance 0.000747857

At 100 years

01% of values less than 1.58448E-008

05% of values less than 3.77958E-006

10% of values less than 3.65245E-005

50% of values less than 0.00125258

90% of values less than 0.00376503

95% of values less than 0.00423225

99% of values less than 0.00522578

Minimum 6.35706E-012

Maximum 0.00604736

Mean 0.00162577

Std. Dev. 0.00143781

Variance 2.06731E-006

At 300 years

01% of values less than 4.57468E-012

05% of values less than 1.37E-009

10% of values less than 1.21232E-008

50% of values less than 4.26461E-007

90% of values less than 1.27316E-006

95% of values less than 1.41457E-006

99% of values less than 1.65449E-006

Minimum 4.71685E-015

Maximum 2.76086E-006

Mean 5.48612E-007

Std. Dev. 4.85374E-007

Variance 2.35588E-013

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.68692E-014

95% of values less than 1.13044E-013

99% of values less than 5.47963E-013

Minimum 0

Maximum 3.94495E-012

Mean 3.04573E-014

Std. Dev. 1.92655E-013

Variance 3.71158E-026

Phase: Cell3A

Concentration of TPH Aliphatic C5-6 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.04124E-016

95% of values less than 6.58378E-016

99% of values less than 1.26774E-015

Minimum 0

Maximum 3.79618E-015

Mean 1.3059E-016

Std. Dev. 2.92899E-016

Variance 8.57896E-032

Phase: Cell3A*Concentration of TPH Aliphatic C6-8 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 2.89573E-012

50% of values less than 0.000112098

90% of values less than 0.00777703

95% of values less than 0.0101779

99% of values less than 0.013929

Minimum 0

Maximum 0.0159666

Mean 0.00201549

Std. Dev. 0.00347183

Variance 1.20536E-005

At 100 years

01% of values less than 0

05% of values less than 3.43646E-012

10% of values less than 4.66072E-010

50% of values less than 1.32291E-005

90% of values less than 0.000362677

95% of values less than 0.000550446

99% of values less than 0.000828245

Minimum 0

Maximum 0.000945126

Mean 0.000106302

Std. Dev. 0.000188538

Variance 3.55464E-008

At 300 years

01% of values less than 0

05% of values less than 1.29874E-015

10% of values less than 1.90187E-013

50% of values less than 3.50192E-009

90% of values less than 1.22324E-007

95% of values less than 1.85696E-007

99% of values less than 2.84027E-007

Minimum 0

Maximum 3.36638E-007

Mean 3.45727E-008

Std. Dev. 6.31488E-008

Variance 3.98777E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.9897E-015

99% of values less than 2.09969E-014

Minimum 0

Maximum 1.43818E-013

Mean 7.85476E-016

Std. Dev. 5.57693E-015

Variance 3.11022E-029

Phase: Cell3A

Concentration of TPH Aliphatic C6-8 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 4.49213E-017

99% of values less than 1.24092E-016

Minimum 0

Maximum 4.11198E-016

Mean 6.0774E-018

Std. Dev. 2.62524E-017

Variance 6.8919E-034

Phase: Cell3A*Concentration of TPH Aliphatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.43006E-006

95% of values less than 8.4273E-005

99% of values less than 0.000697805

Minimum 0

Maximum 0.00230865

Mean 2.61363E-005

Std. Dev. 0.000141836

Variance 2.01174E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.41606E-011

90% of values less than 2.01251E-006

95% of values less than 1.44076E-005

99% of values less than 0.000103498

Minimum 0

Maximum 0.000263411

Mean 3.38206E-006

Std. Dev. 1.74171E-005

Variance 3.03356E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 9.61647E-015

90% of values less than 3.82828E-010

95% of values less than 2.01288E-009

99% of values less than 1.07961E-008

Minimum 0

Maximum 3.10841E-008

Mean 4.35851E-010

Std. Dev. 2.04649E-009

Variance 4.18812E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 6.3222E-016

Minimum 0

Maximum 9.47032E-015

Mean 2.68432E-017

Std. Dev. 3.37543E-016

Variance 1.13936E-031

Phase: Cell3A

Concentration of TPH Aliphatic C8-10 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aliphatic C10-12 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.78182E-012

Minimum 0

Maximum 3.50024E-009

Mean 4.56428E-012

Std. Dev. 1.1275E-010

Variance 1.27127E-020

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.27661E-014

95% of values less than 1.11218E-011

99% of values less than 1.0223E-008

Minimum 0

Maximum 1.12693E-006

Mean 2.59501E-009

Std. Dev. 3.98511E-008

Variance 1.58811E-015

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 6.57797E-015

99% of values less than 6.02682E-013

Minimum 0

Maximum 4.7403E-011

Mean 9.77321E-014

Std. Dev. 1.61394E-012

Variance 2.60481E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Concentration of TPH Aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A

Concentration of TPH Aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A

Concentration of TPH Aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A

Concentration of TPH Aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A

Concentration of TPH Aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A*Concentration of TPH Aromatic C5-7 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 2.11049E-007

05% of values less than 1.00656E-005

10% of values less than 6.09165E-005

50% of values less than 0.00151906

90% of values less than 0.00242004

95% of values less than 0.00263739

99% of values less than 0.00294779

Minimum 1.28122E-011

Maximum 0.00367598

Mean 0.00137747

Std. Dev. 0.000862069

Variance 7.43163E-007

At 100 years

01% of values less than 1.55709E-007

05% of values less than 3.56181E-006

10% of values less than 1.0216E-005

50% of values less than 7.11146E-005

90% of values less than 0.00013122

95% of values less than 0.000192186

99% of values less than 0.000331352

Minimum 6.18138E-010

Maximum 0.000526217

Mean 7.70678E-005

Std. Dev. 6.39961E-005

Variance 4.0955E-009

At 300 years

01% of values less than 6.29788E-011

05% of values less than 1.24215E-009

10% of values less than 3.41429E-009

50% of values less than 2.40648E-008

90% of values less than 4.08315E-008

95% of values less than 4.33683E-008

99% of values less than 4.79759E-008

Minimum 2.72708E-012

Maximum 1.80954E-007

Mean 2.3179E-008

Std. Dev. 1.4691E-008

Variance 2.15826E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.62674E-015

95% of values less than 7.71231E-015

99% of values less than 1.87537E-014

Minimum 0

Maximum 2.03479E-013

Mean 1.66632E-015

Std. Dev. 7.71511E-015

Variance 5.9523E-029

Phase: Cell3A

Concentration of TPH Aromatic C5-7 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 3.12162E-017

Minimum 0

Maximum 1.18611E-016

Mean 8.20449E-019

Std. Dev. 6.58674E-018

Variance 4.33852E-035

Phase: Cell3A*Concentration of TPH Aromatic C7-8 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 2.51215E-011

05% of values less than 3.88101E-008

10% of values less than 7.33321E-007

50% of values less than 0.000328035

90% of values less than 0.00136991

95% of values less than 0.0016088

99% of values less than 0.00200332

Minimum 0

Maximum 0.00224334

Mean 0.000521354

Std. Dev. 0.000546899

Variance 2.99098E-007

At 100 years

01% of values less than 9.55375E-012

05% of values less than 1.0631E-008

10% of values less than 1.25375E-007

50% of values less than 1.50105E-005

90% of values less than 8.20345E-005

95% of values less than 0.000103907

99% of values less than 0.000165707

Minimum 0

Maximum 0.000281358

Mean 2.99624E-005

Std. Dev. 3.86465E-005

Variance 1.49355E-009

At 300 years

01% of values less than 3.14926E-015

05% of values less than 4.38134E-012

10% of values less than 4.36899E-011

50% of values less than 5.10452E-009

90% of values less than 2.51843E-008

95% of values less than 3.04683E-008

99% of values less than 3.73849E-008

Minimum 0

Maximum 4.66717E-008

Mean 9.08944E-009

Std. Dev. 1.01631E-008

Variance 1.03289E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.80284E-016

95% of values less than 1.91465E-015

99% of values less than 9.54656E-015

Minimum 0

Maximum 6.86931E-013

Mean 1.22106E-015

Std. Dev. 2.21487E-014

Variance 4.90566E-028

Phase: Cell3A

Concentration of TPH Aromatic C7-8 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.62877E-017

Minimum 0

Maximum 9.64453E-017

Mean 4.33077E-019

Std. Dev. 4.44618E-018

Variance 1.97685E-035

Phase: Cell3A*Concentration of TPH Aromatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 3.30627E-012

10% of values less than 4.51767E-010

50% of values less than 7.21656E-005

90% of values less than 0.00333967

95% of values less than 0.00488231

99% of values less than 0.00847114

Minimum 0

Maximum 0.0133805

Mean 0.000978744

Std. Dev. 0.00185621

Variance 3.44551E-006

At 100 years

01% of values less than 0

05% of values less than 5.65554E-012

10% of values less than 1.28473E-010

50% of values less than 3.31654E-006

90% of values less than 0.0001755

95% of values less than 0.000299395

99% of values less than 0.000523766

Minimum 0

Maximum 0.000808807

Mean 5.32646E-005

Std. Dev. 0.000109353

Variance 1.1958E-008

At 300 years

01% of values less than 0

05% of values less than 2.26937E-015

10% of values less than 4.91116E-014

50% of values less than 1.11436E-009

90% of values less than 6.0672E-008

95% of values less than 1.03095E-007

99% of values less than 1.79546E-007

Minimum 0

Maximum 2.85105E-007

Mean 1.82825E-008

Std. Dev. 3.77329E-008

Variance 1.42377E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.06278E-016

95% of values less than 1.12887E-015

99% of values less than 1.15547E-014

Minimum 0

Maximum 1.9508E-013

Mean 9.93379E-016

Std. Dev. 1.04489E-014

Variance 1.09179E-028

Phase: Cell3A

Concentration of TPH Aromatic C8-10 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.64531E-017

Minimum 0

Maximum 1.10415E-016

Mean 1.92469E-018

Std. Dev. 1.00162E-017

Variance 1.00323E-034

Phase: Cell3A*Concentration of TPH Aromatic C10-12 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 6.32497E-014

10% of values less than 4.06172E-011

50% of values less than 6.80209E-005

90% of values less than 0.0033765

95% of values less than 0.00558722

99% of values less than 0.0096294

Minimum 0

Maximum 0.012841

Mean 0.00101188

Std. Dev. 0.00200264

Variance 4.01058E-006

At 100 years

01% of values less than 0

05% of values less than 9.06472E-013

10% of values less than 2.66708E-010

50% of values less than 3.8504E-006

90% of values less than 0.000175295

95% of values less than 0.000320385

99% of values less than 0.000569695

Minimum 0

Maximum 0.000783878

Mean 5.42839E-005

Std. Dev. 0.000116202

Variance 1.3503E-008

At 300 years

01% of values less than 0

05% of values less than 4.09054E-016

10% of values less than 7.53724E-014

50% of values less than 1.21578E-009

90% of values less than 5.9722E-008

95% of values less than 1.10616E-007

99% of values less than 1.95261E-007

Minimum 0

Maximum 2.72883E-007

Mean 1.85326E-008

Std. Dev. 3.98622E-008

Variance 1.589E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 8.86133E-016

99% of values less than 1.46763E-014

Minimum 0

Maximum 9.67543E-013

Mean 1.7298E-015

Std. Dev. 3.17228E-014

Variance 1.00634E-027

Phase: Cell3A

Concentration of TPH Aromatic C10-12 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.78686E-017

Minimum 0

Maximum 2.16164E-016

Mean 2.47581E-018

Std. Dev. 1.53959E-017

Variance 2.37035E-034

Phase: Cell3A*Concentration of TPH Aromatic C12-C16 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 3.9792E-014

50% of values less than 1.18101E-005

90% of values less than 0.00208315

95% of values less than 0.00381059

99% of values less than 0.00846089

Minimum 0

Maximum 0.0162861

Mean 0.000657864

Std. Dev. 0.00174426

Variance 3.04243E-006

At 100 years

01% of values less than 0

05% of values less than 2.72615E-013

10% of values less than 1.74987E-011

50% of values less than 7.61138E-007

90% of values less than 0.0001033

95% of values less than 0.000213983

99% of values less than 0.000514954

Minimum 0

Maximum 0.000960633

Mean 3.56578E-005

Std. Dev. 0.000101593

Variance 1.03212E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 3.78327E-015

50% of values less than 2.13414E-010

90% of values less than 3.45284E-008

95% of values less than 7.17286E-008

99% of values less than 1.77856E-007

Minimum 0

Maximum 3.22301E-007

Mean 1.19074E-008

Std. Dev. 3.41163E-008

Variance 1.16392E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.96857E-017

95% of values less than 7.05579E-016

99% of values less than 4.92393E-015

Minimum 0

Maximum 1.96621E-014

Mean 1.97455E-016

Std. Dev. 1.20043E-015

Variance 1.44103E-030

Phase: Cell3A

Concentration of TPH Aromatic C12-C16 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 4.29323E-017

Minimum 0

Maximum 1.94371E-016

Mean 1.42849E-018

Std. Dev. 1.00625E-017

Variance 1.01254E-034

Phase: Cell3A*Concentration of TPH Aromatic C16-21 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.67084E-008

90% of values less than 0.00162625

95% of values less than 0.00461192

99% of values less than 0.0127454

Minimum 0

Maximum 0.0283725

Mean 0.000737683

Std. Dev. 0.00260807

Variance 6.802E-006

At 100 years

01% of values less than 0

05% of values less than 6.80224E-016

10% of values less than 1.07326E-012

50% of values less than 7.15472E-006

90% of values less than 0.00318443

95% of values less than 0.00703927

99% of values less than 0.0218408

Minimum 0

Maximum 0.0566461

Mean 0.00130543

Std. Dev. 0.00424417

Variance 1.8013E-005

At 300 years

01% of values less than 0

05% of values less than 6.15863E-014

10% of values less than 2.08403E-011

50% of values less than 1.16493E-005

90% of values less than 0.00300391

95% of values less than 0.00612008

99% of values less than 0.0146046

Minimum 0

Maximum 0.0291493

Mean 0.00103045

Std. Dev. 0.00291042

Variance 8.47054E-006

At 1000 years

01% of values less than 0

05% of values less than 6.15915E-014

10% of values less than 2.08403E-011

50% of values less than 1.16493E-005

90% of values less than 0.0030039

95% of values less than 0.00612006

99% of values less than 0.0145547

Minimum 0

Maximum 0.0291471

Mean 0.00102988

Std. Dev. 0.00290698

Variance 8.45053E-006

Phase: Cell3A

Concentration of TPH Aromatic C16-21 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 6.15915E-014

10% of values less than 2.08403E-011

50% of values less than 1.16493E-005

90% of values less than 0.00300391

95% of values less than 0.00612008

99% of values less than 0.0146046

Minimum 0

Maximum 0.0291492

Mean 0.00103046

Std. Dev. 0.00291043

Variance 8.4706E-006

Phase: Cell3A*Concentration of TPH Aromatic C21-35 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.13436E-012

95% of values less than 1.3652E-008

99% of values less than 4.08368E-006

Minimum 0

Maximum 3.40175E-005

Mean 1.94991E-007

Std. Dev. 1.93888E-006

Variance 3.75924E-012

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.44248E-007

95% of values less than 3.65077E-005

99% of values less than 0.000788909

Minimum 0

Maximum 0.00331833

Mean 2.5538E-005

Std. Dev. 0.000185756

Variance 3.45055E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.80125E-013

90% of values less than 2.63817E-006

95% of values less than 2.59906E-005

99% of values less than 0.000397163

Minimum 0

Maximum 0.00114081

Mean 1.30101E-005

Std. Dev. 8.14883E-005

Variance 6.64034E-009

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.39237E-013

90% of values less than 2.63818E-006

95% of values less than 2.59894E-005

99% of values less than 0.000398289

Minimum 0

Maximum 0.00119122

Mean 1.35327E-005

Std. Dev. 8.47216E-005

Variance 7.17775E-009

Phase: Cell3A

Concentration of TPH Aromatic C21-35 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.39237E-013

90% of values less than 2.63819E-006

95% of values less than 2.59906E-005

99% of values less than 0.000399041

Minimum 0

Maximum 0.00119132

Mean 1.35348E-005

Std. Dev. 8.47312E-005

Variance 7.17938E-009

Phase: Cell3A

Approx. time to Peak Conc. Ammoniacal_N at Base of Unsaturated Zone [years]

01% of values less than 9		
05% of values less than 11		
10% of values less than 13		
50% of values less than 32		
90% of values less than 156		
95% of values less than 190		
99% of values less than 282		
Minimum 8	Maximum 420	
Mean 57.3037	Std. Dev. 60.4662	Variance 3656.16

Approx. time to Peak Conc. Chloride at Base of Unsaturated Zone [years]

01% of values less than 7		
05% of values less than 8		
10% of values less than 9		
50% of values less than 26		
90% of values less than 47		
95% of values less than 78		
99% of values less than 100		
Minimum 6	Maximum 128	
Mean 30.4196	Std. Dev. 21.5016	Variance 462.318

Approx. time to Peak Conc. Mercury at Base of Unsaturated Zone [years]

01% of values less than 1856		
05% of values less than 3363		
10% of values less than 4999		
50% of values less than 20000		
90% of values less than 20000		
95% of values less than 20000		
99% of values less than 20000		
Minimum 0	Maximum 20000	
Mean 15732.3	Std. Dev. 6135.64	Variance 3.76461E+007

Approx. time to Peak Conc. Phenols group 1 - phenol at Base of Unsaturated Zone [years]

01% of values less than 7		
05% of values less than 8		
10% of values less than 9		
50% of values less than 21		
90% of values less than 47		
95% of values less than 47		
99% of values less than 70		
Minimum 7	Maximum 86	
Mean 23.8412	Std. Dev. 13.7231	Variance 188.324

Approx. time to Peak Conc. Phenols group 2 - cresols at Base of Unsaturated Zone [years]

01% of values less than 8
05% of values less than 8
10% of values less than 9
50% of values less than 21

Phase: Cell3A

Approx. time to Peak Conc. Phenols group 2 - cresols at Base of Unsaturated Zone [years]

01% of values less than 8		
05% of values less than 8		
10% of values less than 9		
50% of values less than 21		
90% of values less than 47		
95% of values less than 47		
99% of values less than 70		
Minimum 7	Maximum 86	
Mean 24.3197	Std. Dev. 13.64	Variance 186.05

Approx. time to Peak Conc. Phenols group 3 - xylenols at Base of Unsaturated Zone [years]

01% of values less than 8		
05% of values less than 9		
10% of values less than 10		
50% of values less than 21		
90% of values less than 47		
95% of values less than 47		
99% of values less than 78		
Minimum 8	Maximum 86	
Mean 25.0599	Std. Dev. 13.8824	Variance 192.722

Approx. time to Peak Conc. Phenols group 4 - chlorophenols at Base of Unsaturated Zone [years]

01% of values less than 8		
05% of values less than 10		
10% of values less than 11		
50% of values less than 28		
90% of values less than 78		
95% of values less than 105		
99% of values less than 141		
Minimum 7	Maximum 210	
Mean 36.4585	Std. Dev. 29.9756	Variance 898.535

Approx. time to Peak Conc. Phenols group 5 - nitrophenols at Base of Unsaturated Zone [years]

01% of values less than 8		
05% of values less than 8		
10% of values less than 10		
50% of values less than 21		
90% of values less than 47		
95% of values less than 47		
99% of values less than 70		
Minimum 7	Maximum 86	
Mean 24.4076	Std. Dev. 13.6983	Variance 187.644

Approx. time to Peak Conc. TPH Aliphatic C5-6 at Base of Unsaturated Zone [years]

01% of values less than 8
05% of values less than 9
10% of values less than 10
50% of values less than 23

Phase: Cell3A

Approx. time to Peak Conc. TPH Aliphatic C5-6 at Base of Unsaturated Zone [years]

01% of values less than 8		
05% of values less than 9		
10% of values less than 10		
50% of values less than 23		
90% of values less than 47		
95% of values less than 47		
99% of values less than 86		
Minimum 8	Maximum 105	
Mean 27.3846	Std. Dev. 15.9282	Variance 253.707

Approx. time to Peak Conc. TPH Aliphatic C6-8 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 11		
10% of values less than 14		
50% of values less than 32		
90% of values less than 78		
95% of values less than 95		
99% of values less than 116		
Minimum 0	Maximum 156	
Mean 37.5554	Std. Dev. 24.722	Variance 611.177

Approx. time to Peak Conc. TPH Aliphatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 47		
90% of values less than 116		
95% of values less than 141		
99% of values less than 172		
Minimum 0	Maximum 190	
Mean 52.995	Std. Dev. 46.9759	Variance 2206.73

Approx. time to Peak Conc. TPH Aliphatic C10-12 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 100		
95% of values less than 141		
99% of values less than 172		
Minimum 0	Maximum 190	
Mean 18.1269	Std. Dev. 44.3863	Variance 1970.14

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0

Phase: Cell3A

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aliphatic C16-35 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aromatic C5-7 at Base of Unsaturated Zone [years]

01% of values less than 7		
05% of values less than 8		
10% of values less than 9		
50% of values less than 21		
90% of values less than 47		
95% of values less than 47		
99% of values less than 70		
Minimum 7	Maximum 86	
Mean 23.9181	Std. Dev. 13.6196	Variance 185.493

Approx. time to Peak Conc. TPH Aromatic C7-8 at Base of Unsaturated Zone [years]

01% of values less than 8		
05% of values less than 8		
10% of values less than 10		
50% of values less than 21		
90% of values less than 47		
95% of values less than 47		
99% of values less than 47		
Minimum 0	Maximum 86	
Mean 24.1918	Std. Dev. 13.3653	Variance 178.631

Approx. time to Peak Conc. TPH Aromatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 8
05% of values less than 9
10% of values less than 11
50% of values less than 23

Phase: Cell3A

Approx. time to Peak Conc. TPH Aromatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 8		
05% of values less than 9		
10% of values less than 11		
50% of values less than 23		
90% of values less than 47		
95% of values less than 47		
99% of values less than 86		
Minimum 0	Maximum 95	
Mean 27.0679	Std. Dev. 15.3592	Variance 235.905

Approx. time to Peak Conc. TPH Aromatic C10-12 at Base of Unsaturated Zone [years]

01% of values less than 8		
05% of values less than 10		
10% of values less than 13		
50% of values less than 28		
90% of values less than 47		
95% of values less than 47		
99% of values less than 95		
Minimum 0	Maximum 128	
Mean 30.4286	Std. Dev. 17.7926	Variance 316.575

Approx. time to Peak Conc. TPH Aromatic C12-C16 at Base of Unsaturated Zone [years]

01% of values less than 10		
05% of values less than 13		
10% of values less than 16		
50% of values less than 35		
90% of values less than 78		
95% of values less than 86		
99% of values less than 105		
Minimum 0	Maximum 141	
Mean 37.7493	Std. Dev. 21.9538	Variance 481.97

Approx. time to Peak Conc. TPH Aromatic C16-21 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 64		
10% of values less than 64		
50% of values less than 1523		
90% of values less than 1681		
95% of values less than 1681		
99% of values less than 12189		
Minimum 0	Maximum 18114	
Mean 1415.79	Std. Dev. 1900.6	Variance 3.61227E+006

Approx. time to Peak Conc. TPH Aromatic C21-35 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 1523

Phase: Cell3A

Approx. time to Peak Conc. TPH Aromatic C21-35 at Base of Unsaturated Zone [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1523

90% of values less than 1681

95% of values less than 1681

99% of values less than 1856

Minimum 0

Maximum 18114

Mean 1073.36

Std. Dev. 1407.22

Variance 1.98027E+006

Phase: Cell3A*Concentration of Ammoniacal_N at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 9.51829E-011

05% of values less than 3.38118E-005

10% of values less than 0.00832428

50% of values less than 112.748

90% of values less than 895.952

95% of values less than 1103.9

99% of values less than 1565.4

Minimum 0

Maximum 2011.25

Mean 293.634

Std. Dev. 384.922

Variance 148165

At 100 years

01% of values less than 2.45914

05% of values less than 28.1926

10% of values less than 69.2241

50% of values less than 438.234

90% of values less than 1066.96

95% of values less than 1202.51

99% of values less than 1422.07

Minimum 0.00144015

Maximum 1712.4

Mean 507.757

Std. Dev. 370.353

Variance 137161

At 300 years

01% of values less than 14.7564

05% of values less than 47.9149

10% of values less than 90.4387

50% of values less than 406.062

90% of values less than 1006.16

95% of values less than 1156.22

99% of values less than 1377.45

Minimum 5.30551

Maximum 1563.32

Mean 489.127

Std. Dev. 347.458

Variance 120727

At 1000 years

01% of values less than 0.626599

05% of values less than 4.34465

10% of values less than 11.0332

50% of values less than 124.536

90% of values less than 418.175

95% of values less than 525.58

99% of values less than 718.833

Minimum 0.197668

Maximum 1065.32

Mean 179.508

Std. Dev. 171.851

Variance 29532.7

Phase: Cell3A

Concentration of Ammoniacal_N at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 3.2781E-012

99% of values less than 3.49045E-010

Minimum 0

Maximum 4.28059E-005

Mean 1.0171E-007

Std. Dev. 1.83779E-006

Variance 3.37749E-012

Phase: Cell3A*Concentration of Chloride at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0.0183304

05% of values less than 1.10522

10% of values less than 3.61567

50% of values less than 50.7938

90% of values less than 351.824

95% of values less than 550.944

99% of values less than 858.321

Minimum 0.00061829

Maximum 1650.66

Mean 128.637

Std. Dev. 190.547

Variance 36308.2

At 100 years

01% of values less than 1.09084

05% of values less than 3.69679

10% of values less than 7.98473

50% of values less than 61.7282

90% of values less than 282.319

95% of values less than 385.43

99% of values less than 558.93

Minimum 0.196758

Maximum 980.817

Mean 108.621

Std. Dev. 127.648

Variance 16294.1

At 300 years

01% of values less than 0.361419

05% of values less than 1.65478

10% of values less than 4.29081

50% of values less than 41.452

90% of values less than 210.533

95% of values less than 282.587

99% of values less than 422.219

Minimum 0.0657551

Maximum 642.497

Mean 77.096

Std. Dev. 95.8185

Variance 9181.19

At 1000 years

01% of values less than 0.000421126

05% of values less than 0.00530388

10% of values less than 0.0331386

50% of values less than 3.02984

90% of values less than 30.0109

95% of values less than 46.6028

99% of values less than 79.4688

Minimum 2.59957E-005

Maximum 152.488

Mean 10.3546

Std. Dev. 17.7609

Variance 315.448

Phase: Cell3A

Concentration of Chloride at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 6.37196E-015

99% of values less than 6.02204E-010

Minimum 0

Maximum 1.26971E-007

Mean 2.32116E-010

Std. Dev. 4.59075E-009

Variance 2.1075E-017

Phase: Cell3A*Concentration of Mercury at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 3.38982E-012

Minimum 0

Maximum 2.38356E-008

Mean 5.03222E-011

Std. Dev. 9.98711E-010

Variance 9.97424E-019

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 4.15176E-009
95% of values less than 1.36075E-007
99% of values less than 6.16822E-006

Minimum 0

Maximum 4.65147E-005

Mean 2.52052E-007

Std. Dev. 2.41273E-006

Variance 5.82126E-012

Phase: Cell3A

Concentration of Mercury at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 8.61915E-016
- 05% of values less than 2.96115E-010
- 10% of values less than 1.25009E-008
- 50% of values less than 4.60874E-006
- 90% of values less than 3.53434E-005
- 95% of values less than 5.31666E-005
- 99% of values less than 8.34092E-005

Minimum 0	Maximum 9.95261E-005	
Mean 1.16075E-005	Std. Dev. 1.76037E-005	Variance 3.09889E-010

Phase: Cell3A*Concentration of Phenols group 1 - phenol at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 2.59313E-006

05% of values less than 0.000420747

10% of values less than 0.00382019

50% of values less than 0.18061

90% of values less than 0.830981

95% of values less than 0.973818

99% of values less than 1.33598

Minimum 5.81334E-008

Maximum 1.74458

Mean 0.301808

Std. Dev. 0.331302

Variance 0.109761

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.011954

90% of values less than 0.0415986

95% of values less than 0.053755

99% of values less than 0.135518

Minimum 0

Maximum 3.21162

Mean 0.0220411

Std. Dev. 0.105553

Variance 0.0111415

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.84573E-006

99% of values less than 0.0839896

Minimum 0

Maximum 3.14949

Mean 0.00529725

Std. Dev. 0.101854

Variance 0.0103742

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0213027

Minimum 0

Maximum 0.309077

Mean 0.000857396

Std. Dev. 0.0107333

Variance 0.000115204

Phase: Cell3A

Concentration of Phenols group 1 - phenol at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0143967

Minimum 0

Maximum 0.168346

Mean 0.000585243

Std. Dev. 0.00630653

Variance 3.97724E-005

Phase: Cell3A*Concentration of Phenols group 2 - cresols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 1.05639E-009

05% of values less than 2.2962E-007

10% of values less than 2.09446E-006

50% of values less than 0.000312085

90% of values less than 0.00373404

95% of values less than 0.0062675

99% of values less than 0.0144651

Minimum 5.41702E-012

Maximum 0.022958

Mean 0.0013153

Std. Dev. 0.0026168

Variance 6.84765E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.21818E-005

90% of values less than 0.000217681

95% of values less than 0.000383773

99% of values less than 0.000955881

Minimum 0

Maximum 0.0148628

Mean 9.04713E-005

Std. Dev. 0.000496621

Variance 2.46633E-007

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 3.35094E-009

99% of values less than 0.000176557

Minimum 0

Maximum 0.0146461

Mean 2.07294E-005

Std. Dev. 0.000466365

Variance 2.17496E-007

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 6.11958E-005

Minimum 0

Maximum 0.00143731

Mean 2.99203E-006

Std. Dev. 4.74987E-005

Variance 2.25612E-009

Phase: Cell3A

Concentration of Phenols group 2 - cresols at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.34095E-005

Minimum 0

Maximum 0.000782861

Mean 1.96777E-006

Std. Dev. 2.6738E-005

Variance 7.14921E-010

Phase: Cell3A*Concentration of Phenols group 3 - xlenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 1.43147E-011

05% of values less than 1.39912E-008

10% of values less than 4.54042E-007

50% of values less than 0.000497058

90% of values less than 0.00672486

95% of values less than 0.010211

99% of values less than 0.0188951

Minimum 0

Maximum 0.025851

Mean 0.00215883

Std. Dev. 0.00383785

Variance 1.47291E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.75576E-006

90% of values less than 0.000313591

95% of values less than 0.000544849

99% of values less than 0.00214453

Minimum 0

Maximum 0.0578352

Mean 0.00019332

Std. Dev. 0.00194815

Variance 3.7953E-006

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 9.80277E-010

99% of values less than 0.00112509

Minimum 0

Maximum 0.0572437

Mean 0.000100491

Std. Dev. 0.00190364

Variance 3.62384E-006

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.00030698

Minimum 0

Maximum 0.00561766

Mean 1.52815E-005

Std. Dev. 0.00020325

Variance 4.13106E-008

Phase: Cell3A

Concentration of Phenols group 3 - xlenols at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.000230645

Minimum 0

Maximum 0.00305979

Mean 1.03015E-005

Std. Dev. 0.000122258

Variance 1.49471E-008

Phase: Cell3A*Concentration of Phenols group 4 - chlorophenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 2.3236E-015
05% of values less than 9.35823E-010
10% of values less than 2.44189E-007
50% of values less than 0.00107357
90% of values less than 0.0159476
95% of values less than 0.0252702
99% of values less than 0.0530691

Minimum 0

Maximum 0.105259

Mean 0.00555593

Std. Dev. 0.0109989

Variance 0.000120976

At 100 years

01% of values less than 6.19328E-006
05% of values less than 3.58938E-005
10% of values less than 6.60663E-005
50% of values less than 0.000539595
90% of values less than 0.00294557
95% of values less than 0.00399723
99% of values less than 0.00637381

Minimum 6.82373E-007

Maximum 0.0164614

Mean 0.00112031

Std. Dev. 0.00153505

Variance 2.35637E-006

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 8.7344E-008
90% of values less than 9.18694E-006
95% of values less than 3.68805E-005
99% of values less than 0.000179328

Minimum 0

Maximum 0.00238544

Mean 1.03921E-005

Std. Dev. 9.11678E-005

Variance 8.31157E-009

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 4.01291E-009
95% of values less than 1.06944E-007
99% of values less than 2.80209E-006

Minimum 0

Maximum 9.07907E-005

Mean 1.79679E-007

Std. Dev. 2.95573E-006

Variance 8.73637E-012

Phase: Cell3A

Concentration of Phenols group 4 - chlorophenols at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 6.66118E-012

Minimum 0

Maximum 2.30301E-010

Mean 4.66938E-013

Std. Dev. 8.03302E-012

Variance 6.45293E-023

Phase: Cell3A*Concentration of Phenols group 5 - nitrophenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 2.15384E-011

05% of values less than 6.88386E-009

10% of values less than 4.95486E-008

50% of values less than 1.1545E-005

90% of values less than 7.38949E-005

95% of values less than 9.67161E-005

99% of values less than 0.000136896

Minimum 3.57366E-014

Maximum 0.000177678

Mean 2.51306E-005

Std. Dev. 3.22778E-005

Variance 1.04185E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.1835E-007

90% of values less than 3.81849E-006

95% of values less than 5.16669E-006

99% of values less than 1.44514E-005

Minimum 0

Maximum 0.00033602

Mean 1.82908E-006

Std. Dev. 1.12147E-005

Variance 1.2577E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 9.51964E-011

99% of values less than 8.50463E-006

Minimum 0

Maximum 0.00032958

Mean 5.82705E-007

Std. Dev. 1.08002E-005

Variance 1.16645E-010

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.15704E-006

Minimum 0

Maximum 3.23434E-005

Mean 9.38109E-008

Std. Dev. 1.15117E-006

Variance 1.3252E-012

Phase: Cell3A

Concentration of Phenols group 5 - nitrophenols at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.5394E-006

Minimum 0

Maximum 1.76166E-005

Mean 6.33989E-008

Std. Dev. 6.78953E-007

Variance 4.60977E-013

Phase: Cell3A*Concentration of TPH Aliphatic C5-6 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 9.80572E-013

05% of values less than 3.72639E-009

10% of values less than 5.50612E-007

50% of values less than 0.00175194

90% of values less than 0.0210024

95% of values less than 0.027215

99% of values less than 0.0455363

Minimum 4.86247E-016

Maximum 0.0573177

Mean 0.00630541

Std. Dev. 0.00989445

Variance 9.79002E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.20693E-005

90% of values less than 0.00102117

95% of values less than 0.00156452

99% of values less than 0.00406863

Minimum 0

Maximum 0.0797856

Mean 0.00047609

Std. Dev. 0.00275165

Variance 7.5716E-006

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.57163E-008

99% of values less than 0.00212774

Minimum 0

Maximum 0.0794599

Mean 0.000148612

Std. Dev. 0.00263947

Variance 6.96678E-006

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.000539633

Minimum 0

Maximum 0.00779791

Mean 2.41353E-005

Std. Dev. 0.000292824

Variance 8.57459E-008

Phase: Cell3A

Concentration of TPH Aliphatic C5-6 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.000439932

Minimum 0

Maximum 0.00424731

Mean 1.64558E-005

Std. Dev. 0.000178535

Variance 3.18746E-008

Phase: Cell3A*Concentration of TPH Aliphatic C6-8 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 5.92252E-016

50% of values less than 1.56458E-006

90% of values less than 0.000783312

95% of values less than 0.00181719

99% of values less than 0.00427713

Minimum 0

Maximum 0.00810715

Mean 0.000285282

Std. Dev. 0.000848701

Variance 7.20293E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.13554E-008

90% of values less than 2.18772E-005

95% of values less than 6.015E-005

99% of values less than 0.000330941

Minimum 0

Maximum 0.0180747

Mean 3.85916E-005

Std. Dev. 0.000603501

Variance 3.64213E-007

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.0936E-012

95% of values less than 4.1585E-011

99% of values less than 0.000220782

Minimum 0

Maximum 0.0179273

Mean 2.88608E-005

Std. Dev. 0.000593699

Variance 3.52478E-007

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 6.58418E-005

Minimum 0

Maximum 0.00175931

Mean 4.11513E-006

Std. Dev. 6.29756E-005

Variance 3.96592E-009

Phase: Cell3A

Concentration of TPH Aliphatic C6-8 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 4.93955E-005

Minimum 0

Maximum 0.00095825

Mean 2.68202E-006

Std. Dev. 3.75804E-005

Variance 1.41229E-009

Phase: Cell3A*Concentration of TPH Aliphatic C8-10 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.86067E-009

95% of values less than 3.09461E-007

99% of values less than 1.14077E-005

Minimum 0

Maximum 8.78283E-005

Mean 5.27441E-007

Std. Dev. 4.58093E-006

Variance 2.09849E-011

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.35899E-015

90% of values less than 1.70452E-008

95% of values less than 1.16277E-007

99% of values less than 1.40019E-006

Minimum 0

Maximum 1.52603E-005

Mean 8.68676E-008

Std. Dev. 8.30716E-007

Variance 6.90089E-013

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 6.5545E-015

95% of values less than 1.15768E-013

99% of values less than 8.63454E-008

Minimum 0

Maximum 1.25031E-005

Mean 3.44278E-008

Std. Dev. 5.59432E-007

Variance 3.12964E-013

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.1713E-008

Minimum 0

Maximum 3.39987E-006

Mean 9.78887E-009

Std. Dev. 1.53584E-007

Variance 2.35879E-014

Phase: Cell3A

Concentration of TPH Aliphatic C8-10 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.63138E-008

Minimum 0

Maximum 1.69711E-006

Mean 6.33115E-009

Std. Dev. 9.12411E-008

Variance 8.32494E-015

Phase: Cell3A

Concentration of TPH Aliphatic C10-12 at Phase Monitor Well [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 5.27129E-016	
Mean 5.77651E-019	Std. Dev. 1.67375E-017	Variance 2.80142E-034

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 2.88792E-016
99% of values less than 3.42982E-012

Minimum 0	Maximum 1.68404E-009	
Mean 2.99213E-012	Std. Dev. 5.72521E-011	Variance 3.2778E-021

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 1.369E-013

Minimum 0	Maximum 5.05501E-011	
Mean 1.39971E-013	Std. Dev. 2.36631E-012	Variance 5.59943E-024

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 6.53362E-014

Minimum 0	Maximum 3.54792E-011	
Mean 8.28727E-014	Std. Dev. 1.45264E-012	Variance 2.11017E-024

Phase: Cell3A

Concentration of TPH Aliphatic C10-12 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.38376E-014

Minimum 0

Maximum 2.34862E-011

Mean 6.36354E-014

Std. Dev. 1.08455E-012

Variance 1.17624E-024

Phase: Cell3A

Concentration of TPH Aliphatic C12-16 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A

Concentration of TPH Aliphatic C12-16 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A

Concentration of TPH Aliphatic C16-35 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A

Concentration of TPH Aliphatic C16-35 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A*Concentration of TPH Aromatic C5-7 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 6.74837E-010

05% of values less than 6.65814E-008

10% of values less than 1.1804E-006

50% of values less than 0.000114622

90% of values less than 0.000676004

95% of values less than 0.000888914

99% of values less than 0.00121533

Minimum 7.28774E-014

Maximum 0.00161154

Mean 0.000234918

Std. Dev. 0.000292872

Variance 8.5774E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 6.19794E-006

90% of values less than 3.52909E-005

95% of values less than 5.01837E-005

99% of values less than 0.00012365

Minimum 0

Maximum 0.00343825

Mean 1.7679E-005

Std. Dev. 0.000112411

Variance 1.26363E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.44302E-009

99% of values less than 6.44527E-005

Minimum 0

Maximum 0.0033935

Mean 5.5463E-006

Std. Dev. 0.000109538

Variance 1.19985E-008

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.88072E-005

Minimum 0

Maximum 0.000333025

Mean 8.7198E-007

Std. Dev. 1.13998E-005

Variance 1.29957E-010

Phase: Cell3A

Concentration of TPH Aromatic C5-7 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.5108E-005

Minimum 0

Maximum 0.000181389

Mean 5.9212E-007

Std. Dev. 6.63754E-006

Variance 4.4057E-011

Phase: Cell3A*Concentration of TPH Aromatic C7-8 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 3.49695E-014

05% of values less than 2.1715E-010

10% of values less than 6.88413E-009

50% of values less than 1.19126E-005

90% of values less than 0.00022579

95% of values less than 0.000364333

99% of values less than 0.000619746

Minimum 0

Maximum 0.000912497

Mean 7.34683E-005

Std. Dev. 0.000132582

Variance 1.75779E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.5294E-008

90% of values less than 1.09999E-005

95% of values less than 1.83608E-005

99% of values less than 8.08625E-005

Minimum 0

Maximum 0.00189131

Mean 6.39757E-006

Std. Dev. 6.36979E-005

Variance 4.05742E-009

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.08737E-011

99% of values less than 4.34836E-005

Minimum 0

Maximum 0.00187651

Mean 3.34778E-006

Std. Dev. 6.23131E-005

Variance 3.88292E-009

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.1097E-005

Minimum 0

Maximum 0.000184153

Mean 5.1622E-007

Std. Dev. 6.59364E-006

Variance 4.34761E-011

Phase: Cell3A

Concentration of TPH Aromatic C7-8 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 9.31916E-006

Minimum 0

Maximum 0.000100303

Mean 3.47936E-007

Std. Dev. 3.90893E-006

Variance 1.52798E-011

Phase: Cell3A*Concentration of TPH Aromatic C8-10 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 1.83959E-015

10% of values less than 1.34728E-012

50% of values less than 1.26354E-006

90% of values less than 0.000286919

95% of values less than 0.00069295

99% of values less than 0.00193815

Minimum 0

Maximum 0.00469611

Mean 0.000123742

Std. Dev. 0.000400848

Variance 1.60679E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.95884E-012

90% of values less than 5.46905E-006

95% of values less than 2.43171E-005

99% of values less than 0.000189233

Minimum 0

Maximum 0.00336778

Mean 1.02904E-005

Std. Dev. 0.000113843

Variance 1.29603E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.20258E-013

99% of values less than 0.000100045

Minimum 0

Maximum 0.00336122

Mean 6.00397E-006

Std. Dev. 0.000109165

Variance 1.1917E-008

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.78513E-005

Minimum 0

Maximum 0.000329859

Mean 1.02964E-006

Std. Dev. 1.23435E-005

Variance 1.52362E-010

Phase: Cell3A

Concentration of TPH Aromatic C8-10 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.08815E-005

Minimum 0

Maximum 0.000179665

Mean 7.11889E-007

Std. Dev. 7.75168E-006

Variance 6.00885E-011

Phase: Cell3A*Concentration of TPH Aromatic C10-12 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 2.86052E-014

50% of values less than 1.10864E-006

90% of values less than 0.000298416

95% of values less than 0.000778693

99% of values less than 0.00229758

Minimum 0

Maximum 0.00435047

Mean 0.000136443

Std. Dev. 0.000440813

Variance 1.94316E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.16517E-011

90% of values less than 6.02232E-006

95% of values less than 2.30679E-005

99% of values less than 0.000216662

Minimum 0

Maximum 0.00324689

Mean 1.4123E-005

Std. Dev. 0.000150132

Variance 2.25395E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 7.74801E-013

99% of values less than 0.000110038

Minimum 0

Maximum 0.00310508

Mean 9.49325E-006

Std. Dev. 0.000142372

Variance 2.02699E-008

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 4.13714E-005

Minimum 0

Maximum 0.00042728

Mean 1.73801E-006

Std. Dev. 2.02865E-005

Variance 4.11541E-010

Phase: Cell3A

Concentration of TPH Aromatic C10-12 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 3.09891E-005

Minimum 0

Maximum 0.000310244

Mean 1.23543E-006

Std. Dev. 1.47061E-005

Variance 2.1627E-010

Phase: Cell3A*Concentration of TPH Aromatic C12-C16 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.0056E-007

90% of values less than 0.000152391

95% of values less than 0.00042506

99% of values less than 0.0014181

Minimum 0

Maximum 0.00364223

Mean 7.63288E-005

Std. Dev. 0.000292398

Variance 8.54967E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.07594E-011

90% of values less than 8.72822E-007

95% of values less than 5.71096E-006

99% of values less than 0.000171571

Minimum 0

Maximum 0.00501819

Mean 1.0244E-005

Std. Dev. 0.000164699

Variance 2.71257E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.12489E-016

95% of values less than 4.21256E-014

99% of values less than 5.18942E-005

Minimum 0

Maximum 0.00501034

Mean 8.14491E-006

Std. Dev. 0.000162392

Variance 2.63713E-008

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.7307E-005

Minimum 0

Maximum 0.000491699

Mean 1.30335E-006

Std. Dev. 1.80681E-005

Variance 3.26456E-010

Phase: Cell3A

Concentration of TPH Aromatic C12-C16 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.04862E-005

Minimum 0

Maximum 0.000267815

Mean 8.9672E-007

Std. Dev. 1.17049E-005

Variance 1.37005E-010

Phase: Cell3A*Concentration of TPH Aromatic C16-21 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.6106E-012

90% of values less than 4.76927E-005

95% of values less than 0.000214128

99% of values less than 0.00111042

Minimum 0

Maximum 0.00520057

Mean 5.35847E-005

Std. Dev. 0.000297178

Variance 8.8315E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 3.81269E-016

50% of values less than 3.52458E-007

90% of values less than 0.000285612

95% of values less than 0.000566971

99% of values less than 0.00152485

Minimum 0

Maximum 0.00395687

Mean 0.000101037

Std. Dev. 0.000312621

Variance 9.77317E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 7.3568E-014

50% of values less than 7.73068E-007

90% of values less than 0.00032066

95% of values less than 0.000662887

99% of values less than 0.00188819

Minimum 0

Maximum 0.00398109

Mean 0.000119062

Std. Dev. 0.000362451

Variance 1.31371E-007

At 1000 years

01% of values less than 0

05% of values less than 4.10213E-016

10% of values less than 5.65287E-013

50% of values less than 1.19291E-006

90% of values less than 0.000615535

95% of values less than 0.00131569

99% of values less than 0.00441404

Minimum 0

Maximum 0.0101444

Mean 0.000245778

Std. Dev. 0.000806316

Variance 6.50145E-007

Phase: Cell3A

Concentration of TPH Aromatic C16-21 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 4.98658E-016

10% of values less than 6.35578E-013

50% of values less than 1.20979E-006

90% of values less than 0.000685502

95% of values less than 0.00158505

99% of values less than 0.00487561

Minimum 0

Maximum 0.0131857

Mean 0.000285082

Std. Dev. 0.000944908

Variance 8.92852E-007

Phase: Cell3A*Concentration of TPH Aromatic C21-35 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.56152E-015

99% of values less than 6.08141E-011

Minimum 0

Maximum 2.20115E-008

Mean 4.08774E-011

Std. Dev. 7.74861E-010

Variance 6.00409E-019

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.62793E-009

95% of values less than 1.24137E-007

99% of values less than 4.43938E-006

Minimum 0

Maximum 3.70942E-005

Mean 2.14799E-007

Std. Dev. 1.91924E-006

Variance 3.68348E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.52944E-015

90% of values less than 4.10148E-008

95% of values less than 4.95926E-007

99% of values less than 1.02295E-005

Minimum 0

Maximum 8.62624E-005

Mean 4.67643E-007

Std. Dev. 4.1938E-006

Variance 1.75879E-011

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.50262E-015

90% of values less than 1.48622E-007

95% of values less than 1.99667E-006

99% of values less than 3.86916E-005

Minimum 0

Maximum 0.000206996

Mean 1.38914E-006

Std. Dev. 1.06108E-005

Variance 1.12588E-010

Phase: Cell3A

Concentration of TPH Aromatic C21-35 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.50263E-015

90% of values less than 1.6498E-007

95% of values less than 2.45263E-006

99% of values less than 5.43036E-005

Minimum 0

Maximum 0.000259901

Mean 1.85441E-006

Std. Dev. 1.40948E-005

Variance 1.98663E-010

Phase: Cell3A*Approx. time to Peak Conc. Ammoniacal_N at Phase Monitor Well [years]*

01% of values less than 14

05% of values less than 19

10% of values less than 26

50% of values less than 105

90% of values less than 256

95% of values less than 624

99% of values less than 761

Minimum 11

Maximum 840

Mean 151.138

Std. Dev. 155.344

Variance 24131.7

Approx. time to Peak Conc. Chloride at Phase Monitor Well [years]

01% of values less than 8

05% of values less than 9

10% of values less than 11

50% of values less than 47

90% of values less than 95

95% of values less than 105

99% of values less than 624

Minimum 8

Maximum 761

Mean 55.8681

Std. Dev. 80.3461

Variance 6455.5

Approx. time to Peak Conc. Mercury at Phase Monitor Well [years]

01% of values less than 2263

05% of values less than 4527

10% of values less than 6094

50% of values less than 20000

90% of values less than 20000

95% of values less than 20000

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 16629.5

Std. Dev. 5602.02

Variance 3.13826E+007

Approx. time to Peak Conc. Phenols group 1 - phenol at Phase Monitor Well [years]

01% of values less than 8

05% of values less than 9

10% of values less than 10

50% of values less than 23

90% of values less than 70

95% of values less than 78

99% of values less than 86

Minimum 8

Maximum 95

Mean 32.5634

Std. Dev. 23.3254

Variance 544.074

Phase: Cell3A*Approx. time to Peak Conc. Phenols group 2 - cresols at Phase Monitor Well [years]*

01% of values less than 9

05% of values less than 10

10% of values less than 11

50% of values less than 23

90% of values less than 70

95% of values less than 78

99% of values less than 86

Minimum 8

Maximum 95

Mean 33.2318

Std. Dev. 23.1539

Variance 536.104

Approx. time to Peak Conc. Phenols group 3 - xylenols at Phase Monitor Well [years]

01% of values less than 9

05% of values less than 10

10% of values less than 11

50% of values less than 26

90% of values less than 70

95% of values less than 78

99% of values less than 86

Minimum 9

Maximum 95

Mean 34.4895

Std. Dev. 23.2058

Variance 538.508

Approx. time to Peak Conc. Phenols group 4 - chlorophenols at Phase Monitor Well [years]

01% of values less than 13

05% of values less than 14

10% of values less than 17

50% of values less than 35

90% of values less than 95

95% of values less than 128

99% of values less than 156

Minimum 9

Maximum 232

Mean 49.1409

Std. Dev. 36.1482

Variance 1306.69

Approx. time to Peak Conc. Phenols group 5 - nitrophenols at Phase Monitor Well [years]

01% of values less than 9

05% of values less than 10

10% of values less than 11

50% of values less than 23

90% of values less than 70

95% of values less than 78

99% of values less than 86

Minimum 8

Maximum 95

Mean 33.3576

Std. Dev. 23.1847

Variance 537.532

Phase: Cell3A*Approx. time to Peak Conc. TPH Aliphatic C5-6 at Phase Monitor Well [years]*

01% of values less than 10

05% of values less than 13

10% of values less than 13

50% of values less than 28

90% of values less than 70

95% of values less than 78

99% of values less than 95

Minimum 9

Maximum 116

Mean 36.9251

Std. Dev. 23.7441

Variance 563.783

Approx. time to Peak Conc. TPH Aliphatic C6-8 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 14

10% of values less than 17

50% of values less than 39

90% of values less than 95

95% of values less than 105

99% of values less than 128

Minimum 0

Maximum 172

Mean 47.95

Std. Dev. 29.7831

Variance 887.036

Approx. time to Peak Conc. TPH Aliphatic C8-10 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 52

90% of values less than 128

95% of values less than 141

99% of values less than 172

Minimum 0

Maximum 210

Mean 55.0899

Std. Dev. 51.0103

Variance 2602.05

Approx. time to Peak Conc. TPH Aliphatic C10-12 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 105

99% of values less than 156

Minimum 0

Maximum 190

Mean 9.63337

Std. Dev. 33.987

Variance 1155.11

Phase: Cell3A*Approx. time to Peak Conc. TPH Aliphatic C12-16 at Phase Monitor Well [years]*

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aliphatic C16-35 at Phase Monitor Well [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aromatic C5-7 at Phase Monitor Well [years]

01% of values less than 8
05% of values less than 9
10% of values less than 10
50% of values less than 23
90% of values less than 70
95% of values less than 78
99% of values less than 86

Minimum 8

Maximum 95

Mean 32.8132

Std. Dev. 23.3723

Variance 546.266

Approx. time to Peak Conc. TPH Aromatic C7-8 at Phase Monitor Well [years]

01% of values less than 9
05% of values less than 10
10% of values less than 11
50% of values less than 23
90% of values less than 70
95% of values less than 78
99% of values less than 86

Minimum 0

Maximum 95

Mean 34.1878

Std. Dev. 23.8402

Variance 568.357

Phase: Cell3A*Approx. time to Peak Conc. TPH Aromatic C8-10 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 11

10% of values less than 13

50% of values less than 28

90% of values less than 70

95% of values less than 78

99% of values less than 95

Minimum 0

Maximum 100

Mean 37.3616

Std. Dev. 23.9514

Variance 573.671

Approx. time to Peak Conc. TPH Aromatic C10-12 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 13

10% of values less than 16

50% of values less than 30

90% of values less than 78

95% of values less than 86

99% of values less than 100

Minimum 0

Maximum 141

Mean 40.5504

Std. Dev. 24.9828

Variance 624.142

Approx. time to Peak Conc. TPH Aromatic C12-C16 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 16

10% of values less than 19

50% of values less than 39

90% of values less than 86

95% of values less than 95

99% of values less than 116

Minimum 0

Maximum 141

Mean 46.8342

Std. Dev. 26.8158

Variance 719.086

Approx. time to Peak Conc. TPH Aromatic C16-21 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 70

10% of values less than 210

50% of values less than 1681

90% of values less than 1856

95% of values less than 2050

99% of values less than 13458

Minimum 0

Maximum 20000

Mean 1852.5

Std. Dev. 2167.89

Variance 4.69976E+006

Phase: Cell3A

Approx. time to Peak Conc. TPH Aromatic C21-35 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1681

90% of values less than 1856

95% of values less than 2050

99% of values less than 12189

Minimum 0

Maximum 20000

Mean 1250.49

Std. Dev. 1881.27

Variance 3.53919E+006

Phase: Cell3A

Flow to Leachate Treatment Plant [l/day]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3A

Flow to Leachate Treatment Plant [l/day]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3A

Head on EBS [m]

At 1000 years

- 01% of values less than 10.421
- 05% of values less than 11.9981
- 10% of values less than 13.8623
- 50% of values less than 26.6485
- 90% of values less than 30
- 95% of values less than 30
- 99% of values less than 30

Minimum 10.0755	Maximum 30	
Mean 24.0496	Std. Dev. 6.49915	Variance 42.239

At infinity

- 01% of values less than 10.421
- 05% of values less than 11.9981
- 10% of values less than 13.8623
- 50% of values less than 26.6485
- 90% of values less than 30
- 95% of values less than 30
- 99% of values less than 30

Minimum 10.0755	Maximum 30	
Mean 24.0495	Std. Dev. 6.49916	Variance 42.2391

Phase: Cell3A

Surface Breakout [l/day]

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 863.121
- 90% of values less than 2232.77
- 95% of values less than 2495.87
- 99% of values less than 2871.82

Minimum 0	Maximum 3105.05	
Mean 941.499	Std. Dev. 869.801	Variance 756554

At 1000 years

- 01% of values less than 0
- 05% of values less than 3869.33
- 10% of values less than 5766.85
- 50% of values less than 9859.06
- 90% of values less than 12374.9
- 95% of values less than 12970
- 99% of values less than 13922.8

Minimum 0	Maximum 15296.1	
Mean 9369.15	Std. Dev. 2766.63	Variance 7.65422E+006

At infinity

- 01% of values less than 0
- 05% of values less than 3869.33
- 10% of values less than 5766.85
- 50% of values less than 9859.06
- 90% of values less than 12374.9
- 95% of values less than 12970
- 99% of values less than 13922.8

Minimum 0	Maximum 15296.1	
Mean 9369.15	Std. Dev. 2766.63	Variance 7.65422E+006

Phase: Cell3A

Leakage through EBS [l/day]

At 100 years

01% of values less than 164.625

05% of values less than 264.495

10% of values less than 351.862

50% of values less than 1048.39

90% of values less than 2177.11

95% of values less than 2650.01

99% of values less than 3657.55

Minimum 99.9332

Maximum 5340.9

Mean 1189.57

Std. Dev. 782.632

Variance 612512

At 300 years

01% of values less than 169.117

05% of values less than 271.126

10% of values less than 355.875

50% of values less than 1241.74

90% of values less than 2688.69

95% of values less than 3179.16

99% of values less than 4757.11

Minimum 99.9332

Maximum 6005.62

Mean 1439.93

Std. Dev. 984.263

Variance 968774

At 1000 years

01% of values less than 169.117

05% of values less than 271.126

10% of values less than 355.875

50% of values less than 1274.71

90% of values less than 5049.61

95% of values less than 7231.21

99% of values less than 10260.8

Minimum 99.9332

Maximum 12411.9

Mean 2108.62

Std. Dev. 2213.59

Variance 4.9E+006

At infinity

01% of values less than 169.117

05% of values less than 271.126

10% of values less than 355.875

50% of values less than 1274.71

90% of values less than 5049.61

95% of values less than 7231.21

99% of values less than 10257.8

Minimum 99.9332

Maximum 12408.1

Mean 2108.6

Std. Dev. 2213.5

Variance 4.89956E+006

Phase: Cell3A**Aquifer Flow [m³/year]****At 30 years**

01% of values less than 75.2611

05% of values less than 137.736

10% of values less than 197.74

50% of values less than 679.933

90% of values less than 2106.57

95% of values less than 2595.4

99% of values less than 3933.75

Minimum 0

Maximum 8598.25

Mean 950.717

Std. Dev. 868.671

Variance 754589

At 100 years

01% of values less than 122.483

05% of values less than 201.646

10% of values less than 295.155

50% of values less than 790.153

90% of values less than 2182.38

95% of values less than 2656.46

99% of values less than 4046.28

Minimum 0

Maximum 8716.83

Mean 1050.44

Std. Dev. 864.962

Variance 748159

At 300 years

01% of values less than 123.277

05% of values less than 212.632

10% of values less than 316.001

50% of values less than 910.048

90% of values less than 2272.84

95% of values less than 2795.18

99% of values less than 4283.32

Minimum 0

Maximum 9071.91

Mean 1142.27

Std. Dev. 888.235

Variance 788961

At 1000 years

01% of values less than 123.277

05% of values less than 212.632

10% of values less than 319.161

50% of values less than 1043.29

90% of values less than 2941.73

95% of values less than 3604.44

99% of values less than 4972.71

Minimum 0

Maximum 10201.4

Mean 1386.5

Std. Dev. 1128.33

Variance 1.27314E+006

Phase: Cell3A

Aquifer Flow [m³/year]

At infinity

- 01% of values less than 123.277
- 05% of values less than 212.632
- 10% of values less than 319.161
- 50% of values less than 1043.29
- 90% of values less than 2941.73
- 95% of values less than 3604.44
- 99% of values less than 4972.71

Minimum 0

Maximum 10201.4

Mean 1386.5

Std. Dev. 1128.31

Variance 1.27308E+006

Phase: Cell3B*Source Concentration of Ammoniacal_N [mg/l]*

At 30 years

01% of values less than 371.827

05% of values less than 520.192

10% of values less than 630.487

50% of values less than 1298.54

90% of values less than 1952.99

95% of values less than 2118.28

99% of values less than 2496.44

Minimum 292.873

Maximum 2858.49

Mean 1293.87

Std. Dev. 488.945

Variance 239067

At 100 years

01% of values less than 279.046

05% of values less than 419.047

10% of values less than 518.869

50% of values less than 1185.29

90% of values less than 1814.31

95% of values less than 2014.34

99% of values less than 2345.18

Minimum 208.133

Maximum 2695.93

Mean 1176.19

Std. Dev. 481.396

Variance 231742

At 300 years

01% of values less than 102.952

05% of values less than 205.339

10% of values less than 286.183

50% of values less than 874.448

90% of values less than 1505.14

95% of values less than 1671.14

99% of values less than 1965.36

Minimum 60.083

Maximum 2317.03

Mean 885.254

Std. Dev. 451.41

Variance 203771

At 1000 years

01% of values less than 0.000412919

05% of values less than 0.00655118

10% of values less than 0.0404644

50% of values less than 11.7813

90% of values less than 94.4779

95% of values less than 119.343

99% of values less than 163.208

Minimum 7.88509E-006

Maximum 211.098

Mean 30.945

Std. Dev. 40.6019

Variance 1648.51

Phase: Cell3B

Source Concentration of Ammoniacal_N [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Source Concentration of Chloride [mg/l]*

At 30 years

01% of values less than 17.2692

05% of values less than 35.6572

10% of values less than 55.5063

50% of values less than 239.572

90% of values less than 737.109

95% of values less than 975.003

99% of values less than 1290.88

Minimum 4.92731

Maximum 1547.02

Mean 336.565

Std. Dev. 295.508

Variance 87324.8

At 100 years

01% of values less than 10.169

05% of values less than 23.2323

10% of values less than 38.7581

50% of values less than 193.771

90% of values less than 620.71

95% of values less than 847.58

99% of values less than 1151.21

Minimum 3.381

Maximum 1341.24

Mean 280.855

Std. Dev. 259.288

Variance 67230.3

At 300 years

01% of values less than 1.49447

05% of values less than 5.33693

10% of values less than 11.8195

50% of values less than 107.947

90% of values less than 403.266

95% of values less than 548.033

99% of values less than 801.183

Minimum 0.474182

Maximum 1130.62

Mean 166.417

Std. Dev. 180.473

Variance 32570.5

At 1000 years

01% of values less than 8.90508E-012

05% of values less than 2.19136E-009

10% of values less than 1.17538E-007

50% of values less than 0.01387

90% of values less than 0.99778

95% of values less than 1.65728

99% of values less than 3.75801

Minimum 3.7269E-016

Maximum 10.5025

Mean 0.322818

Std. Dev. 0.778495

Variance 0.606055

Phase: Cell3B

Source Concentration of Chloride [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B*Source Concentration of Mercury [mg/l]*

At 30 years

01% of values less than 8.95464E-006

05% of values less than 1.65614E-005

10% of values less than 2.58802E-005

50% of values less than 0.000172696

90% of values less than 0.000510905

95% of values less than 0.000668802

99% of values less than 0.00106646

Minimum 5.39539E-006

Maximum 0.00139107

Mean 0.000232406

Std. Dev. 0.000222198

Variance 4.93719E-008

At 100 years

01% of values less than 8.95464E-006

05% of values less than 1.65614E-005

10% of values less than 2.58802E-005

50% of values less than 0.000170888

90% of values less than 0.000498515

95% of values less than 0.000657696

99% of values less than 0.0010329

Minimum 5.39539E-006

Maximum 0.00135832

Mean 0.000228375

Std. Dev. 0.000216121

Variance 4.67084E-008

At 300 years

01% of values less than 8.95464E-006

05% of values less than 1.65614E-005

10% of values less than 2.58802E-005

50% of values less than 0.000167571

90% of values less than 0.000463329

95% of values less than 0.000614948

99% of values less than 0.000960938

Minimum 5.39539E-006

Maximum 0.00126159

Mean 0.000216376

Std. Dev. 0.000198598

Variance 3.94411E-008

At 1000 years

01% of values less than 8.81476E-006

05% of values less than 1.55301E-005

10% of values less than 2.50365E-005

50% of values less than 0.000108819

90% of values less than 0.000210499

95% of values less than 0.000251899

99% of values less than 0.000351114

Minimum 5.39539E-006

Maximum 0.000577581

Mean 0.000114196

Std. Dev. 7.57994E-005

Variance 5.74555E-009

Phase: Cell3B

Source Concentration of Mercury [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 1.09405E-026

50% of values less than 8.17471E-009

90% of values less than 8.23508E-005

95% of values less than 9.67278E-005

99% of values less than 0.000113148

Minimum 0

Maximum 0.000116879

Mean 2.26574E-005

Std. Dev. 3.36079E-005

Variance 1.12949E-009

Phase: Cell3B*Source Concentration of Phenols group 1 - phenol [mg/l]*

At 30 years

01% of values less than 0.128189

05% of values less than 0.168203

10% of values less than 0.194158

50% of values less than 0.407839

90% of values less than 0.671862

95% of values less than 0.747653

99% of values less than 0.853198

Minimum 0.113419

Maximum 0.946076

Mean 0.426222

Std. Dev. 0.181755

Variance 0.0330349

At 100 years

01% of values less than 0.00100148

05% of values less than 0.00131408

10% of values less than 0.00151686

50% of values less than 0.00318625

90% of values less than 0.00524892

95% of values less than 0.00584104

99% of values less than 0.00666561

Minimum 0.000886083

Maximum 0.00739122

Mean 0.00332986

Std. Dev. 0.00141996

Variance 2.01629E-006

At 300 years

01% of values less than 9.55083E-010

05% of values less than 1.25321E-009

10% of values less than 1.44659E-009

50% of values less than 3.03864E-009

90% of values less than 5.00576E-009

95% of values less than 5.57045E-009

99% of values less than 6.35682E-009

Minimum 8.45034E-010

Maximum 7.04882E-009

Mean 3.1756E-009

Std. Dev. 1.35418E-009

Variance 1.8338E-018

At 1000 years

01% of values less than 0

05% of values less than 1.06151E-030

10% of values less than 1.22531E-030

50% of values less than 2.57383E-030

90% of values less than 4.24004E-030

95% of values less than 4.71835E-030

99% of values less than 5.38444E-030

Minimum 0

Maximum 5.97058E-030

Mean 2.65848E-030

Std. Dev. 1.20662E-030

Variance 1.45593E-060

Phase: Cell3B

Source Concentration of Phenols group 1 - phenol [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Source Concentration of Phenols group 2 - cresols [mg/l]*

At 30 years

01% of values less than 0.381524

05% of values less than 0.48384

10% of values less than 0.537337

50% of values less than 1.00079

90% of values less than 1.54755

95% of values less than 1.68639

99% of values less than 1.81338

Minimum 0.347467

Maximum 2.01656

Mean 1.02643

Std. Dev. 0.373057

Variance 0.139171

At 100 years

01% of values less than 0.00298066

05% of values less than 0.00378

10% of values less than 0.00419795

50% of values less than 0.00781863

90% of values less than 0.0120902

95% of values less than 0.013175

99% of values less than 0.014167

Minimum 0.00271459

Maximum 0.0157544

Mean 0.00801901

Std. Dev. 0.00291451

Variance 8.49435E-006

At 300 years

01% of values less than 2.84258E-009

05% of values less than 3.60489E-009

10% of values less than 4.00347E-009

50% of values less than 7.45643E-009

90% of values less than 1.15301E-008

95% of values less than 1.25646E-008

99% of values less than 1.35107E-008

Minimum 2.58883E-009

Maximum 1.50246E-008

Mean 7.64753E-009

Std. Dev. 2.77949E-009

Variance 7.72556E-018

At 1000 years

01% of values less than 2.40776E-030

05% of values less than 3.05346E-030

10% of values less than 3.39107E-030

50% of values less than 6.31584E-030

90% of values less than 9.76639E-030

95% of values less than 1.06426E-029

99% of values less than 1.1444E-029

Minimum 2.19283E-030

Maximum 1.27263E-029

Mean 6.47771E-030

Std. Dev. 2.35432E-030

Variance 5.54282E-060

Phase: Cell3B

Source Concentration of Phenols group 2 - cresols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Source Concentration of Phenols group 3 - xlenols [mg/l]*

At 30 years

01% of values less than 0.00120832

05% of values less than 0.00209443

10% of values less than 0.00302692

50% of values less than 0.0185376

90% of values less than 0.0673033

95% of values less than 0.0872385

99% of values less than 0.116918

Minimum 0.000889827

Maximum 0.129431

Mean 0.0277638

Std. Dev. 0.027232

Variance 0.000741579

At 100 years

01% of values less than 9.44003E-006

05% of values less than 1.63627E-005

10% of values less than 2.36478E-005

50% of values less than 0.000144825

90% of values less than 0.000525807

95% of values less than 0.00068155

99% of values less than 0.000913422

Minimum 6.95178E-006

Maximum 0.00101118

Mean 0.000216905

Std. Dev. 0.00021275

Variance 4.52624E-008

At 300 years

01% of values less than 9.00272E-012

05% of values less than 1.56047E-011

10% of values less than 2.25523E-011

50% of values less than 1.38116E-010

90% of values less than 5.01449E-010

95% of values less than 6.49977E-010

99% of values less than 8.71107E-010

Minimum 6.62973E-012

Maximum 9.64336E-010

Mean 2.06856E-010

Std. Dev. 2.02894E-010

Variance 4.11659E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Source Concentration of Phenols group 3 - xylenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Source Concentration of Phenols group 4 - chlorophenols [mg/l]

At 30 years

01% of values less than 0.00109726		
05% of values less than 0.00171195		
10% of values less than 0.00237563		
50% of values less than 0.00987946		
90% of values less than 0.0296531		
95% of values less than 0.0367043		
99% of values less than 0.0478363		
Minimum 0.000831265	Maximum 0.05893	
Mean 0.0133192	Std. Dev. 0.011176	Variance 0.000124902

At 100 years

01% of values less than 8.57237E-006		
05% of values less than 1.33746E-005		
10% of values less than 1.85596E-005		
50% of values less than 7.71833E-005		
90% of values less than 0.000231665		
95% of values less than 0.000286752		
99% of values less than 0.000373721		
Minimum 6.49426E-006	Maximum 0.00046039	
Mean 0.000104057	Std. Dev. 8.73123E-005	Variance 7.62343E-009

At 300 years

01% of values less than 8.17525E-012		
05% of values less than 1.2755E-011		
10% of values less than 1.76998E-011		
50% of values less than 7.36077E-011		
90% of values less than 2.20933E-010		
95% of values less than 2.73468E-010		
99% of values less than 3.56408E-010		
Minimum 6.19341E-012	Maximum 4.39063E-010	
Mean 9.92361E-011	Std. Dev. 8.32675E-011	Variance 6.93347E-021

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Source Concentration of Phenols group 4 - chlorophenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Source Concentration of Phenols group 5 - nitrophenols [mg/l]

At 30 years

01% of values less than 0.000125
05% of values less than 0.000125
10% of values less than 0.000125
50% of values less than 0.000125
90% of values less than 0.000125
95% of values less than 0.000125
99% of values less than 0.000125

Minimum 0.000125
Mean 0.000125

Maximum 0.000125
Std. Dev. 1.67807E-011

Variance -2.81592E-022

At 100 years

01% of values less than 9.76562E-007
05% of values less than 9.76562E-007
10% of values less than 9.76562E-007
50% of values less than 9.76562E-007
90% of values less than 9.76562E-007
95% of values less than 9.76562E-007
99% of values less than 9.76562E-007

Minimum 9.76562E-007
Mean 9.76562E-007

Maximum 9.76562E-007
Std. Dev. 5.14251E-014

Variance -2.64454E-027

At 300 years

01% of values less than 9.31323E-013
05% of values less than 9.31323E-013
10% of values less than 9.31323E-013
50% of values less than 9.31323E-013
90% of values less than 9.31323E-013
95% of values less than 9.31323E-013
99% of values less than 9.31323E-013

Minimum 9.31323E-013
Mean 9.31323E-013

Maximum 9.31323E-013
Std. Dev. 1.36272E-019

Variance -1.85699E-038

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

Phase: Cell3B

Source Concentration of Phenols group 5 - nitrophenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Source Concentration of TPH Aliphatic C5-6 [mg/l]

At 30 years

01% of values less than 0.0208999		
05% of values less than 0.0213643		
10% of values less than 0.0216971		
50% of values less than 0.023371		
90% of values less than 0.0261518		
95% of values less than 0.0269276		
99% of values less than 0.0279101		
Minimum 0.0205208	Maximum 0.0285444	
Mean 0.0236799	Std. Dev. 0.00168676	Variance 2.84516E-006

At 100 years

01% of values less than 0.000163281		
05% of values less than 0.000166909		
10% of values less than 0.000169509		
50% of values less than 0.000182586		
90% of values less than 0.000204311		
95% of values less than 0.000210372		
99% of values less than 0.000218048		
Minimum 0.000160319	Maximum 0.000223003	
Mean 0.000184999	Std. Dev. 1.31778E-005	Variance 1.73655E-010

At 300 years

01% of values less than 1.55716E-010		
05% of values less than 1.59177E-010		
10% of values less than 1.61656E-010		
50% of values less than 1.74127E-010		
90% of values less than 1.94846E-010		
95% of values less than 2.00626E-010		
99% of values less than 2.07946E-010		
Minimum 1.52892E-010	Maximum 2.12672E-010	
Mean 1.76429E-010	Std. Dev. 1.25673E-011	Variance 1.57938E-022

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Source Concentration of TPH Aliphatic C5-6 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Source Concentration of TPH Aliphatic C6-8 [mg/l]*

At 30 years

01% of values less than 0.00595039

05% of values less than 0.00624493

10% of values less than 0.00649811

50% of values less than 0.00794661

90% of values less than 0.00987592

95% of values less than 0.0103891

99% of values less than 0.0112853

Minimum 0.00576926

Maximum 0.0116796

Mean 0.00806476

Std. Dev. 0.00126187

Variance 1.59232E-006

At 100 years

01% of values less than 4.64874E-005

05% of values less than 4.87885E-005

10% of values less than 5.07665E-005

50% of values less than 6.20829E-005

90% of values less than 7.71557E-005

95% of values less than 8.11651E-005

99% of values less than 8.81662E-005

Minimum 4.50723E-005

Maximum 9.1247E-005

Mean 6.30059E-005

Std. Dev. 9.85837E-006

Variance 9.71874E-011

At 300 years

01% of values less than 4.43339E-011

05% of values less than 4.65284E-011

10% of values less than 4.84147E-011

50% of values less than 5.92068E-011

90% of values less than 7.35814E-011

95% of values less than 7.7405E-011

99% of values less than 8.40819E-011

Minimum 4.29843E-011

Maximum 8.70199E-011

Mean 6.00871E-011

Std. Dev. 9.40167E-012

Variance 8.83915E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Source Concentration of TPH Aliphatic C6-8 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Source Concentration of TPH Aliphatic C8-10 [mg/l]*

At 30 years

01% of values less than 0.00465709

05% of values less than 0.00489273

10% of values less than 0.0050859

50% of values less than 0.0059867

90% of values less than 0.00731508

95% of values less than 0.00772423

99% of values less than 0.00835015

Minimum 0.00454716

Maximum 0.00869161

Mean 0.00610922

Std. Dev. 0.000866461

Variance 7.50754E-007

At 100 years

01% of values less than 3.63835E-005

05% of values less than 3.82244E-005

10% of values less than 3.97336E-005

50% of values less than 4.67711E-005

90% of values less than 5.71491E-005

95% of values less than 6.03455E-005

99% of values less than 6.52355E-005

Minimum 3.55247E-005

Maximum 6.79032E-005

Mean 4.77283E-005

Std. Dev. 6.76923E-006

Variance 4.58224E-011

At 300 years

01% of values less than 3.4698E-011

05% of values less than 3.64537E-011

10% of values less than 3.78929E-011

50% of values less than 4.46044E-011

90% of values less than 5.45016E-011

95% of values less than 5.755E-011

99% of values less than 6.22135E-011

Minimum 3.3879E-011

Maximum 6.47575E-011

Mean 4.55173E-011

Std. Dev. 6.45564E-012

Variance 4.16752E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Source Concentration of TPH Aliphatic C8-10 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Source Concentration of TPH Aliphatic C10-12 [mg/l]*

At 30 years

01% of values less than 0.00729817

05% of values less than 0.00751264

10% of values less than 0.00764586

50% of values less than 0.00856163

90% of values less than 0.0100161

95% of values less than 0.0103329

99% of values less than 0.0109375

Minimum 0.00715705

Maximum 0.0112086

Mean 0.00870976

Std. Dev. 0.000880739

Variance 7.75701E-007

At 100 years

01% of values less than 5.7017E-005

05% of values less than 5.86925E-005

10% of values less than 5.97332E-005

50% of values less than 6.68877E-005

90% of values less than 7.82512E-005

95% of values less than 8.07259E-005

99% of values less than 8.54488E-005

Minimum 5.59144E-005

Maximum 8.7567E-005

Mean 6.8045E-005

Std. Dev. 6.88077E-006

Variance 4.7345E-011

At 300 years

01% of values less than 5.43756E-011

05% of values less than 5.59735E-011

10% of values less than 5.69661E-011

50% of values less than 6.37891E-011

90% of values less than 7.46261E-011

95% of values less than 7.69862E-011

99% of values less than 8.14904E-011

Minimum 5.33241E-011

Maximum 8.35104E-011

Mean 6.48927E-011

Std. Dev. 6.56201E-012

Variance 4.306E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Source Concentration of TPH Aliphatic C10-12 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Source Concentration of TPH Aliphatic C12-16 [mg/l]*

At 30 years

01% of values less than 0.000754645

05% of values less than 0.00103769

10% of values less than 0.00130216

50% of values less than 0.0032649

90% of values less than 0.00707991

95% of values less than 0.00835697

99% of values less than 0.0102605

Minimum 0.000671599

Maximum 0.0117577

Mean 0.00376163

Std. Dev. 0.00225856

Variance 5.1011E-006

At 100 years

01% of values less than 5.89566E-006

05% of values less than 8.10699E-006

10% of values less than 1.01731E-005

50% of values less than 2.5507E-005

90% of values less than 5.53118E-005

95% of values less than 6.52889E-005

99% of values less than 8.01605E-005

Minimum 5.24687E-006

Maximum 9.18572E-005

Mean 2.93877E-005

Std. Dev. 1.7645E-005

Variance 3.11347E-010

At 300 years

01% of values less than 5.62254E-012

05% of values less than 7.73143E-012

10% of values less than 9.70184E-012

50% of values less than 2.43254E-011

90% of values less than 5.27495E-011

95% of values less than 6.22643E-011

99% of values less than 7.6447E-011

Minimum 5.00381E-012

Maximum 8.76019E-011

Mean 2.80263E-011

Std. Dev. 1.68276E-011

Variance 2.83168E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Source Concentration of TPH Aliphatic C12-16 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Source Concentration of TPH Aliphatic C16-35 [mg/l]

At 30 years

01% of values less than 0.00536865		
05% of values less than 0.00565769		
10% of values less than 0.00594343		
50% of values less than 0.00750087		
90% of values less than 0.00884265		
95% of values less than 0.00915922		
99% of values less than 0.00959725		
Minimum 0.0050826	Maximum 0.00986353	
Mean 0.00743688	Std. Dev. 0.00105985	Variance 1.12329E-006

At 100 years

01% of values less than 0.00536865		
05% of values less than 0.00565769		
10% of values less than 0.00594343		
50% of values less than 0.00750087		
90% of values less than 0.00884265		
95% of values less than 0.00915922		
99% of values less than 0.00959725		
Minimum 0.0050826	Maximum 0.00986353	
Mean 0.00743688	Std. Dev. 0.00105985	Variance 1.12329E-006

At 300 years

01% of values less than 0.00536865		
05% of values less than 0.00565769		
10% of values less than 0.00594343		
50% of values less than 0.00750087		
90% of values less than 0.00884265		
95% of values less than 0.00915922		
99% of values less than 0.00959725		
Minimum 0.0050826	Maximum 0.00986353	
Mean 0.00743688	Std. Dev. 0.00105985	Variance 1.12329E-006

At 1000 years

01% of values less than 0.00536865		
05% of values less than 0.00565769		
10% of values less than 0.00594343		
50% of values less than 0.00750087		
90% of values less than 0.00884265		
95% of values less than 0.00915922		
99% of values less than 0.00959725		
Minimum 0.0050826	Maximum 0.00986353	
Mean 0.00743688	Std. Dev. 0.00105985	Variance 1.12329E-006

Phase: Cell3B

Source Concentration of TPH Aliphatic C16-35 [mg/l]

At infinity

- 01% of values less than 0.00536865
- 05% of values less than 0.00565769
- 10% of values less than 0.00594343
- 50% of values less than 0.00750087
- 90% of values less than 0.00884265
- 95% of values less than 0.00915922
- 99% of values less than 0.00959725

Minimum 0.0050826
Mean 0.00743688

Maximum 0.00986353
Std. Dev. 0.00105985

Variance 1.12329E-006

Phase: Cell3B*Source Concentration of TPH Aromatic C5-7 [mg/l]*

At 30 years

01% of values less than 0.00126505

05% of values less than 0.00127835

10% of values less than 0.00128775

50% of values less than 0.0013359

90% of values less than 0.00136707

95% of values less than 0.00137181

99% of values less than 0.00137424

Minimum 0.00125626

Maximum 0.00137492

Mean 0.00133167

Std. Dev. 2.91739E-005

Variance 8.51117E-010

At 100 years

01% of values less than 9.88324E-006

05% of values less than 9.9871E-006

10% of values less than 1.00605E-005

50% of values less than 1.04367E-005

90% of values less than 1.06803E-005

95% of values less than 1.07172E-005

99% of values less than 1.07363E-005

Minimum 9.81453E-006

Maximum 1.07416E-005

Mean 1.04037E-005

Std. Dev. 2.27921E-007

Variance 5.19481E-014

At 300 years

01% of values less than 9.42539E-012

05% of values less than 9.52444E-012

10% of values less than 9.59448E-012

50% of values less than 9.95323E-012

90% of values less than 1.01855E-011

95% of values less than 1.02208E-011

99% of values less than 1.02389E-011

Minimum 9.35986E-012

Maximum 1.0244E-011

Mean 9.92172E-012

Std. Dev. 2.17363E-013

Variance 4.72465E-026

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Source Concentration of TPH Aromatic C5-7 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Source Concentration of TPH Aromatic C7-8 [mg/l]*

At 30 years

01% of values less than 0.000654661

05% of values less than 0.000722118

10% of values less than 0.000768724

50% of values less than 0.00101762

90% of values less than 0.00120589

95% of values less than 0.00124524

99% of values less than 0.00131675

Minimum 0.000637334

Maximum 0.00136648

Mean 0.000999694

Std. Dev. 0.000161369

Variance 2.60401E-008

At 100 years

01% of values less than 5.11454E-006

05% of values less than 5.64154E-006

10% of values less than 6.00566E-006

50% of values less than 7.95016E-006

90% of values less than 9.42098E-006

95% of values less than 9.72842E-006

99% of values less than 1.02871E-005

Minimum 4.97917E-006

Maximum 1.06756E-005

Mean 7.81011E-006

Std. Dev. 1.2607E-006

Variance 1.58936E-012

At 300 years

01% of values less than 4.87761E-012

05% of values less than 5.3802E-012

10% of values less than 5.72744E-012

50% of values less than 7.58186E-012

90% of values less than 8.98455E-012

95% of values less than 9.27774E-012

99% of values less than 9.81058E-012

Minimum 4.74851E-012

Maximum 1.01811E-011

Mean 7.4483E-012

Std. Dev. 1.2023E-012

Variance 1.44551E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Source Concentration of TPH Aromatic C7-8 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Source Concentration of TPH Aromatic C8-10 [mg/l]

At 30 years

01% of values less than 0.00742652		
05% of values less than 0.00758109		
10% of values less than 0.00779935		
50% of values less than 0.00859072		
90% of values less than 0.00978055		
95% of values less than 0.0101342		
99% of values less than 0.0105269		
Minimum 0.00726862	Maximum 0.0107486	
Mean 0.0086947	Std. Dev. 0.000752634	Variance 5.66457E-007

At 100 years

01% of values less than 5.80197E-005		
05% of values less than 5.92273E-005		
10% of values less than 6.09324E-005		
50% of values less than 6.7115E-005		
90% of values less than 7.64105E-005		
95% of values less than 7.91737E-005		
99% of values less than 8.22414E-005		
Minimum 5.67861E-005	Maximum 8.39737E-005	
Mean 6.79273E-005	Std. Dev. 5.87995E-006	Variance 3.45738E-011

At 300 years

01% of values less than 5.53319E-011		
05% of values less than 5.64835E-011		
10% of values less than 5.81097E-011		
50% of values less than 6.40059E-011		
90% of values less than 7.28708E-011		
95% of values less than 7.55059E-011		
99% of values less than 7.84315E-011		
Minimum 5.41554E-011	Maximum 8.00835E-011	
Mean 6.47805E-011	Std. Dev. 5.60756E-012	Variance 3.14447E-023

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Source Concentration of TPH Aromatic C8-10 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Source Concentration of TPH Aromatic C10-12 [mg/l]*

At 30 years

01% of values less than 0.00490048

05% of values less than 0.00503655

10% of values less than 0.00517398

50% of values less than 0.00575545

90% of values less than 0.00664459

95% of values less than 0.00690722

99% of values less than 0.007236

Minimum 0.00478196

Maximum 0.0074619

Mean 0.00583847

Std. Dev. 0.000554625

Variance 3.07609E-007

At 100 years

01% of values less than 3.8285E-005

05% of values less than 3.9348E-005

10% of values less than 4.04217E-005

50% of values less than 4.49644E-005

90% of values less than 5.19109E-005

95% of values less than 5.39627E-005

99% of values less than 5.65313E-005

Minimum 3.7359E-005

Maximum 5.82961E-005

Mean 4.5613E-005

Std. Dev. 4.33301E-006

Variance 1.8775E-011

At 300 years

01% of values less than 3.65114E-011

05% of values less than 3.75252E-011

10% of values less than 3.85492E-011

50% of values less than 4.28814E-011

90% of values less than 4.95061E-011

95% of values less than 5.14628E-011

99% of values less than 5.39124E-011

Minimum 3.56284E-011

Maximum 5.55955E-011

Mean 4.35E-011

Std. Dev. 4.13228E-012

Variance 1.70757E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Source Concentration of TPH Aromatic C10-12 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Source Concentration of TPH Aromatic C12-C16 [mg/l]*

At 30 years

01% of values less than 0.0145503

05% of values less than 0.0149414

10% of values less than 0.0152681

50% of values less than 0.0167929

90% of values less than 0.0178652

95% of values less than 0.01815

99% of values less than 0.0184385

Minimum 0.0143702

Maximum 0.0185642

Mean 0.016685

Std. Dev. 0.000966401

Variance 9.3393E-007

At 100 years

01% of values less than 0.000113674

05% of values less than 0.000116729

10% of values less than 0.000119282

50% of values less than 0.000131195

90% of values less than 0.000139572

95% of values less than 0.000141797

99% of values less than 0.000144051

Minimum 0.000112267

Maximum 0.000145033

Mean 0.000130352

Std. Dev. 7.55E-006

Variance 5.70026E-011

At 300 years

01% of values less than 1.08408E-010

05% of values less than 1.11322E-010

10% of values less than 1.13757E-010

50% of values less than 1.25117E-010

90% of values less than 1.33106E-010

95% of values less than 1.35228E-010

99% of values less than 1.37377E-010

Minimum 1.07066E-010

Maximum 1.38314E-010

Mean 1.24313E-010

Std. Dev. 7.20025E-012

Variance 5.18435E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Source Concentration of TPH Aromatic C12-C16 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Source Concentration of TPH Aromatic C16-21 [mg/l]*

At 30 years

01% of values less than 0.00617969

05% of values less than 0.00835737

10% of values less than 0.010461

50% of values less than 0.0267388

90% of values less than 0.0527219

95% of values less than 0.0662865

99% of values less than 0.0855055

Minimum 0.00516071

Maximum 0.0966263

Mean 0.0296518

Std. Dev. 0.0176445

Variance 0.000311328

At 100 years

01% of values less than 0.00617969

05% of values less than 0.00835737

10% of values less than 0.010461

50% of values less than 0.0267388

90% of values less than 0.0527219

95% of values less than 0.0662865

99% of values less than 0.0855055

Minimum 0.00516071

Maximum 0.0966263

Mean 0.0296518

Std. Dev. 0.0176445

Variance 0.000311328

At 300 years

01% of values less than 0.00617969

05% of values less than 0.00835737

10% of values less than 0.010461

50% of values less than 0.0267388

90% of values less than 0.0527219

95% of values less than 0.0662865

99% of values less than 0.0855055

Minimum 0.00516071

Maximum 0.0966263

Mean 0.0296518

Std. Dev. 0.0176445

Variance 0.000311328

At 1000 years

01% of values less than 0.00617969

05% of values less than 0.00835737

10% of values less than 0.010461

50% of values less than 0.0267388

90% of values less than 0.0527219

95% of values less than 0.0662865

99% of values less than 0.0855055

Minimum 0.00516071

Maximum 0.0966263

Mean 0.0296518

Std. Dev. 0.0176445

Variance 0.000311328

Phase: Cell3B

Source Concentration of TPH Aromatic C16-21 [mg/l]

At infinity

- 01% of values less than 0.00617969
- 05% of values less than 0.00835737
- 10% of values less than 0.010461
- 50% of values less than 0.0267388
- 90% of values less than 0.0527219
- 95% of values less than 0.0662865
- 99% of values less than 0.0855055

Minimum 0.00516071	Maximum 0.0966263	
Mean 0.0296518	Std. Dev. 0.0176445	Variance 0.000311328

Phase: Cell3B

Source Concentration of TPH Aromatic C21-35 [mg/l]

At 30 years

01% of values less than 0.00648322		
05% of values less than 0.00970655		
10% of values less than 0.0129033		
50% of values less than 0.0438198		
90% of values less than 0.106544		
95% of values less than 0.13601		
99% of values less than 0.17954		
Minimum 0.00533407	Maximum 0.203045	
Mean 0.0521707	Std. Dev. 0.03864	Variance 0.00149305

At 100 years

01% of values less than 0.00648322		
05% of values less than 0.00970655		
10% of values less than 0.0129033		
50% of values less than 0.0438198		
90% of values less than 0.106544		
95% of values less than 0.13601		
99% of values less than 0.17954		
Minimum 0.00533407	Maximum 0.203045	
Mean 0.0521707	Std. Dev. 0.03864	Variance 0.00149305

At 300 years

01% of values less than 0.00648322		
05% of values less than 0.00970655		
10% of values less than 0.0129033		
50% of values less than 0.0438198		
90% of values less than 0.106544		
95% of values less than 0.13601		
99% of values less than 0.17954		
Minimum 0.00533407	Maximum 0.203045	
Mean 0.0521707	Std. Dev. 0.03864	Variance 0.00149305

At 1000 years

01% of values less than 0.00648322		
05% of values less than 0.00970655		
10% of values less than 0.0129033		
50% of values less than 0.0438198		
90% of values less than 0.106544		
95% of values less than 0.13601		
99% of values less than 0.17954		
Minimum 0.00533407	Maximum 0.203045	
Mean 0.0521707	Std. Dev. 0.03864	Variance 0.00149305

Phase: Cell3B

Source Concentration of TPH Aromatic C21-35 [mg/l]

At infinity

- 01% of values less than 0.00648322
- 05% of values less than 0.00970655
- 10% of values less than 0.0129033
- 50% of values less than 0.0438198
- 90% of values less than 0.106544
- 95% of values less than 0.13601
- 99% of values less than 0.17954

Minimum 0.00533407	Maximum 0.203045	
Mean 0.0521707	Std. Dev. 0.03864	Variance 0.00149305

Phase: Cell3B*Concentration of Ammoniacal_N at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1642.59

95% of values less than 1922.55

99% of values less than 2450.21

Minimum 0

Maximum 2911.47

Mean 396.825

Std. Dev. 713.83

Variance 509554

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1010.57

90% of values less than 1747.87

95% of values less than 1951.56

99% of values less than 2302.3

Minimum 0

Maximum 2604.36

Mean 906.817

Std. Dev. 659.862

Variance 435418

At 300 years

01% of values less than 0

05% of values less than 165.276

10% of values less than 280.258

50% of values less than 891.17

90% of values less than 1529.4

95% of values less than 1707.43

99% of values less than 2008.28

Minimum 0

Maximum 2354.48

Mean 890.933

Std. Dev. 471.727

Variance 222527

At 1000 years

01% of values less than 0

05% of values less than 0.0123806

10% of values less than 0.093558

50% of values less than 22.4576

90% of values less than 144.433

95% of values less than 178.989

99% of values less than 241.646

Minimum 0

Maximum 296.129

Mean 49.1831

Std. Dev. 60.7936

Variance 3695.86

Phase: Cell3B

Concentration of Ammoniacal_N at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 5.18604E-016

90% of values less than 7.64763E-014

95% of values less than 1.51131E-013

99% of values less than 4.27495E-013

Minimum 0

Maximum 1.72563E-012

Mean 3.19825E-014

Std. Dev. 1.00842E-013

Variance 1.0169E-026

Phase: Cell3B*Concentration of Chloride at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 513.54

95% of values less than 849.802

99% of values less than 1449.44

Minimum 0

Maximum 1758.28

Mean 137.05

Std. Dev. 307.658

Variance 94653.3

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 122.886

90% of values less than 567.024

95% of values less than 788.057

99% of values less than 1119.42

Minimum 0

Maximum 1341.73

Mean 220.234

Std. Dev. 259.279

Variance 67225.4

At 300 years

01% of values less than 0

05% of values less than 3.5872

10% of values less than 9.73119

50% of values less than 109.428

90% of values less than 422.223

95% of values less than 582.122

99% of values less than 821.23

Minimum 0

Maximum 1159.29

Mean 172.983

Std. Dev. 188.296

Variance 35455.4

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 5.02037E-007

50% of values less than 0.0498112

90% of values less than 2.50192

95% of values less than 3.93303

99% of values less than 8.44397

Minimum 0

Maximum 21.5169

Mean 0.793402

Std. Dev. 1.75825

Variance 3.09145

Phase: Cell3B

Concentration of Chloride at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.12124E-015

95% of values less than 1.91426E-014

99% of values less than 5.42971E-014

Minimum 0

Maximum 2.08317E-013

Mean 3.5831E-015

Std. Dev. 1.32417E-014

Variance 1.75342E-028

Phase: Cell3B*Concentration of Mercury at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000212715

95% of values less than 0.000360495

99% of values less than 0.000731262

Minimum 0

Maximum 0.00141553

Mean 5.70943E-005

Std. Dev. 0.000154346

Variance 2.38228E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 9.6067E-005

90% of values less than 0.000447914

95% of values less than 0.000619203

99% of values less than 0.00102991

Minimum 0

Maximum 0.00136082

Mean 0.000174787

Std. Dev. 0.000214607

Variance 4.60564E-008

At 300 years

01% of values less than 0

05% of values less than 1.14142E-005

10% of values less than 2.17973E-005

50% of values less than 0.0001619

90% of values less than 0.000466302

95% of values less than 0.000617658

99% of values less than 0.000969825

Minimum 0

Maximum 0.00127199

Mean 0.000213452

Std. Dev. 0.000202327

Variance 4.0936E-008

At 1000 years

01% of values less than 0

05% of values less than 1.14142E-005

10% of values less than 2.15298E-005

50% of values less than 0.000112849

90% of values less than 0.000230688

95% of values less than 0.000281296

99% of values less than 0.000402672

Minimum 0

Maximum 0.000653552

Mean 0.000121603

Std. Dev. 8.71962E-005

Variance 7.60317E-009

Phase: Cell3B

Concentration of Mercury at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.19398E-008

90% of values less than 8.23508E-005

95% of values less than 9.68816E-005

99% of values less than 0.000113148

Minimum 0

Maximum 0.000116879

Mean 2.24309E-005

Std. Dev. 3.36314E-005

Variance 1.13107E-009

Phase: Cell3B*Concentration of Phenols group 1 - phenol at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.3836

95% of values less than 1.76647

99% of values less than 2.42452

Minimum 0

Maximum 2.9805

Mean 0.320378

Std. Dev. 0.616606

Variance 0.380203

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.0042308

90% of values less than 0.00823734

95% of values less than 0.00948852

99% of values less than 0.0123883

Minimum 0

Maximum 0.0181514

Mean 0.00419747

Std. Dev. 0.0032189

Variance 1.03613E-005

At 300 years

01% of values less than 0

05% of values less than 3.94863E-009

10% of values less than 4.82113E-009

50% of values less than 1.04228E-008

90% of values less than 1.76068E-008

95% of values less than 1.98653E-008

99% of values less than 2.23518E-008

Minimum 0

Maximum 2.57062E-008

Mean 1.08975E-008

Std. Dev. 5.03776E-009

Variance 2.5379E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 7.77743E-014

Mean 1.26864E-016

Std. Dev. 2.69039E-015

Variance 7.23819E-030

Phase: Cell3B

Concentration of Phenols group 1 - phenol at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 6.16749E-017	
Mean 6.16132E-020	Std. Dev. 1.94936E-018	Variance 3.79999E-036

Phase: Cell3B*Concentration of Phenols group 2 - cresols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.11016

95% of values less than 3.95802

99% of values less than 4.88165

Minimum 0

Maximum 5.70101

Mean 0.740429

Std. Dev. 1.37714

Variance 1.89653

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.0101518

90% of values less than 0.0191721

95% of values less than 0.0216124

99% of values less than 0.0275046

Minimum 0

Maximum 0.0388806

Mean 0.00997251

Std. Dev. 0.00726756

Variance 5.28174E-005

At 300 years

01% of values less than 0

05% of values less than 1.10391E-008

10% of values less than 1.35824E-008

50% of values less than 2.58563E-008

90% of values less than 4.07514E-008

95% of values less than 4.46083E-008

99% of values less than 4.80961E-008

Minimum 0

Maximum 6.11346E-008

Mean 2.63538E-008

Std. Dev. 1.06753E-008

Variance 1.13962E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 3.42034E-015

Mean 5.99627E-018

Std. Dev. 1.35385E-016

Variance 1.83291E-032

Phase: Cell3B

Concentration of Phenols group 2 - cresols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 1.63498E-016	
Mean 6.94633E-019	Std. Dev. 8.34659E-018	Variance 6.96655E-035

Phase: Cell3B

Concentration of Phenols group 3 - xlenols at base of Clay Liner [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0.073234
95% of values less than 0.133198
99% of values less than 0.29176

Minimum 0	Maximum 0.405078	
Mean 0.0205247	Std. Dev. 0.0544106	Variance 0.00296052

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0.000124212
90% of values less than 0.000748977
95% of values less than 0.00100184
99% of values less than 0.00159098

Minimum 0	Maximum 0.00310743	
Mean 0.000271573	Std. Dev. 0.000366565	Variance 1.3437E-007

At 300 years

01% of values less than 0
05% of values less than 4.3953E-011
10% of values less than 6.99087E-011
50% of values less than 4.69058E-010
90% of values less than 1.75191E-009
95% of values less than 2.26972E-009
99% of values less than 3.10464E-009

Minimum 0	Maximum 4.88502E-009	
Mean 7.14063E-010	Std. Dev. 7.2688E-010	Variance 5.28354E-019

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 3.59198E-015	
Mean 3.58839E-018	Std. Dev. 1.13532E-016	Variance 1.28894E-032

Phase: Cell3B

Concentration of Phenols group 3 - xylenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of Phenols group 4 - chlorophenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0345545

95% of values less than 0.057068

99% of values less than 0.104768

Minimum 0

Maximum 0.149055

Mean 0.00879165

Std. Dev. 0.0216621

Variance 0.000469249

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.79171E-005

90% of values less than 0.00033693

95% of values less than 0.000439734

99% of values less than 0.000653561

Minimum 0

Maximum 0.00112694

Mean 0.000129543

Std. Dev. 0.000153449

Variance 2.35465E-008

At 300 years

01% of values less than 0

05% of values less than 3.56153E-011

10% of values less than 5.51207E-011

50% of values less than 2.52467E-010

90% of values less than 7.70228E-010

95% of values less than 9.67889E-010

99% of values less than 1.26622E-009

Minimum 0

Maximum 1.56106E-009

Mean 3.42278E-010

Std. Dev. 2.95218E-010

Variance 8.71537E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 5.12916E-015

Mean 5.12403E-018

Std. Dev. 1.62117E-016

Variance 2.6282E-032

Phase: Cell3B

Concentration of Phenols group 4 - chlorophenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of Phenols group 5 - nitrophenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000376554

95% of values less than 0.000388537

99% of values less than 0.000396526

Minimum 0

Maximum 0.000403903

Mean 8.89955E-005

Std. Dev. 0.00015264

Variance 2.32989E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.43443E-006

90% of values less than 1.87266E-006

95% of values less than 2.07895E-006

99% of values less than 2.64218E-006

Minimum 0

Maximum 4.60472E-006

Mean 1.21553E-006

Std. Dev. 7.31106E-007

Variance 5.34516E-013

At 300 years

01% of values less than 0

05% of values less than 3.20154E-012

10% of values less than 3.24413E-012

50% of values less than 3.26796E-012

90% of values less than 3.34675E-012

95% of values less than 3.44264E-012

99% of values less than 4.00504E-012

Minimum 0

Maximum 5.0121E-012

Mean 3.21739E-012

Std. Dev. 5.33935E-013

Variance 2.85087E-025

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of Phenols group 5 - nitrophenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aliphatic C5-6 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0688621

95% of values less than 0.0735493

99% of values less than 0.0821936

Minimum 0

Maximum 0.0862672

Mean 0.0169114

Std. Dev. 0.0290934

Variance 0.000846426

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000272417

90% of values less than 0.00035481

95% of values less than 0.000397996

99% of values less than 0.000509193

Minimum 0

Maximum 0.000832842

Mean 0.000230598

Std. Dev. 0.000139791

Variance 1.95416E-008

At 300 years

01% of values less than 0

05% of values less than 5.5271E-010

10% of values less than 5.64897E-010

50% of values less than 6.14778E-010

90% of values less than 6.91349E-010

95% of values less than 7.17282E-010

99% of values less than 7.72933E-010

Minimum 0

Maximum 1.44577E-009

Mean 6.10099E-010

Std. Dev. 1.1281E-010

Variance 1.27261E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C5-6 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C6-8 at base of Clay Liner [mg/l]

At 30 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0.0232177		
95% of values less than 0.0261472		
99% of values less than 0.0308826		
Minimum 0	Maximum 0.0362876	
Mean 0.00573721	Std. Dev. 0.00999922	Variance 9.99844E-005

At 100 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 9.05331E-005		
90% of values less than 0.000128678		
95% of values less than 0.000143019		
99% of values less than 0.000175073		
Minimum 0	Maximum 0.000339581	
Mean 7.85169E-005	Std. Dev. 4.91572E-005	Variance 2.41643E-009

At 300 years

01% of values less than 0		
05% of values less than 1.59826E-010		
10% of values less than 1.68192E-010		
50% of values less than 2.08169E-010		
90% of values less than 2.59935E-010		
95% of values less than 2.75618E-010		
99% of values less than 2.9782E-010		
Minimum 0	Maximum 3.72345E-010	
Mean 2.07251E-010	Std. Dev. 4.74129E-011	Variance 2.24799E-021

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C6-8 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aliphatic C8-10 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0176691

95% of values less than 0.0198317

99% of values less than 0.0236299

Minimum 0

Maximum 0.0274863

Mean 0.00438011

Std. Dev. 0.00762746

Variance 5.81782E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 6.81914E-005

90% of values less than 9.71094E-005

95% of values less than 0.000107985

99% of values less than 0.000133608

Minimum 0

Maximum 0.000186628

Mean 5.97237E-005

Std. Dev. 3.72307E-005

Variance 1.38612E-009

At 300 years

01% of values less than 0

05% of values less than 1.24407E-010

10% of values less than 1.30243E-010

50% of values less than 1.56554E-010

90% of values less than 1.94851E-010

95% of values less than 2.06298E-010

99% of values less than 2.22484E-010

Minimum 0

Maximum 2.93466E-010

Mean 1.56933E-010

Std. Dev. 3.45838E-011

Variance 1.19604E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 2.51546E-015

Mean 2.51295E-018

Std. Dev. 7.95062E-017

Variance 6.32123E-033

Phase: Cell3B

Concentration of TPH Aliphatic C8-10 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B*Concentration of TPH Aliphatic C10-12 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0254269

95% of values less than 0.0277029

99% of values less than 0.031377

Minimum 0

Maximum 0.0343088

Mean 0.00624482

Std. Dev. 0.0107862

Variance 0.000116343

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 9.97239E-005

90% of values less than 0.000133688

95% of values less than 0.000153891

99% of values less than 0.000183374

Minimum 0

Maximum 0.000287135

Mean 8.49825E-005

Std. Dev. 5.21333E-005

Variance 2.71788E-009

At 300 years

01% of values less than 0

05% of values less than 1.93361E-010

10% of values less than 1.99394E-010

50% of values less than 2.23953E-010

90% of values less than 2.63805E-010

95% of values less than 2.74664E-010

99% of values less than 2.92017E-010

Minimum 0

Maximum 4.02197E-010

Mean 2.23803E-010

Std. Dev. 4.40432E-011

Variance 1.9398E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 4.08494E-016

Mean 4.08086E-019

Std. Dev. 1.29113E-017

Variance 1.66701E-034

Phase: Cell3B

Concentration of TPH Aliphatic C10-12 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aliphatic C12-16 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0110726

95% of values less than 0.0148139

99% of values less than 0.0226959

Minimum 0

Maximum 0.0321368

Mean 0.00269062

Std. Dev. 0.00550467

Variance 3.03014E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.03236E-005

90% of values less than 8.49794E-005

95% of values less than 0.000100883

99% of values less than 0.000130645

Minimum 0

Maximum 0.000166826

Mean 3.63149E-005

Std. Dev. 3.28759E-005

Variance 1.08082E-009

At 300 years

01% of values less than 0

05% of values less than 2.30459E-011

10% of values less than 3.14138E-011

50% of values less than 8.47772E-011

90% of values less than 1.85585E-010

95% of values less than 2.1849E-010

99% of values less than 2.71602E-010

Minimum 0

Maximum 3.06846E-010

Mean 9.67646E-011

Std. Dev. 6.08564E-011

Variance 3.7035E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C12-16 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aliphatic C16-35 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00723817

95% of values less than 0.00787937

99% of values less than 0.00893836

Minimum 0

Maximum 0.00950517

Mean 0.00174032

Std. Dev. 0.00302045

Variance 9.12312E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.0069478

90% of values less than 0.00867874

95% of values less than 0.00908492

99% of values less than 0.00953042

Minimum 0

Maximum 0.00986295

Mean 0.00564391

Std. Dev. 0.00331283

Variance 1.09749E-005

At 300 years

01% of values less than 0

05% of values less than 0.00545966

10% of values less than 0.00583577

50% of values less than 0.00746304

90% of values less than 0.00883944

95% of values less than 0.00915479

99% of values less than 0.00959725

Minimum 0

Maximum 0.00986312

Mean 0.0072513

Std. Dev. 0.00156406

Variance 2.44628E-006

At 1000 years

01% of values less than 0

05% of values less than 0.00545966

10% of values less than 0.00583577

50% of values less than 0.00746303

90% of values less than 0.00883941

95% of values less than 0.00915478

99% of values less than 0.00959725

Minimum 0

Maximum 0.00986352

Mean 0.00725145

Std. Dev. 0.0015641

Variance 2.44641E-006

Phase: Cell3B

Concentration of TPH Aliphatic C16-35 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0.00545967

10% of values less than 0.00583577

50% of values less than 0.00746304

90% of values less than 0.00883943

95% of values less than 0.0091548

99% of values less than 0.00959725

Minimum 0

Maximum 0.00986353

Mean 0.00725146

Std. Dev. 0.0015641

Variance 2.44642E-006

Phase: Cell3B*Concentration of TPH Aromatic C5-7 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00399635

95% of values less than 0.00413338

99% of values less than 0.00425891

Minimum 0

Maximum 0.00435463

Mean 0.000948639

Std. Dev. 0.00162695

Variance 2.64695E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.53793E-005

90% of values less than 1.98143E-005

95% of values less than 2.2356E-005

99% of values less than 2.82258E-005

Minimum 0

Maximum 4.90373E-005

Mean 1.29487E-005

Std. Dev. 7.78741E-006

Variance 6.06438E-011

At 300 years

01% of values less than 0

05% of values less than 3.31906E-011

10% of values less than 3.36157E-011

50% of values less than 3.49657E-011

90% of values less than 3.61046E-011

95% of values less than 3.67374E-011

99% of values less than 4.17977E-011

Minimum 0

Maximum 5.69543E-011

Mean 3.42476E-011

Std. Dev. 5.75007E-012

Variance 3.30633E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aromatic C5-7 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C7-8 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00287646

95% of values less than 0.00319811

99% of values less than 0.00376987

Minimum 0

Maximum 0.0041201

Mean 0.000695665

Std. Dev. 0.00121662

Variance 1.48016E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.14362E-005

90% of values less than 1.54526E-005

95% of values less than 1.70233E-005

99% of values less than 2.233E-005

Minimum 0

Maximum 4.63264E-005

Mean 9.67878E-006

Std. Dev. 6.14228E-006

Variance 3.77276E-011

At 300 years

01% of values less than 0

05% of values less than 1.8057E-011

10% of values less than 1.95742E-011

50% of values less than 2.65874E-011

90% of values less than 3.18189E-011

95% of values less than 3.28939E-011

99% of values less than 3.5238E-011

Minimum 0

Maximum 4.90762E-011

Mean 2.56868E-011

Std. Dev. 6.03048E-012

Variance 3.63666E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aromatic C7-8 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C8-10 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0252526

95% of values less than 0.0271604

99% of values less than 0.030321

Minimum 0

Maximum 0.0326278

Mean 0.00617919

Std. Dev. 0.0106464

Variance 0.000113345

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 9.97441E-005

90% of values less than 0.000131112

95% of values less than 0.000148003

99% of values less than 0.000195134

Minimum 0

Maximum 0.00037389

Mean 8.45852E-005

Std. Dev. 5.21095E-005

Variance 2.7154E-009

At 300 years

01% of values less than 0

05% of values less than 1.95811E-010

10% of values less than 2.01428E-010

50% of values less than 2.25405E-010

90% of values less than 2.58517E-010

95% of values less than 2.69451E-010

99% of values less than 2.90524E-010

Minimum 0

Maximum 3.81756E-010

Mean 2.23452E-010

Std. Dev. 4.21901E-011

Variance 1.78001E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aromatic C8-10 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C10-12 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0169796

95% of values less than 0.0184173

99% of values less than 0.0211713

Minimum 0

Maximum 0.02286

Mean 0.00418033

Std. Dev. 0.0072211

Variance 5.21443E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 6.6392E-005

90% of values less than 9.04304E-005

95% of values less than 9.94562E-005

99% of values less than 0.000120296

Minimum 0

Maximum 0.000205484

Mean 5.65912E-005

Std. Dev. 3.43869E-005

Variance 1.18246E-009

At 300 years

01% of values less than 0

05% of values less than 1.29624E-010

10% of values less than 1.34956E-010

50% of values less than 1.50982E-010

90% of values less than 1.75768E-010

95% of values less than 1.83776E-010

99% of values less than 1.93459E-010

Minimum 0

Maximum 2.36204E-010

Mean 1.50102E-010

Std. Dev. 2.86332E-011

Variance 8.19861E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aromatic C10-12 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C12-C16 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0490363

95% of values less than 0.052201

99% of values less than 0.05599

Minimum 0

Maximum 0.058368

Mean 0.0119057

Std. Dev. 0.020443

Variance 0.000417915

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000194076

90% of values less than 0.000252372

95% of values less than 0.000279908

99% of values less than 0.000354483

Minimum 0

Maximum 0.000580723

Mean 0.000162567

Std. Dev. 9.83454E-005

Variance 9.67181E-009

At 300 years

01% of values less than 0

05% of values less than 3.82397E-010

10% of values less than 3.96414E-010

50% of values less than 4.40425E-010

90% of values less than 4.72297E-010

95% of values less than 4.82562E-010

99% of values less than 5.17188E-010

Minimum 0

Maximum 7.3686E-010

Mean 4.28591E-010

Std. Dev. 7.57698E-011

Variance 5.74107E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aromatic C12-C16 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C16-21 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0296288

95% of values less than 0.0412238

99% of values less than 0.0594742

Minimum 0

Maximum 0.0852051

Mean 0.00708444

Std. Dev. 0.0146305

Variance 0.000214052

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.0199458

90% of values less than 0.0483855

95% of values less than 0.0617459

99% of values less than 0.0837453

Minimum 0

Maximum 0.0966285

Mean 0.0227311

Std. Dev. 0.0200349

Variance 0.000401397

At 300 years

01% of values less than 0

05% of values less than 0.00721627

10% of values less than 0.0095606

50% of values less than 0.0261429

90% of values less than 0.0522769

95% of values less than 0.0659187

99% of values less than 0.0851033

Minimum 0

Maximum 0.0966262

Mean 0.0288888

Std. Dev. 0.0180111

Variance 0.000324401

At 1000 years

01% of values less than 0

05% of values less than 0.00721625

10% of values less than 0.0095607

50% of values less than 0.0261429

90% of values less than 0.0522769

95% of values less than 0.0659187

99% of values less than 0.0851032

Minimum 0

Maximum 0.0966262

Mean 0.0288894

Std. Dev. 0.0180115

Variance 0.000324412

Phase: Cell3B

Concentration of TPH Aromatic C16-21 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0.00721627

10% of values less than 0.00956071

50% of values less than 0.0261429

90% of values less than 0.052277

95% of values less than 0.0659189

99% of values less than 0.0851032

Minimum 0

Maximum 0.0966263

Mean 0.0288894

Std. Dev. 0.0180115

Variance 0.000324413

Phase: Cell3B*Concentration of TPH Aromatic C21-35 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0530316

95% of values less than 0.0794781

99% of values less than 0.13897

Minimum 0

Maximum 0.201776

Mean 0.0130164

Std. Dev. 0.0293119

Variance 0.000859188

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.0279029

90% of values less than 0.0964563

95% of values less than 0.129057

99% of values less than 0.17694

Minimum 0

Maximum 0.203045

Mean 0.039888

Std. Dev. 0.0411252

Variance 0.00169128

At 300 years

01% of values less than 0

05% of values less than 0.00784361

10% of values less than 0.0116025

50% of values less than 0.0425214

90% of values less than 0.105787

95% of values less than 0.134257

99% of values less than 0.179443

Minimum 0

Maximum 0.203046

Mean 0.0509214

Std. Dev. 0.0388888

Variance 0.00151234

At 1000 years

01% of values less than 0

05% of values less than 0.0078436

10% of values less than 0.0116025

50% of values less than 0.0425213

90% of values less than 0.105787

95% of values less than 0.134257

99% of values less than 0.17954

Minimum 0

Maximum 0.203045

Mean 0.0509224

Std. Dev. 0.0388897

Variance 0.00151241

Phase: Cell3B

Concentration of TPH Aromatic C21-35 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0.00784361

10% of values less than 0.0116025

50% of values less than 0.0425214

90% of values less than 0.105787

95% of values less than 0.134257

99% of values less than 0.17954

Minimum 0

Maximum 0.203045

Mean 0.0509224

Std. Dev. 0.0388897

Variance 0.00151241

Phase: Cell3B*Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 224.087

95% of values less than 660.612

99% of values less than 1700.73

Minimum 0

Maximum 2620.64

Mean 93.9617

Std. Dev. 315.922

Variance 99806.6

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 65.8386

90% of values less than 1486.58

95% of values less than 1797.55

99% of values less than 2143.54

Minimum 0

Maximum 2605.06

Mean 530.984

Std. Dev. 654.805

Variance 428769

At 300 years

01% of values less than 0

05% of values less than 251.846

10% of values less than 397.931

50% of values less than 1050.79

90% of values less than 1693.25

95% of values less than 1868.96

99% of values less than 2205.83

Minimum 0

Maximum 2534.2

Mean 1039.24

Std. Dev. 494.76

Variance 244788

At 1000 years

01% of values less than 0

05% of values less than 12.5445

10% of values less than 30.4076

50% of values less than 320.235

90% of values less than 796.567

95% of values less than 913.996

99% of values less than 1078.89

Minimum 0

Maximum 1421.32

Mean 369.071

Std. Dev. 289.304

Variance 83696.6

Phase: Cell3B

Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.04075E-012

90% of values less than 2.03087E-010

95% of values less than 4.118E-010

99% of values less than 1.3741E-009

Minimum 0

Maximum 3.27494E-009

Mean 8.02577E-011

Std. Dev. 2.82416E-010

Variance 7.97591E-020

Phase: Cell3B*Concentration of Chloride at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 610.576

95% of values less than 1017.28

99% of values less than 1671.63

Minimum 0

Maximum 2071.76

Mean 160.515

Std. Dev. 357.618

Variance 127891

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 20.5254

90% of values less than 535.378

95% of values less than 713.014

99% of values less than 1118.39

Minimum 0

Maximum 1320.79

Mean 167.373

Std. Dev. 257.74

Variance 66429.8

At 300 years

01% of values less than 0

05% of values less than 8.41866

10% of values less than 20.2847

50% of values less than 155.194

90% of values less than 544.344

95% of values less than 740.78

99% of values less than 1004.11

Minimum 0

Maximum 1222.15

Mean 229.269

Std. Dev. 228.632

Variance 52272.6

At 1000 years

01% of values less than 0

05% of values less than 0.0172679

10% of values less than 0.108055

50% of values less than 13.1348

90% of values less than 100.808

95% of values less than 140.801

99% of values less than 235.168

Minimum 0

Maximum 397.959

Mean 34.1795

Std. Dev. 50.3751

Variance 2537.65

Phase: Cell3B

Concentration of Chloride at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.25746E-013

90% of values less than 1.70538E-012

95% of values less than 2.68584E-012

99% of values less than 6.22436E-012

Minimum 0

Maximum 1.18785E-011

Mean 6.14919E-013

Std. Dev. 1.26514E-012

Variance 1.60059E-024

Phase: Cell3B

Concentration of Mercury at base of Unsaturated Zone [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 5.69985E-013

Minimum 0	Maximum 3.34907E-011	
Mean 6.0779E-014	Std. Dev. 1.105E-012	Variance 1.22104E-024

Phase: Cell3B

Concentration of Mercury at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 1.12129E-013

10% of values less than 9.0483E-011

50% of values less than 5.76273E-007

90% of values less than 1.53497E-005

95% of values less than 3.12814E-005

99% of values less than 7.65842E-005

Minimum 0

Maximum 9.78753E-005

Mean 5.66686E-006

Std. Dev. 1.34213E-005

Variance 1.8013E-010

Phase: Cell3B*Concentration of Phenols group 1 - phenol at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.426746

95% of values less than 0.652358

99% of values less than 1.14102

Minimum 0

Maximum 1.75149

Mean 0.107862

Std. Dev. 0.249056

Variance 0.0620288

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.00265072

90% of values less than 0.0276401

95% of values less than 0.0363864

99% of values less than 0.0508718

Minimum 0

Maximum 0.0705149

Mean 0.00918895

Std. Dev. 0.0126181

Variance 0.000159217

At 300 years

01% of values less than 0

05% of values less than 5.85804E-007

10% of values less than 1.18978E-006

50% of values less than 4.65766E-006

90% of values less than 1.14198E-005

95% of values less than 1.40801E-005

99% of values less than 1.85807E-005

Minimum 0

Maximum 2.42357E-005

Mean 5.67041E-006

Std. Dev. 4.15552E-006

Variance 1.72684E-011

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.08598E-012

95% of values less than 1.72403E-012

99% of values less than 4.89255E-012

Minimum 0

Maximum 7.83241E-011

Mean 4.63235E-013

Std. Dev. 2.80261E-012

Variance 7.85462E-024

Phase: Cell3B

Concentration of Phenols group 1 - phenol at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.89633E-016

Minimum 0

Maximum 7.0516E-016

Mean 6.94525E-018

Std. Dev. 4.4714E-017

Variance 1.99934E-033

Phase: Cell3B*Concentration of Phenols group 2 - cresols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.388372

95% of values less than 0.705033

99% of values less than 1.48407

Minimum 0

Maximum 2.39668

Mean 0.111689

Std. Dev. 0.299209

Variance 0.0895262

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000931885

90% of values less than 0.030348

95% of values less than 0.0438598

99% of values less than 0.0657493

Minimum 0

Maximum 0.0897471

Mean 0.00943373

Std. Dev. 0.0154452

Variance 0.000238555

At 300 years

01% of values less than 0

05% of values less than 2.11456E-007

10% of values less than 5.45494E-007

50% of values less than 4.18862E-006

90% of values less than 1.44547E-005

95% of values less than 1.80341E-005

99% of values less than 2.7818E-005

Minimum 0

Maximum 4.36555E-005

Mean 5.98576E-006

Std. Dev. 5.97726E-006

Variance 3.57277E-011

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.82954E-013

95% of values less than 1.70289E-012

99% of values less than 5.62525E-012

Minimum 0

Maximum 1.05765E-011

Mean 3.4723E-013

Std. Dev. 1.04069E-012

Variance 1.08304E-024

Phase: Cell3B

Concentration of Phenols group 2 - cresols at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.29785E-016

Minimum 0

Maximum 6.79111E-016

Mean 5.76691E-018

Std. Dev. 4.25697E-017

Variance 1.81218E-033

Phase: Cell3B*Concentration of Phenols group 3 - xlenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0010297

95% of values less than 0.00267055

99% of values less than 0.0155899

Minimum 0

Maximum 0.030663

Mean 0.000562563

Std. Dev. 0.00267279

Variance 7.14382E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.75892E-008

90% of values less than 0.000115218

95% of values less than 0.000222444

99% of values less than 0.000730792

Minimum 0

Maximum 0.00163185

Mean 4.60937E-005

Std. Dev. 0.000146412

Variance 2.14364E-008

At 300 years

01% of values less than 0

05% of values less than 1.38339E-011

10% of values less than 1.61646E-010

50% of values less than 6.14479E-009

90% of values less than 7.42376E-008

95% of values less than 1.44971E-007

99% of values less than 3.57761E-007

Minimum 0

Maximum 8.94874E-007

Mean 2.96518E-008

Std. Dev. 6.71569E-008

Variance 4.51005E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.86724E-015

95% of values less than 9.15749E-015

99% of values less than 3.41523E-014

Minimum 0

Maximum 1.0363E-013

Mean 1.85112E-015

Std. Dev. 7.93166E-015

Variance 6.29112E-029

Phase: Cell3B

Concentration of Phenols group 3 - xylenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of Phenols group 4 - chlorophenols at base of Unsaturated Zone [mg/l]

At 30 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0.00794859		
95% of values less than 0.0229193		
99% of values less than 0.0805118		
Minimum 0	Maximum 0.197495	
Mean 0.00387831	Std. Dev. 0.0152159	Variance 0.000231524

At 100 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0.000218053		
90% of values less than 0.00421808		
95% of values less than 0.00617816		
99% of values less than 0.00972409		
Minimum 0	Maximum 0.0177623	
Mean 0.00136944	Std. Dev. 0.00221494	Variance 4.90594E-006

At 300 years

01% of values less than 0		
05% of values less than 8.93466E-008		
10% of values less than 1.47996E-007		
50% of values less than 7.85049E-007		
90% of values less than 3.34114E-006		
95% of values less than 9.37379E-006		
99% of values less than 9.63529E-005		
Minimum 0	Maximum 0.00153108	
Mean 5.22924E-006	Std. Dev. 5.16425E-005	Variance 2.66695E-009

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 8.98072E-014		
95% of values less than 5.75192E-013		
99% of values less than 2.7778E-011		
Minimum 0	Maximum 2.51636E-008	
Mean 4.93547E-011	Std. Dev. 1.08811E-009	Variance 1.18398E-018

Phase: Cell3B

Concentration of Phenols group 4 - chlorophenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 3.02356E-016	
Mean 5.51277E-019	Std. Dev. 1.05779E-017	Variance 1.11893E-034

Phase: Cell3B*Concentration of Phenols group 5 - nitrophenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.82085E-005

95% of values less than 9.41566E-005

99% of values less than 0.000188109

Minimum 0

Maximum 0.000282813

Mean 1.32464E-005

Std. Dev. 3.69025E-005

Variance 1.3618E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.85776E-008

90% of values less than 3.92538E-006

95% of values less than 5.29885E-006

99% of values less than 8.68386E-006

Minimum 0

Maximum 1.03639E-005

Mean 1.1341E-006

Std. Dev. 1.91055E-006

Variance 3.65019E-012

At 300 years

01% of values less than 0

05% of values less than 1.15721E-011

10% of values less than 3.21117E-011

50% of values less than 4.63773E-010

90% of values less than 1.84813E-009

95% of values less than 2.35312E-009

99% of values less than 3.07291E-009

Minimum 0

Maximum 3.55752E-009

Mean 7.37811E-010

Std. Dev. 7.51736E-010

Variance 5.65107E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 3.84793E-016

Minimum 0

Maximum 1.00886E-015

Mean 9.0802E-018

Std. Dev. 7.18527E-017

Variance 5.16281E-033

Phase: Cell3B

Concentration of Phenols group 5 - nitrophenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aliphatic C5-6 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00290506

95% of values less than 0.0107664

99% of values less than 0.0250589

Minimum 0

Maximum 0.0384211

Mean 0.00144846

Std. Dev. 0.00479574

Variance 2.29991E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.58901E-008

90% of values less than 0.000626929

95% of values less than 0.000856197

99% of values less than 0.00126028

Minimum 0

Maximum 0.00161961

Mean 0.000163063

Std. Dev. 0.000299799

Variance 8.98797E-008

At 300 years

01% of values less than 0

05% of values less than 2.23577E-012

10% of values less than 9.03728E-011

50% of values less than 5.25358E-008

90% of values less than 2.77364E-007

95% of values less than 3.50497E-007

99% of values less than 4.87966E-007

Minimum 0

Maximum 5.7036E-007

Mean 1.00858E-007

Std. Dev. 1.18341E-007

Variance 1.40047E-014

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.25953E-014

95% of values less than 2.45357E-014

99% of values less than 9.50967E-014

Minimum 0

Maximum 4.28668E-013

Mean 5.14516E-015

Std. Dev. 2.32587E-014

Variance 5.40967E-028

Phase: Cell3B

Concentration of TPH Aliphatic C5-6 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aliphatic C6-8 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.13762E-007

95% of values less than 6.94075E-006

99% of values less than 0.000104357

Minimum 0

Maximum 0.00135071

Mean 5.97444E-006

Std. Dev. 5.99763E-005

Variance 3.59716E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.73336E-006

95% of values less than 1.37938E-005

99% of values less than 3.92604E-005

Minimum 0

Maximum 0.000109678

Mean 2.3103E-006

Std. Dev. 8.11566E-006

Variance 6.58639E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.33879E-011

90% of values less than 2.89756E-009

95% of values less than 5.56902E-009

99% of values less than 1.20509E-008

Minimum 0

Maximum 3.50811E-008

Mean 1.03036E-009

Std. Dev. 2.6925E-009

Variance 7.24958E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.2079E-016

Minimum 0

Maximum 1.86599E-015

Mean 1.14575E-017

Std. Dev. 1.14357E-016

Variance 1.30776E-032

Phase: Cell3B

Concentration of TPH Aliphatic C6-8 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aliphatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 4.14173E-014

Mean 4.13759E-017

Std. Dev. 1.30907E-015

Variance 1.71368E-030

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.13138E-015

95% of values less than 2.05697E-013

99% of values less than 2.79605E-011

Minimum 0

Maximum 1.52759E-009

Mean 4.46153E-012

Std. Dev. 6.4077E-011

Variance 4.10586E-021

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.45731E-015

95% of values less than 4.0582E-014

99% of values less than 7.7344E-013

Minimum 0

Maximum 4.60504E-012

Mean 2.43789E-014

Std. Dev. 1.96612E-013

Variance 3.86563E-026

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C8-10 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C5-7 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000771747

95% of values less than 0.00148164

99% of values less than 0.0023525

Minimum 0

Maximum 0.00351521

Mean 0.000202399

Std. Dev. 0.000511684

Variance 2.6182E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.64862E-007

90% of values less than 5.91948E-005

95% of values less than 7.65197E-005

99% of values less than 0.000100743

Minimum 0

Maximum 0.000130289

Mean 1.72621E-005

Std. Dev. 2.61452E-005

Variance 6.83574E-010

At 300 years

01% of values less than 0

05% of values less than 7.97385E-011

10% of values less than 5.24103E-010

50% of values less than 8.73966E-009

90% of values less than 2.56292E-008

95% of values less than 2.95698E-008

99% of values less than 3.5784E-008

Minimum 0

Maximum 4.47675E-008

Mean 1.10941E-008

Std. Dev. 9.44415E-009

Variance 8.9192E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.01435E-015

95% of values less than 3.04756E-015

99% of values less than 9.12132E-015

Minimum 0

Maximum 2.60554E-014

Mean 6.03749E-016

Std. Dev. 2.08329E-015

Variance 4.34009E-030

Phase: Cell3B

Concentration of TPH Aromatic C5-7 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C7-8 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.00553E-005

95% of values less than 0.000161733

99% of values less than 0.00046973

Minimum 0

Maximum 0.00126466

Mean 2.51704E-005

Std. Dev. 9.42713E-005

Variance 8.88709E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.19707E-011

90% of values less than 7.64957E-006

95% of values less than 1.28754E-005

99% of values less than 2.33238E-005

Minimum 0

Maximum 4.70056E-005

Mean 2.1585E-006

Std. Dev. 5.12415E-006

Variance 2.62569E-011

At 300 years

01% of values less than 0

05% of values less than 9.703E-015

10% of values less than 7.16848E-013

50% of values less than 4.0477E-010

90% of values less than 4.22105E-009

95% of values less than 6.1563E-009

99% of values less than 9.74904E-009

Minimum 0

Maximum 1.61452E-008

Mean 1.3985E-009

Std. Dev. 2.18098E-009

Variance 4.75666E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.65757E-016

99% of values less than 2.10805E-015

Minimum 0

Maximum 6.71988E-015

Mean 6.35178E-017

Std. Dev. 3.89166E-016

Variance 1.5145E-031

Phase: Cell3B

Concentration of TPH Aromatic C7-8 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.07236E-006

95% of values less than 2.98315E-005

99% of values less than 0.000340624

Minimum 0

Maximum 0.00122848

Mean 1.21384E-005

Std. Dev. 7.99979E-005

Variance 6.39966E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.48696E-006

95% of values less than 4.06304E-006

99% of values less than 1.49423E-005

Minimum 0

Maximum 4.53448E-005

Mean 7.95936E-007

Std. Dev. 3.44004E-006

Variance 1.18339E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.17441E-011

90% of values less than 1.23303E-009

95% of values less than 2.63625E-009

99% of values less than 9.26673E-009

Minimum 0

Maximum 1.54244E-008

Mean 5.1881E-010

Std. Dev. 1.65649E-009

Variance 2.74397E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.6122E-016

Minimum 0

Maximum 1.02096E-014

Mean 3.07604E-017

Std. Dev. 3.9745E-016

Variance 1.57967E-031

Phase: Cell3B

Concentration of TPH Aromatic C8-10 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C10-12 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.18101E-007

95% of values less than 5.2403E-006

99% of values less than 0.000115815

Minimum 0

Maximum 0.000581169

Mean 4.51157E-006

Std. Dev. 3.49294E-005

Variance 1.22006E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 6.50656E-007

95% of values less than 1.84998E-006

99% of values less than 7.23448E-006

Minimum 0

Maximum 2.30152E-005

Mean 3.85279E-007

Std. Dev. 1.6763E-006

Variance 2.80999E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.6256E-012

90% of values less than 5.78385E-010

95% of values less than 1.41356E-009

99% of values less than 3.98224E-009

Minimum 0

Maximum 7.64849E-009

Mean 2.41631E-010

Std. Dev. 7.58128E-010

Variance 5.74758E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 6.19795E-016

Mean 1.15627E-018

Std. Dev. 2.29655E-017

Variance 5.27412E-034

Phase: Cell3B

Concentration of TPH Aromatic C10-12 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C12-C16 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.19387E-009

95% of values less than 1.60712E-007

99% of values less than 5.80585E-006

Minimum 0

Maximum 0.000125575

Mean 4.67085E-007

Std. Dev. 5.43822E-006

Variance 2.95743E-011

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.70622E-008

95% of values less than 4.04681E-007

99% of values less than 2.33853E-006

Minimum 0

Maximum 1.24267E-005

Mean 1.05046E-007

Std. Dev. 6.20435E-007

Variance 3.84939E-013

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.60101E-013

90% of values less than 9.779E-011

95% of values less than 2.55025E-010

99% of values less than 1.05507E-009

Minimum 0

Maximum 3.45167E-009

Mean 5.149E-011

Std. Dev. 2.15397E-010

Variance 4.6396E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aromatic C12-C16 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C16-21 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 5.97879E-013

99% of values less than 5.55958E-010

Minimum 0

Maximum 1.59391E-007

Mean 3.91756E-010

Std. Dev. 6.13542E-009

Variance 3.76434E-017

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.13579E-007

95% of values less than 7.69462E-007

99% of values less than 1.02553E-005

Minimum 0

Maximum 0.000100174

Mean 5.54249E-007

Std. Dev. 5.2888E-006

Variance 2.79714E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.06028E-015

50% of values less than 7.98E-009

90% of values less than 5.36411E-006

95% of values less than 1.3835E-005

99% of values less than 5.67104E-005

Minimum 0

Maximum 0.000230334

Mean 3.04058E-006

Std. Dev. 1.4778E-005

Variance 2.1839E-010

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 2.47992E-015

50% of values less than 8.21525E-009

90% of values less than 5.40945E-006

95% of values less than 1.42835E-005

99% of values less than 6.52473E-005

Minimum 0

Maximum 0.000231475

Mean 3.10636E-006

Std. Dev. 1.4972E-005

Variance 2.24162E-010

Phase: Cell3B

Concentration of TPH Aromatic C16-21 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 2.8622E-015

50% of values less than 8.21525E-009

90% of values less than 5.41034E-006

95% of values less than 1.42842E-005

99% of values less than 6.5248E-005

Minimum 0

Maximum 0.000231487

Mean 3.10653E-006

Std. Dev. 1.49726E-005

Variance 2.2418E-010

Phase: Cell3B*Concentration of TPH Aromatic C21-35 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 5.22855E-015
99% of values less than 1.09529E-012

Minimum 0

Maximum 7.01794E-011

Mean 1.29431E-013

Std. Dev. 2.38631E-012

Variance 5.69447E-024

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 1.63194E-015
95% of values less than 1.47567E-014
99% of values less than 2.20079E-012

Minimum 0

Maximum 9.75451E-011

Mean 1.87353E-013

Std. Dev. 3.27343E-012

Variance 1.07153E-023

Phase: Cell3B

Concentration of TPH Aromatic C21-35 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.92077E-015

95% of values less than 1.4785E-014

99% of values less than 2.20479E-012

Minimum 0

Maximum 9.78117E-011

Mean 1.88109E-013

Std. Dev. 3.28353E-012

Variance 1.07816E-023

Phase: Cell3B

Approx. time to Peak Conc. Ammoniacal_N at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 43		
10% of values less than 47		
50% of values less than 172		
90% of values less than 282		
95% of values less than 300		
99% of values less than 344		
Minimum 0	Maximum 464	
Mean 172.861	Std. Dev. 78.4793	Variance 6159.01

Approx. time to Peak Conc. Chloride at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 23		
10% of values less than 30		
50% of values less than 86		
90% of values less than 210		
95% of values less than 232		
99% of values less than 282		
Minimum 0	Maximum 300	
Mean 111.186	Std. Dev. 72.6782	Variance 5282.12

Approx. time to Peak Conc. Mercury at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 8202		
10% of values less than 16406		
50% of values less than 20000		
90% of values less than 20000		
95% of values less than 20000		
99% of values less than 20000		
Minimum 0	Maximum 20000	
Mean 18687.2	Std. Dev. 4143.71	Variance 1.71704E+007

Approx. time to Peak Conc. Phenols group 1 - phenol at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 26		
10% of values less than 28		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 107.679	Std. Dev. 73.1507	Variance 5351.02

Approx. time to Peak Conc. Phenols group 2 - cresols at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 26
10% of values less than 28
50% of values less than 78

Phase: Cell3B

Approx. time to Peak Conc. Phenols group 2 - cresols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 26		
10% of values less than 28		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 107.779	Std. Dev. 73.0494	Variance 5336.21

Approx. time to Peak Conc. Phenols group 3 - xylenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 26		
10% of values less than 30		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 108.103	Std. Dev. 72.7257	Variance 5289.03

Approx. time to Peak Conc. Phenols group 4 - chlorophenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 35		
10% of values less than 43		
50% of values less than 116		
90% of values less than 210		
95% of values less than 256		
99% of values less than 282		
Minimum 0	Maximum 312	
Mean 122.104	Std. Dev. 71.5844	Variance 5124.33

Approx. time to Peak Conc. Phenols group 5 - nitrophenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 26		
10% of values less than 28		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 107.788	Std. Dev. 73.0381	Variance 5334.56

Approx. time to Peak Conc. TPH Aliphatic C5-6 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 28
10% of values less than 32
50% of values less than 86

Phase: Cell3B

Approx. time to Peak Conc. TPH Aliphatic C5-6 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 28		
10% of values less than 32		
50% of values less than 86		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 110.152	Std. Dev. 71.536	Variance 5117.4

Approx. time to Peak Conc. TPH Aliphatic C6-8 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 39		
50% of values less than 100		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 112.881	Std. Dev. 71.5486	Variance 5119.2

Approx. time to Peak Conc. TPH Aliphatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 172		
95% of values less than 210		
99% of values less than 256		
Minimum 0	Maximum 312	
Mean 46.5255	Std. Dev. 79.1215	Variance 6260.21

Approx. time to Peak Conc. TPH Aliphatic C10-12 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0

Phase: Cell3B

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aliphatic C16-35 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aromatic C5-7 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 23		
10% of values less than 28		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 107.675	Std. Dev. 73.1555	Variance 5351.72

Approx. time to Peak Conc. TPH Aromatic C7-8 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 26		
10% of values less than 28		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 107.422	Std. Dev. 72.9798	Variance 5326.05

Approx. time to Peak Conc. TPH Aromatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 30
50% of values less than 78

Phase: Cell3B

Approx. time to Peak Conc. TPH Aromatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 30		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 101.838	Std. Dev. 73.6762	Variance 5428.18

Approx. time to Peak Conc. TPH Aromatic C10-12 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 32		
50% of values less than 86		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 105.244	Std. Dev. 72.923	Variance 5317.76

Approx. time to Peak Conc. TPH Aromatic C12-C16 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 39		
50% of values less than 95		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 109.955	Std. Dev. 70.2397	Variance 4933.62

Approx. time to Peak Conc. TPH Aromatic C16-21 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 256		
50% of values less than 6094		
90% of values less than 9056		
95% of values less than 11039		
99% of values less than 18114		
Minimum 0	Maximum 20000	
Mean 6328.05	Std. Dev. 3322.26	Variance 1.10374E+007

Approx. time to Peak Conc. TPH Aromatic C21-35 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0

Phase: Cell3B

Approx. time to Peak Conc. TPH Aromatic C21-35 at Base of Unsaturated Zone [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 6094

95% of values less than 8202

99% of values less than 16406

Minimum 0

Maximum 18114

Mean 1394.36

Std. Dev. 3253.94

Variance 1.05881E+007

Phase: Cell3B*Concentration of Ammoniacal_N at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00302539

95% of values less than 0.0285508

99% of values less than 0.258055

Minimum 0

Maximum 1.29353

Mean 0.0108725

Std. Dev. 0.0700901

Variance 0.00491262

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.0375442

90% of values less than 59.4552

95% of values less than 109.769

99% of values less than 246.41

Minimum 0

Maximum 407.836

Mean 19.8627

Std. Dev. 48.4636

Variance 2348.72

At 300 years

01% of values less than 0

05% of values less than 0.605191

10% of values less than 2.1268

50% of values less than 43.6908

90% of values less than 325.289

95% of values less than 467.297

99% of values less than 806.678

Minimum 0

Maximum 1222.26

Mean 112.481

Std. Dev. 169.465

Variance 28718.3

At 1000 years

01% of values less than 0

05% of values less than 0.176465

10% of values less than 0.759848

50% of values less than 28.5704

90% of values less than 270.654

95% of values less than 393.981

99% of values less than 650.34

Minimum 0

Maximum 909.843

Mean 88.5748

Std. Dev. 138.714

Variance 19241.7

Phase: Cell3B

Concentration of Ammoniacal_N at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.48654E-013

95% of values less than 1.17913E-012

99% of values less than 2.37085E-010

Minimum 0

Maximum 0.000171007

Mean 2.04749E-007

Std. Dev. 5.44406E-006

Variance 2.96378E-011

Phase: Cell3B*Concentration of Chloride at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.427598

95% of values less than 1.0699

99% of values less than 4.62452

Minimum 0

Maximum 10.0401

Mean 0.219637

Std. Dev. 0.873571

Variance 0.763126

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.108776

90% of values less than 56.2463

95% of values less than 125.422

99% of values less than 285.651

Minimum 0

Maximum 827.695

Mean 22.747

Std. Dev. 64.4238

Variance 4150.42

At 300 years

01% of values less than 0

05% of values less than 0.0423571

10% of values less than 0.234281

50% of values less than 9.40938

90% of values less than 111.134

95% of values less than 178.444

99% of values less than 439.321

Minimum 0

Maximum 841.791

Mean 37.9931

Std. Dev. 80.3196

Variance 6451.23

At 1000 years

01% of values less than 0

05% of values less than 0.000552169

10% of values less than 0.00773141

50% of values less than 1.75792

90% of values less than 25.6643

95% of values less than 47.2305

99% of values less than 158.707

Minimum 0

Maximum 272.981

Mean 10.4839

Std. Dev. 27.5759

Variance 760.432

Phase: Cell3B

Concentration of Chloride at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.84635E-014

95% of values less than 1.56247E-013

99% of values less than 5.19318E-013

Minimum 0

Maximum 2.85932E-012

Mean 3.08416E-014

Std. Dev. 1.42749E-013

Variance 2.03774E-026

Phase: Cell3B*Concentration of Mercury at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 4.21792E-017

Mean 4.21371E-020

Std. Dev. 1.33316E-018

Variance 1.77731E-036

Phase: Cell3B

Concentration of Mercury at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 7.40031E-017

10% of values less than 3.16779E-013

50% of values less than 3.74858E-008

90% of values less than 2.58163E-006

95% of values less than 5.99233E-006

99% of values less than 1.92134E-005

Minimum 0

Maximum 5.22621E-005

Mean 1.20253E-006

Std. Dev. 4.05994E-006

Variance 1.64831E-011

Phase: Cell3B*Concentration of Phenols group 1 - phenol at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.62297E-005

95% of values less than 0.000122371

99% of values less than 0.000450845

Minimum 0

Maximum 0.000964921

Mean 2.0858E-005

Std. Dev. 8.06371E-005

Variance 6.50234E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.10059E-006

90% of values less than 0.000631874

95% of values less than 0.00111085

99% of values less than 0.00267121

Minimum 0

Maximum 0.00543109

Mean 0.000208841

Std. Dev. 0.000503625

Variance 2.53638E-007

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.21678E-008

90% of values less than 4.75037E-007

95% of values less than 6.98751E-007

99% of values less than 1.43786E-006

Minimum 0

Maximum 2.80552E-006

Mean 1.5704E-007

Std. Dev. 2.86843E-007

Variance 8.22789E-014

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 3.85718E-016

99% of values less than 2.85823E-015

Minimum 0

Maximum 7.41924E-014

Mean 2.94729E-016

Std. Dev. 3.45735E-015

Variance 1.19533E-029

Phase: Cell3B

Concentration of Phenols group 1 - phenol at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.39507E-017

Minimum 0

Maximum 7.3807E-017

Mean 3.54191E-019

Std. Dev. 3.4323E-018

Variance 1.17807E-035

Phase: Cell3B*Concentration of Phenols group 2 - cresols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.30163E-005

95% of values less than 8.12578E-005

99% of values less than 0.000307859

Minimum 0

Maximum 0.000700886

Mean 1.40972E-005

Std. Dev. 5.59288E-005

Variance 3.12803E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 5.28026E-007

90% of values less than 0.000423909

95% of values less than 0.00086335

99% of values less than 0.00216998

Minimum 0

Maximum 0.00495053

Mean 0.000151886

Std. Dev. 0.000412077

Variance 1.69808E-007

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.95893E-008

90% of values less than 3.56747E-007

95% of values less than 6.50092E-007

99% of values less than 1.61019E-006

Minimum 0

Maximum 3.90627E-006

Mean 1.39471E-007

Std. Dev. 3.44831E-007

Variance 1.18908E-013

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.38304E-016

99% of values less than 2.11838E-015

Minimum 0

Maximum 5.58344E-013

Mean 7.40301E-016

Std. Dev. 1.77558E-014

Variance 3.15269E-028

Phase: Cell3B

Concentration of Phenols group 2 - cresols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 4.43102E-017	
Mean 9.85721E-020	Std. Dev. 1.68644E-018	Variance 2.84407E-036

Phase: Cell3B*Concentration of Phenols group 3 - xlenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.3438E-008

95% of values less than 8.91737E-008

99% of values less than 4.84653E-007

Minimum 0

Maximum 7.15223E-006

Mean 3.47553E-008

Std. Dev. 3.05684E-007

Variance 9.34426E-014

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.16451E-011

90% of values less than 6.94279E-007

95% of values less than 1.84808E-006

99% of values less than 8.01896E-006

Minimum 0

Maximum 4.012E-005

Mean 4.33083E-007

Std. Dev. 2.24618E-006

Variance 5.04533E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 6.56166E-012

90% of values less than 6.74841E-010

95% of values less than 1.6589E-009

99% of values less than 6.80314E-009

Minimum 0

Maximum 2.52974E-008

Mean 4.00212E-010

Std. Dev. 1.74455E-009

Variance 3.04345E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 9.53485E-016

Mean 1.50656E-018

Std. Dev. 3.19023E-017

Variance 1.01775E-033

Phase: Cell3B

Concentration of Phenols group 3 - xlenols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of Phenols group 4 - chlorophenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.31063E-007

95% of values less than 1.30425E-006

99% of values less than 2.68266E-005

Minimum 0

Maximum 9.84291E-005

Mean 8.09026E-007

Std. Dev. 5.42626E-006

Variance 2.94443E-011

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.80945E-007

90% of values less than 0.00023394

95% of values less than 0.00043258

99% of values less than 0.00205098

Minimum 0

Maximum 0.00424042

Mean 0.000103592

Std. Dev. 0.000347264

Variance 1.20593E-007

At 300 years

01% of values less than 0

05% of values less than 1.59037E-009

10% of values less than 1.07084E-008

50% of values less than 6.59013E-007

90% of values less than 3.99951E-005

95% of values less than 7.6043E-005

99% of values less than 0.000347923

Minimum 0

Maximum 0.00110866

Mean 1.89964E-005

Std. Dev. 7.71005E-005

Variance 5.94449E-009

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 8.76255E-010

90% of values less than 1.57966E-006

95% of values less than 3.91508E-006

99% of values less than 1.93539E-005

Minimum 0

Maximum 6.77008E-005

Mean 9.54993E-007

Std. Dev. 4.62767E-006

Variance 2.14153E-011

Phase: Cell3B

Concentration of Phenols group 4 - chlorophenols at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 8.48925E-012

Minimum 0

Maximum 4.88683E-010

Mean 1.15103E-012

Std. Dev. 1.91382E-011

Variance 3.66272E-022

Phase: Cell3B*Concentration of Phenols group 5 - nitrophenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.60247E-009

95% of values less than 1.04822E-008

99% of values less than 4.24977E-008

Minimum 0

Maximum 2.20477E-007

Mean 1.92332E-009

Std. Dev. 1.00448E-008

Variance 1.00898E-016

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.68111E-011

90% of values less than 5.50874E-008

95% of values less than 1.05865E-007

99% of values less than 2.96182E-007

Minimum 0

Maximum 4.93989E-007

Mean 1.88502E-008

Std. Dev. 5.08205E-008

Variance 2.58273E-015

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.75587E-012

90% of values less than 4.77828E-011

95% of values less than 8.39165E-011

99% of values less than 2.22843E-010

Minimum 0

Maximum 4.06617E-010

Mean 1.67297E-011

Std. Dev. 4.05625E-011

Variance 1.64532E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of Phenols group 5 - nitrophenols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aliphatic C5-6 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 6.88875E-008

95% of values less than 4.57963E-007

99% of values less than 2.93395E-006

Minimum 0

Maximum 1.43014E-005

Mean 1.23918E-007

Std. Dev. 7.38317E-007

Variance 5.45112E-013

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.99512E-011

90% of values less than 7.31531E-006

95% of values less than 1.75364E-005

99% of values less than 7.49619E-005

Minimum 0

Maximum 0.000123999

Mean 3.37723E-006

Std. Dev. 1.1703E-005

Variance 1.3696E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.72589E-011

90% of values less than 5.61546E-009

95% of values less than 1.16439E-008

99% of values less than 3.43546E-008

Minimum 0

Maximum 5.78361E-008

Mean 2.28673E-009

Std. Dev. 6.46568E-009

Variance 4.18051E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.04298E-017

Minimum 0

Maximum 1.74477E-015

Mean 3.86419E-018

Std. Dev. 5.98559E-017

Variance 3.58273E-033

Phase: Cell3B

Concentration of TPH Aliphatic C5-6 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aliphatic C6-8 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.63997E-015

95% of values less than 1.21835E-012

99% of values less than 4.22524E-010

Minimum 0

Maximum 4.66714E-008

Mean 6.63928E-011

Std. Dev. 1.49375E-009

Variance 2.23128E-018

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.94605E-009

95% of values less than 4.36197E-008

99% of values less than 2.36966E-007

Minimum 0

Maximum 1.56467E-006

Mean 1.11077E-008

Std. Dev. 7.21254E-008

Variance 5.20208E-015

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.75066E-016

90% of values less than 8.24376E-012

95% of values less than 3.48875E-011

99% of values less than 2.041E-010

Minimum 0

Maximum 8.6237E-010

Mean 8.32189E-012

Std. Dev. 4.4467E-011

Variance 1.97731E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 2.6404E-017

Mean 3.60548E-020

Std. Dev. 8.88654E-019

Variance 7.89705E-037

Phase: Cell3B

Concentration of TPH Aliphatic C6-8 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C8-10 at Phase Monitor Well [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 1.17466E-013

Mean 1.22414E-016

Std. Dev. 3.71439E-015

Variance 1.37967E-029

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 6.06791E-017

Minimum 0

Maximum 5.45486E-015

Mean 8.75132E-018

Std. Dev. 1.76326E-016

Variance 3.1091E-032

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C8-10 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C10-12 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C10-12 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C12-16 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C12-16 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C16-35 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Concentration of TPH Aliphatic C16-35 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C5-7 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.32326E-008

95% of values less than 1.23076E-007

99% of values less than 6.64323E-007

Minimum 0

Maximum 1.98163E-006

Mean 2.69637E-008

Std. Dev. 1.23508E-007

Variance 1.52543E-014

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.44683E-010

90% of values less than 8.68479E-007

95% of values less than 1.60025E-006

99% of values less than 4.27511E-006

Minimum 0

Maximum 9.07738E-006

Mean 2.96705E-007

Std. Dev. 8.4144E-007

Variance 7.08022E-013

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.19E-011

90% of values less than 7.32914E-010

95% of values less than 1.18007E-009

99% of values less than 2.69187E-009

Minimum 0

Maximum 5.06417E-009

Mean 2.46615E-010

Std. Dev. 5.4461E-010

Variance 2.966E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 6.53302E-017

Mean 2.02042E-019

Std. Dev. 3.3296E-018

Variance 1.10862E-035

Phase: Cell3B

Concentration of TPH Aromatic C5-7 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C7-8 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.19875E-010

95% of values less than 3.53883E-009

99% of values less than 3.37487E-008

Minimum 0

Maximum 9.91603E-008

Mean 1.26115E-009

Std. Dev. 7.36272E-009

Variance 5.42096E-017

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 5.43357E-015

90% of values less than 2.53815E-008

95% of values less than 9.31531E-008

99% of values less than 3.90796E-007

Minimum 0

Maximum 1.23668E-006

Mean 1.77194E-008

Std. Dev. 8.14602E-008

Variance 6.63577E-015

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.11526E-013

90% of values less than 4.22319E-011

95% of values less than 9.6465E-011

99% of values less than 2.73845E-010

Minimum 0

Maximum 4.98376E-010

Mean 1.63095E-011

Std. Dev. 5.10819E-011

Variance 2.60936E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aromatic C7-8 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C8-10 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.93942E-013

95% of values less than 4.42114E-011

99% of values less than 2.37917E-009

Minimum 0

Maximum 1.27161E-007

Mean 2.93436E-010

Std. Dev. 4.69577E-009

Variance 2.20503E-017

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.04335E-009

95% of values less than 4.70786E-009

99% of values less than 4.73994E-008

Minimum 0

Maximum 4.70976E-007

Mean 2.2845E-009

Std. Dev. 2.10345E-008

Variance 4.42449E-016

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.70897E-012

95% of values less than 8.29142E-012

99% of values less than 7.82736E-011

Minimum 0

Maximum 5.22387E-010

Mean 3.41712E-012

Std. Dev. 2.48325E-011

Variance 6.16651E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aromatic C8-10 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C10-12 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.53066E-014

95% of values less than 5.00282E-012

99% of values less than 5.15027E-010

Minimum 0

Maximum 2.06222E-008

Mean 5.26807E-011

Std. Dev. 7.47899E-010

Variance 5.59353E-019

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.05556E-010

95% of values less than 2.74583E-009

99% of values less than 4.06904E-008

Minimum 0

Maximum 1.04766E-007

Mean 1.11138E-009

Std. Dev. 7.19415E-009

Variance 5.17558E-017

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.21887E-012

95% of values less than 4.43177E-012

99% of values less than 3.69774E-011

Minimum 0

Maximum 2.27939E-010

Mean 1.40355E-012

Std. Dev. 9.30651E-012

Variance 8.66111E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aromatic C10-12 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C12-C16 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 2.50882E-014

99% of values less than 3.21985E-012

Minimum 0

Maximum 1.38179E-009

Mean 3.54118E-012

Std. Dev. 6.44163E-011

Variance 4.14946E-021

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.54419E-011

95% of values less than 2.6774E-010

99% of values less than 4.06558E-009

Minimum 0

Maximum 3.67704E-008

Mean 1.94595E-010

Std. Dev. 1.80834E-009

Variance 3.27009E-018

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.6721E-014

95% of values less than 3.61753E-013

99% of values less than 2.67965E-012

Minimum 0

Maximum 2.26287E-011

Mean 1.49493E-013

Std. Dev. 1.24582E-012

Variance 1.55207E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Concentration of TPH Aromatic C12-C16 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B*Concentration of TPH Aromatic C16-21 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 5.68041E-014

Mean 5.75904E-017

Std. Dev. 1.7955E-015

Variance 3.22381E-030

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.17285E-013

95% of values less than 1.36757E-011

99% of values less than 5.15961E-010

Minimum 0

Maximum 4.82539E-007

Mean 5.04142E-010

Std. Dev. 1.52551E-008

Variance 2.32718E-016

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 6.49912E-014

90% of values less than 1.08965E-009

95% of values less than 4.85684E-009

99% of values less than 5.46054E-008

Minimum 0

Maximum 2.25608E-006

Mean 5.57736E-009

Std. Dev. 8.37445E-008

Variance 7.01314E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.0752E-013

90% of values less than 1.57663E-009

95% of values less than 6.82115E-009

99% of values less than 9.19319E-008

Minimum 0

Maximum 2.89246E-006

Mean 7.69042E-009

Std. Dev. 1.08541E-007

Variance 1.17811E-014

Phase: Cell3B

Concentration of TPH Aromatic C16-21 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.25216E-011

90% of values less than 8.94963E-008

95% of values less than 3.8927E-007

99% of values less than 1.74E-006

Minimum 0

Maximum 3.84051E-005

Mean 1.39136E-007

Std. Dev. 1.40774E-006

Variance 1.98173E-012

Phase: Cell3B*Concentration of TPH Aromatic C21-35 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 4.74349E-015

Mean 4.73876E-018

Std. Dev. 1.49928E-016

Variance 2.24783E-032

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 1.22144E-014

Mean 1.29019E-017

Std. Dev. 3.86315E-016

Variance 1.49239E-031

Phase: Cell3B

Concentration of TPH Aromatic C21-35 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 3.76892E-016

Minimum 0

Maximum 1.67949E-013

Mean 2.25591E-016

Std. Dev. 5.35443E-015

Variance 2.86699E-029

Phase: Cell3B*Approx. time to Peak Conc. Ammoniacal_N at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 141

10% of values less than 172

50% of values less than 312

90% of values less than 624

95% of values less than 689

99% of values less than 761

Minimum 0

Maximum 928

Mean 368.043

Std. Dev. 176.225

Variance 31055.2

Approx. time to Peak Conc. Chloride at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 78

10% of values less than 86

50% of values less than 156

90% of values less than 300

95% of values less than 312

99% of values less than 464

Minimum 0

Maximum 565

Mean 172.882

Std. Dev. 90.6565

Variance 8218.6

Approx. time to Peak Conc. Mercury at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 11039

10% of values less than 20000

50% of values less than 20000

90% of values less than 20000

95% of values less than 20000

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 18926.5

Std. Dev. 4299.3

Variance 1.8484E+007

Approx. time to Peak Conc. Phenols group 1 - phenol at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 70

10% of values less than 70

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 127.766

Std. Dev. 70.8818

Variance 5024.23

Phase: Cell3B*Approx. time to Peak Conc. Phenols group 2 - cresols at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 70

10% of values less than 70

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 127.855

Std. Dev. 70.8124

Variance 5014.4

Approx. time to Peak Conc. Phenols group 3 - xylenols at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 70

10% of values less than 70

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 127.931

Std. Dev. 70.4799

Variance 4967.41

Approx. time to Peak Conc. Phenols group 4 - chlorophenols at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 86

10% of values less than 95

50% of values less than 156

90% of values less than 256

95% of values less than 300

99% of values less than 344

Minimum 0

Maximum 420

Mean 162.877

Std. Dev. 73.3763

Variance 5384.09

Approx. time to Peak Conc. Phenols group 5 - nitrophenols at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 70

10% of values less than 70

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 127.296

Std. Dev. 70.6124

Variance 4986.12

Phase: Cell3B*Approx. time to Peak Conc. TPH Aliphatic C5-6 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 70

10% of values less than 78

50% of values less than 100

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 312

Mean 131.382

Std. Dev. 68.9523

Variance 4754.43

Approx. time to Peak Conc. TPH Aliphatic C6-8 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 105

90% of values less than 232

95% of values less than 256

99% of values less than 300

Minimum 0

Maximum 344

Mean 121.629

Std. Dev. 80.0875

Variance 6414.01

Approx. time to Peak Conc. TPH Aliphatic C8-10 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 210

Minimum 0

Maximum 344

Mean 8.97602

Std. Dev. 40.6026

Variance 1648.57

Approx. time to Peak Conc. TPH Aliphatic C10-12 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Phase Monitor Well [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aliphatic C16-35 at Phase Monitor Well [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aromatic C5-7 at Phase Monitor Well [years]

01% of values less than 0		
05% of values less than 70		
10% of values less than 70		
50% of values less than 86		
90% of values less than 232		
95% of values less than 232		
99% of values less than 300		
Minimum 0	Maximum 300	
Mean 127.464	Std. Dev. 70.7866	Variance 5010.74

Approx. time to Peak Conc. TPH Aromatic C7-8 at Phase Monitor Well [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 70		
50% of values less than 86		
90% of values less than 232		
95% of values less than 232		
99% of values less than 300		
Minimum 0	Maximum 300	
Mean 123.147	Std. Dev. 72.0392	Variance 5189.65

Phase: Cell3B*Approx. time to Peak Conc. TPH Aromatic C8-10 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 102.763

Std. Dev. 76.6551

Variance 5876

Approx. time to Peak Conc. TPH Aromatic C10-12 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 95

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 312

Mean 106.13

Std. Dev. 76.8235

Variance 5901.85

Approx. time to Peak Conc. TPH Aromatic C12-C16 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 95

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 312

Mean 94.6284

Std. Dev. 78.1841

Variance 6112.76

Approx. time to Peak Conc. TPH Aromatic C16-21 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 14859

90% of values less than 20000

95% of values less than 20000

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 13111

Std. Dev. 6174.68

Variance 3.81267E+007

Phase: Cell3B

Approx. time to Peak Conc. TPH Aromatic C21-35 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 18114

Minimum 0

Maximum 20000

Mean 705.517

Std. Dev. 3317.92

Variance 1.10086E+007

Phase: Cell3B

Flow to Leachate Treatment Plant [l/day]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3B

Flow to Leachate Treatment Plant [l/day]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3B

Head on EBS [m]

At 1000 years

01% of values less than 10.3815		
05% of values less than 12.244		
10% of values less than 13.8398		
50% of values less than 28.1644		
90% of values less than 30		
95% of values less than 30		
99% of values less than 30		
Minimum 10.0302	Maximum 30	
Mean 24.5524	Std. Dev. 6.52564	Variance 42.584

At infinity

01% of values less than 10.3815		
05% of values less than 12.244		
10% of values less than 13.8398		
50% of values less than 28.1644		
90% of values less than 30		
95% of values less than 30		
99% of values less than 30		
Minimum 10.0302	Maximum 30	
Mean 24.5524	Std. Dev. 6.52564	Variance 42.584

Phase: Cell3B

Surface Breakout [l/day]

At 300 years

01% of values less than 766.607		
05% of values less than 1108.59		
10% of values less than 1295.9		
50% of values less than 2035.92		
90% of values less than 2761.66		
95% of values less than 2973.15		
99% of values less than 3413		
Minimum 517.824	Maximum 3720.79	
Mean 2032.48	Std. Dev. 565.211	Variance 319463

At 1000 years

01% of values less than 7137.21		
05% of values less than 8084.23		
10% of values less than 8544.61		
50% of values less than 10361.9		
90% of values less than 12383.5		
95% of values less than 13013.2		
99% of values less than 13753.6		
Minimum 6203.46	Maximum 14617.6	
Mean 10409.3	Std. Dev. 1471.31	Variance 2.16476E+006

At infinity

01% of values less than 5450.29		
05% of values less than 6213.06		
10% of values less than 6808		
50% of values less than 8833.83		
90% of values less than 10947.5		
95% of values less than 11678		
99% of values less than 12793.9		
Minimum 4241.67	Maximum 14617.6	
Mean 8872.93	Std. Dev. 1631.73	Variance 2.66254E+006

Phase: Cell3B

Leakage through EBS [l/day]

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 46.135

90% of values less than 180.375

95% of values less than 216.677

99% of values less than 278.457

Minimum 0

Maximum 361.476

Mean 69.8404

Std. Dev. 72.8711

Variance 5310.19

At 300 years

01% of values less than 0

05% of values less than 8.88166

10% of values less than 16.7954

50% of values less than 80.3638

90% of values less than 221.082

95% of values less than 263.462

99% of values less than 355.91

Minimum 0

Maximum 492.138

Mean 102.565

Std. Dev. 84.3821

Variance 7120.33

At 1000 years

01% of values less than 0

05% of values less than 14.4283

10% of values less than 27.2842

50% of values less than 130.551

90% of values less than 359.149

95% of values less than 427.996

99% of values less than 578.177

Minimum 0

Maximum 799.481

Mean 166.617

Std. Dev. 137.079

Variance 18790.7

At infinity

01% of values less than 0

05% of values less than 680.098

10% of values less than 833.444

50% of values less than 1602.54

90% of values less than 2717.53

95% of values less than 2988.64

99% of values less than 3216.53

Minimum 0

Maximum 3486.11

Mean 1702.85

Std. Dev. 716.178

Variance 512911

Phase: Cell3B

Aquifer Flow [m³/year]

At 30 years

01% of values less than 6.08409
05% of values less than 18.7347
10% of values less than 36.1509
50% of values less than 465.069
90% of values less than 2846.6
95% of values less than 3689.56
99% of values less than 6396.74

Minimum 0	Maximum 11282.8	
Mean 1016.12	Std. Dev. 1379.15	Variance 1.90204E+006

At 100 years

01% of values less than 12.5258
05% of values less than 36.2756
10% of values less than 59.4921
50% of values less than 475.708
90% of values less than 2846.6
95% of values less than 3689.56
99% of values less than 6396.74

Minimum 0	Maximum 11282.8	
Mean 1028.41	Std. Dev. 1371.99	Variance 1.88235E+006

At 300 years

01% of values less than 22.0526
05% of values less than 46.9949
10% of values less than 68.878
50% of values less than 500.723
90% of values less than 2846.6
95% of values less than 3689.56
99% of values less than 6396.74

Minimum 0	Maximum 11282.8	
Mean 1035.49	Std. Dev. 1368.32	Variance 1.87229E+006

At 1000 years

01% of values less than 24.751
05% of values less than 57.4184
10% of values less than 88.1933
50% of values less than 527.292
90% of values less than 2846.6
95% of values less than 3689.56
99% of values less than 6396.74

Minimum 0	Maximum 11282.8	
Mean 1053.63	Std. Dev. 1360.99	Variance 1.85229E+006

Phase: Cell3B

Aquifer Flow [m³/year]

At infinity

- 01% of values less than 243.131
- 05% of values less than 424.161
- 10% of values less than 527.477
- 50% of values less than 1165.83
- 90% of values less than 3398.28
- 95% of values less than 4326.99
- 99% of values less than 6465.21

Minimum 0

Maximum 11282.8

Mean 1628.7

Std. Dev. 1374.64

Variance 1.88962E+006

Phase: Cell3C

Source Concentration of Ammoniacal_N [mg/l]

At 30 years

01% of values less than 362.954		
05% of values less than 476.998		
10% of values less than 595.438		
50% of values less than 1227.66		
90% of values less than 2012.86		
95% of values less than 2235.84		
99% of values less than 2679.81		
Minimum 282.758	Maximum 3013.2	
Mean 1276.06	Std. Dev. 523.919	Variance 274491

At 100 years

01% of values less than 261.892		
05% of values less than 368.827		
10% of values less than 456.884		
50% of values less than 1102.72		
90% of values less than 1864.91		
95% of values less than 2067.06		
99% of values less than 2527.64		
Minimum 181.539	Maximum 2885.33	
Mean 1143.3	Std. Dev. 511.239	Variance 261365

At 300 years

01% of values less than 89.4445		
05% of values less than 151.126		
10% of values less than 220.806		
50% of values less than 792.124		
90% of values less than 1437.67		
95% of values less than 1640.81		
99% of values less than 2101.16		
Minimum 29.0853	Maximum 2639.87	
Mean 828.291	Std. Dev. 464.845	Variance 216081

At 1000 years

01% of values less than 4.46658E-005		
05% of values less than 0.000478246		
10% of values less than 0.00548524		
50% of values less than 5.31603		
90% of values less than 51.836		
95% of values less than 70.5399		
99% of values less than 116.892		
Minimum 2.2604E-006	Maximum 220.776	
Mean 16.9342	Std. Dev. 26.1071	Variance 681.581

Phase: Cell3C

Source Concentration of Ammoniacal_N [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Source Concentration of Chloride [mg/l]*

At 30 years

01% of values less than 9.18698

05% of values less than 27.252

10% of values less than 46.0307

50% of values less than 208.701

90% of values less than 673.751

95% of values less than 849.881

99% of values less than 1140.57

Minimum 4.93902

Maximum 1387.91

Mean 298.061

Std. Dev. 263.27

Variance 69311.2

At 100 years

01% of values less than 5.28905

05% of values less than 16.798

10% of values less than 28.2542

50% of values less than 167.514

90% of values less than 564.436

95% of values less than 731.312

99% of values less than 964.232

Minimum 1.56796

Maximum 1272.1

Mean 241.877

Std. Dev. 224.688

Variance 50484.7

At 300 years

01% of values less than 0.755705

05% of values less than 2.79939

10% of values less than 6.10851

50% of values less than 87.5045

90% of values less than 346.954

95% of values less than 429.882

99% of values less than 660.163

Minimum 0.053961

Maximum 996.349

Mean 133.647

Std. Dev. 147.15

Variance 21653.1

At 1000 years

01% of values less than 3.34408E-014

05% of values less than 1.56871E-011

10% of values less than 1.65744E-009

50% of values less than 0.00258835

90% of values less than 0.276987

95% of values less than 0.510306

99% of values less than 1.64867

Minimum 8.95502E-017

Maximum 3.51707

Mean 0.0993521

Std. Dev. 0.305049

Variance 0.093055

Phase: Cell3C

Source Concentration of Chloride [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C*Source Concentration of Mercury [mg/l]*

At 30 years

01% of values less than 8.27767E-006

05% of values less than 1.41962E-005

10% of values less than 2.13858E-005

50% of values less than 0.000142048

90% of values less than 0.00047252

95% of values less than 0.00066984

99% of values less than 0.00103324

Minimum 6.05934E-006

Maximum 0.00128359

Mean 0.000209791

Std. Dev. 0.00021765

Variance 4.73715E-008

At 100 years

01% of values less than 8.27767E-006

05% of values less than 1.41962E-005

10% of values less than 2.13858E-005

50% of values less than 0.000141833

90% of values less than 0.000452154

95% of values less than 0.000635925

99% of values less than 0.000995058

Minimum 6.05934E-006

Maximum 0.00125647

Mean 0.000205644

Std. Dev. 0.000210576

Variance 4.43422E-008

At 300 years

01% of values less than 8.27767E-006

05% of values less than 1.41962E-005

10% of values less than 2.13858E-005

50% of values less than 0.000140094

90% of values less than 0.000423376

95% of values less than 0.00057079

99% of values less than 0.000927923

Minimum 6.05934E-006

Maximum 0.00117381

Mean 0.00019358

Std. Dev. 0.000190784

Variance 3.63986E-008

At 1000 years

01% of values less than 7.91884E-006

05% of values less than 1.35416E-005

10% of values less than 1.98943E-005

50% of values less than 9.28145E-005

90% of values less than 0.000184259

95% of values less than 0.000227022

99% of values less than 0.000304485

Minimum 6.05934E-006

Maximum 0.000435303

Mean 0.00010024

Std. Dev. 6.84009E-005

Variance 4.67868E-009

Phase: Cell3C

Source Concentration of Mercury [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 1.33117E-026

50% of values less than 3.59377E-007

90% of values less than 7.64981E-005

95% of values less than 9.50589E-005

99% of values less than 0.000110529

Minimum 0

Maximum 0.000116396

Mean 2.36779E-005

Std. Dev. 3.24073E-005

Variance 1.05023E-009

Phase: Cell3C*Source Concentration of Phenols group 1 - phenol [mg/l]*

At 30 years

01% of values less than 0.786803

05% of values less than 0.797116

10% of values less than 0.806631

50% of values less than 0.854129

90% of values less than 0.897944

95% of values less than 0.908789

99% of values less than 0.924291

Minimum 0.776931

Maximum 0.93259

Mean 0.853222

Std. Dev. 0.03307

Variance 0.00109363

At 100 years

01% of values less than 0.0061469

05% of values less than 0.00622747

10% of values less than 0.00630181

50% of values less than 0.00667288

90% of values less than 0.00701518

95% of values less than 0.00709992

99% of values less than 0.00722103

Minimum 0.00606977

Maximum 0.00728586

Mean 0.00666579

Std. Dev. 0.00025836

Variance 6.67497E-008

At 300 years

01% of values less than 5.86214E-009

05% of values less than 5.93898E-009

10% of values less than 6.00987E-009

50% of values less than 6.36376E-009

90% of values less than 6.6902E-009

95% of values less than 6.77101E-009

99% of values less than 6.88651E-009

Minimum 5.78858E-009

Maximum 6.94834E-009

Mean 6.357E-009

Std. Dev. 2.46391E-010

Variance 6.07085E-020

At 1000 years

01% of values less than 4.96542E-030

05% of values less than 5.03051E-030

10% of values less than 5.09056E-030

50% of values less than 5.39031E-030

90% of values less than 5.66682E-030

95% of values less than 5.73527E-030

99% of values less than 5.8331E-030

Minimum 4.90312E-030

Maximum 5.88547E-030

Mean 5.38459E-030

Std. Dev. 2.08701E-031

Variance 4.35562E-062

Phase: Cell3C

Source Concentration of Phenols group 1 - phenol [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Source Concentration of Phenols group 2 - cresols [mg/l]

At 30 years

01% of values less than 0.0146884		
05% of values less than 0.0185673		
10% of values less than 0.0211279		
50% of values less than 0.0448242		
90% of values less than 0.0853122		
95% of values less than 0.0972634		
99% of values less than 0.115753		
Minimum 0.0127156	Maximum 0.134365	
Mean 0.0491814	Std. Dev. 0.0245722	Variance 0.000603793

At 100 years

01% of values less than 0.000114753		
05% of values less than 0.000145057		
10% of values less than 0.000165062		
50% of values less than 0.000350189		
90% of values less than 0.000666502		
95% of values less than 0.00075987		
99% of values less than 0.000904318		
Minimum 9.93406E-005	Maximum 0.00104973	
Mean 0.00038423	Std. Dev. 0.00019197	Variance 3.68526E-008

At 300 years

01% of values less than 1.09437E-010		
05% of values less than 1.38337E-010		
10% of values less than 1.57415E-010		
50% of values less than 3.33966E-010		
90% of values less than 6.35626E-010		
95% of values less than 7.24669E-010		
99% of values less than 8.62425E-010		
Minimum 9.47386E-011	Maximum 1.0011E-009	
Mean 3.6643E-010	Std. Dev. 1.83077E-010	Variance 3.35172E-020

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Source Concentration of Phenols group 2 - cresols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Source Concentration of Phenols group 3 - xlenols [mg/l]

At 30 years

01% of values less than 0.0114305		
05% of values less than 0.0126467		
10% of values less than 0.0135967		
50% of values less than 0.0194216		
90% of values less than 0.0252732		
95% of values less than 0.0270146		
99% of values less than 0.0289917		
Minimum 0.0102369	Maximum 0.0307421	
Mean 0.0194678	Std. Dev. 0.00434933	Variance 1.89166E-005

At 100 years

01% of values less than 8.9301E-005		
05% of values less than 9.88025E-005		
10% of values less than 0.000106224		
50% of values less than 0.000151731		
90% of values less than 0.000197447		
95% of values less than 0.000211051		
99% of values less than 0.000226498		
Minimum 7.9976E-005	Maximum 0.000240173	
Mean 0.000152092	Std. Dev. 3.39791E-005	Variance 1.15458E-009

At 300 years

01% of values less than 8.51641E-011		
05% of values less than 9.42254E-011		
10% of values less than 1.01304E-010		
50% of values less than 1.44702E-010		
90% of values less than 1.883E-010		
95% of values less than 2.01274E-010		
99% of values less than 2.16005E-010		
Minimum 7.62711E-011	Maximum 2.29047E-010	
Mean 1.45047E-010	Std. Dev. 3.2405E-011	Variance 1.05008E-021

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Source Concentration of Phenols group 3 - xylenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Source Concentration of Phenols group 4 - chlorophenols [mg/l]*

At 30 years

01% of values less than 0.000192669

05% of values less than 0.000271327

10% of values less than 0.000369134

50% of values less than 0.00126272

90% of values less than 0.00347585

95% of values less than 0.0044696

99% of values less than 0.00576034

Minimum 0.000143328

Maximum 0.0064793

Mean 0.00164476

Std. Dev. 0.00128143

Variance 1.64207E-006

At 100 years

01% of values less than 1.50523E-006

05% of values less than 2.11974E-006

10% of values less than 2.88386E-006

50% of values less than 9.86501E-006

90% of values less than 2.7155E-005

95% of values less than 3.49188E-005

99% of values less than 4.50026E-005

Minimum 1.11975E-006

Maximum 5.06195E-005

Mean 1.28497E-005

Std. Dev. 1.00112E-005

Variance 1.00224E-010

At 300 years

01% of values less than 1.4355E-012

05% of values less than 2.02154E-012

10% of values less than 2.75026E-012

50% of values less than 9.408E-012

90% of values less than 2.58971E-011

95% of values less than 3.33011E-011

99% of values less than 4.29179E-011

Minimum 1.06787E-012

Maximum 4.82745E-011

Mean 1.22544E-011

Std. Dev. 9.5474E-012

Variance 9.11529E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Source Concentration of Phenols group 4 - chlorophenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Source Concentration of Phenols group 5 - nitrophenols [mg/l]*

At 30 years

01% of values less than 0.000170361

05% of values less than 0.00025414

10% of values less than 0.00035968

50% of values less than 0.00127031

90% of values less than 0.00342723

95% of values less than 0.00421817

99% of values less than 0.00557397

Minimum 0.000134007

Maximum 0.0064444

Mean 0.00160861

Std. Dev. 0.00125207

Variance 1.56769E-006

At 100 years

01% of values less than 1.33095E-006

05% of values less than 1.98547E-006

10% of values less than 2.81E-006

50% of values less than 9.92431E-006

90% of values less than 2.67753E-005

95% of values less than 3.29545E-005

99% of values less than 4.35466E-005

Minimum 1.04693E-006

Maximum 5.03469E-005

Mean 1.25673E-005

Std. Dev. 9.78182E-006

Variance 9.5684E-011

At 300 years

01% of values less than 1.26929E-012

05% of values less than 1.89349E-012

10% of values less than 2.67983E-012

50% of values less than 9.46456E-012

90% of values less than 2.55349E-011

95% of values less than 3.14278E-011

99% of values less than 4.15293E-011

Minimum 9.98431E-013

Maximum 4.80146E-011

Mean 1.19851E-011

Std. Dev. 9.32867E-012

Variance 8.70241E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Source Concentration of Phenols group 5 - nitrophenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Source Concentration of TPH Aliphatic C5-6 [mg/l]*

At 30 years

01% of values less than 0.03325

05% of values less than 0.03325

10% of values less than 0.03325

50% of values less than 0.03325

90% of values less than 0.03325

95% of values less than 0.03325

99% of values less than 0.03325

Minimum 0.03325

Maximum 0.03325

Mean 0.03325

Std. Dev. 2.77795E-009

Variance -7.71699E-018

At 100 years

01% of values less than 0.000259766

05% of values less than 0.000259766

10% of values less than 0.000259766

50% of values less than 0.000259766

90% of values less than 0.000259766

95% of values less than 0.000259766

99% of values less than 0.000259766

Minimum 0.000259766

Maximum 0.000259766

Mean 0.000259766

Std. Dev. 3.1903E-011

Variance -1.0178E-021

At 300 years

01% of values less than 2.47732E-010

05% of values less than 2.47732E-010

10% of values less than 2.47732E-010

50% of values less than 2.47732E-010

90% of values less than 2.47732E-010

95% of values less than 2.47732E-010

99% of values less than 2.47732E-010

Minimum 2.47732E-010

Maximum 2.47732E-010

Mean 2.47732E-010

Std. Dev. 2.41661E-017

Variance 5.83999E-034

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Source Concentration of TPH Aliphatic C5-6 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Source Concentration of TPH Aliphatic C6-8 [mg/l]*

At 30 years

01% of values less than 0.01025

05% of values less than 0.01025

10% of values less than 0.01025

50% of values less than 0.01025

90% of values less than 0.01025

95% of values less than 0.01025

99% of values less than 0.01025

Minimum 0.01025

Maximum 0.01025

Mean 0.01025

Std. Dev. 9.29531E-010

Variance 8.64027E-019

At 100 years

01% of values less than 8.00781E-005

05% of values less than 8.00781E-005

10% of values less than 8.00781E-005

50% of values less than 8.00781E-005

90% of values less than 8.00781E-005

95% of values less than 8.00781E-005

99% of values less than 8.00781E-005

Minimum 8.00781E-005

Maximum 8.00781E-005

Mean 8.00781E-005

Std. Dev. 3.74693E-012

Variance -1.40395E-023

At 300 years

01% of values less than 7.63685E-011

05% of values less than 7.63685E-011

10% of values less than 7.63685E-011

50% of values less than 7.63685E-011

90% of values less than 7.63685E-011

95% of values less than 7.63685E-011

99% of values less than 7.63685E-011

Minimum 7.63685E-011

Maximum 7.63685E-011

Mean 7.63685E-011

Std. Dev. 8.29391E-018

Variance 6.8789E-035

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Source Concentration of TPH Aliphatic C6-8 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Source Concentration of TPH Aliphatic C8-10 [mg/l]*

At 30 years

01% of values less than 0.00562414

05% of values less than 0.00595797

10% of values less than 0.00625767

50% of values less than 0.0079847

90% of values less than 0.00916703

95% of values less than 0.00937411

99% of values less than 0.00972391

Minimum 0.00535778

Maximum 0.00982553

Mean 0.0078714

Std. Dev. 0.00105203

Variance 1.10677E-006

At 100 years

01% of values less than 4.39386E-005

05% of values less than 4.65466E-005

10% of values less than 4.8888E-005

50% of values less than 6.23804E-005

90% of values less than 7.16174E-005

95% of values less than 7.32352E-005

99% of values less than 7.5968E-005

Minimum 4.18577E-005

Maximum 7.6762E-005

Mean 6.14953E-005

Std. Dev. 8.21899E-006

Variance 6.75519E-011

At 300 years

01% of values less than 4.19031E-011

05% of values less than 4.43903E-011

10% of values less than 4.66233E-011

50% of values less than 5.94906E-011

90% of values less than 6.82997E-011

95% of values less than 6.98425E-011

99% of values less than 7.24487E-011

Minimum 3.99186E-011

Maximum 7.32059E-011

Mean 5.86465E-011

Std. Dev. 7.83824E-012

Variance 6.14381E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Source Concentration of TPH Aliphatic C8-10 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Source Concentration of TPH Aliphatic C10-12 [mg/l]

At 30 years

01% of values less than 0.00877851		
05% of values less than 0.00936368		
10% of values less than 0.00963752		
50% of values less than 0.0112587		
90% of values less than 0.0124502		
95% of values less than 0.0127163		
99% of values less than 0.013031		
Minimum 0.00857253	Maximum 0.0131868	
Mean 0.0111612	Std. Dev. 0.00105344	Variance 1.10974E-006

At 100 years

01% of values less than 6.85821E-005		
05% of values less than 7.31537E-005		
10% of values less than 7.52931E-005		
50% of values less than 8.79588E-005		
90% of values less than 9.72669E-005		
95% of values less than 9.93462E-005		
99% of values less than 0.000101805		
Minimum 6.69729E-005	Maximum 0.000103022	
Mean 8.71973E-005	Std. Dev. 8.23E-006	Variance 6.77329E-011

At 300 years

01% of values less than 6.5405E-011		
05% of values less than 6.97648E-011		
10% of values less than 7.18051E-011		
50% of values less than 8.3884E-011		
90% of values less than 9.2761E-011		
95% of values less than 9.4744E-011		
99% of values less than 9.70888E-011		
Minimum 6.38703E-011	Maximum 9.82495E-011	
Mean 8.31578E-011	Std. Dev. 7.84874E-012	Variance 6.16027E-023

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Source Concentration of TPH Aliphatic C10-12 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Source Concentration of TPH Aliphatic C12-16 [mg/l]*

At 30 years

01% of values less than 0.00517036

05% of values less than 0.00549743

10% of values less than 0.00585574

50% of values less than 0.00730679

90% of values less than 0.0098606

95% of values less than 0.0105311

99% of values less than 0.0115563

Minimum 0.00499763

Maximum 0.0123718

Mean 0.00759928

Std. Dev. 0.00152775

Variance 2.33403E-006

At 100 years

01% of values less than 4.03934E-005

05% of values less than 4.29487E-005

10% of values less than 4.5748E-005

50% of values less than 5.70843E-005

90% of values less than 7.70359E-005

95% of values less than 8.22744E-005

99% of values less than 9.02835E-005

Minimum 3.9044E-005

Maximum 9.66548E-005

Mean 5.93694E-005

Std. Dev. 1.19356E-005

Variance 1.42458E-010

At 300 years

01% of values less than 3.85222E-011

05% of values less than 4.09591E-011

10% of values less than 4.36287E-011

50% of values less than 5.44398E-011

90% of values less than 7.34672E-011

95% of values less than 7.84629E-011

99% of values less than 8.61011E-011

Minimum 3.72352E-011

Maximum 9.21772E-011

Mean 5.66191E-011

Std. Dev. 1.13827E-011

Variance 1.29565E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Source Concentration of TPH Aliphatic C12-16 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Source Concentration of TPH Aliphatic C16-35 [mg/l]*

At 30 years

01% of values less than 0.00528115

05% of values less than 0.00572056

10% of values less than 0.00599173

50% of values less than 0.0074819

90% of values less than 0.00883454

95% of values less than 0.00908697

99% of values less than 0.00949625

Minimum 0.00510071

Maximum 0.00992197

Mean 0.00744502

Std. Dev. 0.00104774

Variance 1.09775E-006

At 100 years

01% of values less than 0.00528115

05% of values less than 0.00572056

10% of values less than 0.00599173

50% of values less than 0.0074819

90% of values less than 0.00883454

95% of values less than 0.00908697

99% of values less than 0.00949625

Minimum 0.00510071

Maximum 0.00992197

Mean 0.00744502

Std. Dev. 0.00104774

Variance 1.09775E-006

At 300 years

01% of values less than 0.00528115

05% of values less than 0.00572056

10% of values less than 0.00599173

50% of values less than 0.0074819

90% of values less than 0.00883454

95% of values less than 0.00908697

99% of values less than 0.00949625

Minimum 0.00510071

Maximum 0.00992197

Mean 0.00744502

Std. Dev. 0.00104774

Variance 1.09775E-006

At 1000 years

01% of values less than 0.00528115

05% of values less than 0.00572056

10% of values less than 0.00599173

50% of values less than 0.0074819

90% of values less than 0.00883454

95% of values less than 0.00908697

99% of values less than 0.00949625

Minimum 0.00510071

Maximum 0.00992197

Mean 0.00744502

Std. Dev. 0.00104774

Variance 1.09775E-006

Phase: Cell3C

Source Concentration of TPH Aliphatic C16-35 [mg/l]

At infinity

- 01% of values less than 0.00528115
- 05% of values less than 0.00572056
- 10% of values less than 0.00599173
- 50% of values less than 0.0074819
- 90% of values less than 0.00883454
- 95% of values less than 0.00908697
- 99% of values less than 0.00949625

Minimum 0.00510071

Maximum 0.00992197

Mean 0.00744502

Std. Dev. 0.00104774

Variance 1.09775E-006

Phase: Cell3C*Source Concentration of TPH Aromatic C5-7 [mg/l]*

At 30 years

01% of values less than 0.00151262

05% of values less than 0.00152662

10% of values less than 0.00153605

50% of values less than 0.0015841

90% of values less than 0.0016185

95% of values less than 0.00162134

99% of values less than 0.00162403

Minimum 0.00150801

Maximum 0.00162493

Mean 0.00158074

Std. Dev. 3.00741E-005

Variance 9.04453E-010

At 100 years

01% of values less than 1.18173E-005

05% of values less than 1.19267E-005

10% of values less than 1.20004E-005

50% of values less than 1.23758E-005

90% of values less than 1.26446E-005

95% of values less than 1.26668E-005

99% of values less than 1.26877E-005

Minimum 1.17813E-005

Maximum 1.26948E-005

Mean 1.23495E-005

Std. Dev. 2.34954E-007

Variance 5.52034E-014

At 300 years

01% of values less than 1.12699E-011

05% of values less than 1.13742E-011

10% of values less than 1.14444E-011

50% of values less than 1.18025E-011

90% of values less than 1.20588E-011

95% of values less than 1.208E-011

99% of values less than 1.21E-011

Minimum 1.12355E-011

Maximum 1.21067E-011

Mean 1.17774E-011

Std. Dev. 2.2407E-013

Variance 5.02072E-026

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Source Concentration of TPH Aromatic C5-7 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Source Concentration of TPH Aromatic C7-8 [mg/l]

At 30 years

01% of values less than 0.00125
05% of values less than 0.00125
10% of values less than 0.00125
50% of values less than 0.00125
90% of values less than 0.00125
95% of values less than 0.00125
99% of values less than 0.00125

Minimum 0.00125	Maximum 0.00125	
Mean 0.00125	Std. Dev. 1.17688E-010	Variance -1.38504E-020

At 100 years

01% of values less than 9.76562E-006
05% of values less than 9.76562E-006
10% of values less than 9.76562E-006
50% of values less than 9.76562E-006
90% of values less than 9.76562E-006
95% of values less than 9.76562E-006
99% of values less than 9.76562E-006

Minimum 9.76562E-006	Maximum 9.76562E-006	
Mean 9.76562E-006	Std. Dev. 1.18731E-012	Variance 1.40971E-024

At 300 years

01% of values less than 9.31323E-012
05% of values less than 9.31323E-012
10% of values less than 9.31323E-012
50% of values less than 9.31323E-012
90% of values less than 9.31323E-012
95% of values less than 9.31323E-012
99% of values less than 9.31323E-012

Minimum 9.31323E-012	Maximum 9.31323E-012	
Mean 9.31323E-012	Std. Dev. 9.67231E-019	Variance 9.35536E-037

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Source Concentration of TPH Aromatic C7-8 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Source Concentration of TPH Aromatic C8-10 [mg/l]*

At 30 years

01% of values less than 0.0136445

05% of values less than 0.0143789

10% of values less than 0.0148313

50% of values less than 0.0174952

90% of values less than 0.0195178

95% of values less than 0.0198205

99% of values less than 0.0203229

Minimum 0.0131314

Maximum 0.0206632

Mean 0.0173163

Std. Dev. 0.00170713

Variance 2.9143E-006

At 100 years

01% of values less than 0.000106598

05% of values less than 0.000112335

10% of values less than 0.000115869

50% of values less than 0.000136681

90% of values less than 0.000152483

95% of values less than 0.000154848

99% of values less than 0.000158773

Minimum 0.000102589

Maximum 0.000161431

Mean 0.000135284

Std. Dev. 1.3337E-005

Variance 1.77875E-010

At 300 years

01% of values less than 1.01659E-010

05% of values less than 1.07131E-010

10% of values less than 1.10502E-010

50% of values less than 1.30349E-010

90% of values less than 1.45419E-010

95% of values less than 1.47674E-010

99% of values less than 1.51418E-010

Minimum 9.78364E-011

Maximum 1.53953E-010

Mean 1.29016E-010

Std. Dev. 1.27191E-011

Variance 1.61776E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Source Concentration of TPH Aromatic C8-10 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Source Concentration of TPH Aromatic C10-12 [mg/l]

At 30 years

01% of values less than 0.00592513		
05% of values less than 0.00619427		
10% of values less than 0.00645048		
50% of values less than 0.00751578		
90% of values less than 0.00836218		
95% of values less than 0.00850855		
99% of values less than 0.00874728		
Minimum 0.00571386	Maximum 0.00883336	
Mean 0.0074547	Std. Dev. 0.000711777	Variance 5.06627E-007

At 100 years

01% of values less than 4.62901E-005		
05% of values less than 4.83927E-005		
10% of values less than 5.03944E-005		
50% of values less than 5.87171E-005		
90% of values less than 6.53295E-005		
95% of values less than 6.64731E-005		
99% of values less than 6.83381E-005		
Minimum 4.46395E-005	Maximum 6.90106E-005	
Mean 5.82398E-005	Std. Dev. 5.56076E-006	Variance 3.0922E-011

At 300 years

01% of values less than 4.41457E-011		
05% of values less than 4.61509E-011		
10% of values less than 4.80598E-011		
50% of values less than 5.59969E-011		
90% of values less than 6.23031E-011		
95% of values less than 6.33936E-011		
99% of values less than 6.51723E-011		
Minimum 4.25715E-011	Maximum 6.58137E-011	
Mean 5.55418E-011	Std. Dev. 5.30315E-012	Variance 2.81234E-023

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Source Concentration of TPH Aromatic C10-12 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Source Concentration of TPH Aromatic C12-C16 [mg/l]*

At 30 years

01% of values less than 0.0129094

05% of values less than 0.013381

10% of values less than 0.0136532

50% of values less than 0.015123

90% of values less than 0.0161686

95% of values less than 0.0163666

99% of values less than 0.016698

Minimum 0.0126219

Maximum 0.0169491

Mean 0.0150276

Std. Dev. 0.000927685

Variance 8.60599E-007

At 100 years

01% of values less than 0.000100855

05% of values less than 0.000104539

10% of values less than 0.000106666

50% of values less than 0.000118149

90% of values less than 0.000126317

95% of values less than 0.000127864

99% of values less than 0.000130453

Minimum 9.86087E-005

Maximum 0.000132415

Mean 0.000117403

Std. Dev. 7.24754E-006

Variance 5.25268E-011

At 300 years

01% of values less than 9.61824E-011

05% of values less than 9.96961E-011

10% of values less than 1.01724E-010

50% of values less than 1.12675E-010

90% of values less than 1.20466E-010

95% of values less than 1.21941E-010

99% of values less than 1.2441E-010

Minimum 9.40406E-011

Maximum 1.26281E-010

Mean 1.11965E-010

Std. Dev. 6.91179E-012

Variance 4.77728E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Source Concentration of TPH Aromatic C12-C16 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Source Concentration of TPH Aromatic C16-21 [mg/l]

At 30 years

01% of values less than 0.107994		
05% of values less than 0.116041		
10% of values less than 0.122605		
50% of values less than 0.15816		
90% of values less than 0.187804		
95% of values less than 0.19377		
99% of values less than 0.202466		
Minimum 0.101683	Maximum 0.208	
Mean 0.156573	Std. Dev. 0.0241083	Variance 0.000581212

At 100 years

01% of values less than 0.107994		
05% of values less than 0.116041		
10% of values less than 0.122605		
50% of values less than 0.15816		
90% of values less than 0.187804		
95% of values less than 0.19377		
99% of values less than 0.202466		
Minimum 0.101683	Maximum 0.208	
Mean 0.156573	Std. Dev. 0.0241083	Variance 0.000581212

At 300 years

01% of values less than 0.107994		
05% of values less than 0.116041		
10% of values less than 0.122605		
50% of values less than 0.15816		
90% of values less than 0.187804		
95% of values less than 0.19377		
99% of values less than 0.202466		
Minimum 0.101683	Maximum 0.208	
Mean 0.156573	Std. Dev. 0.0241083	Variance 0.000581212

At 1000 years

01% of values less than 0.107994		
05% of values less than 0.116041		
10% of values less than 0.122605		
50% of values less than 0.15816		
90% of values less than 0.187804		
95% of values less than 0.19377		
99% of values less than 0.202466		
Minimum 0.101683	Maximum 0.208	
Mean 0.156573	Std. Dev. 0.0241083	Variance 0.000581212

Phase: Cell3C

Source Concentration of TPH Aromatic C16-21 [mg/l]

At infinity

01% of values less than 0.107994

05% of values less than 0.116041

10% of values less than 0.122605

50% of values less than 0.15816

90% of values less than 0.187804

95% of values less than 0.19377

99% of values less than 0.202466

Minimum 0.101683

Maximum 0.208

Mean 0.156573

Std. Dev. 0.0241083

Variance 0.000581212

Phase: Cell3C*Source Concentration of TPH Aromatic C21-35 [mg/l]*

At 30 years

01% of values less than 0.0990512

05% of values less than 0.0991043

10% of values less than 0.0991589

50% of values less than 0.0993923

90% of values less than 0.0997365

95% of values less than 0.0998051

99% of values less than 0.0999064

Minimum 0.099023

Maximum 0.0999882

Mean 0.0994223

Std. Dev. 0.000217588

Variance 4.73446E-008

At 100 years

01% of values less than 0.0990512

05% of values less than 0.0991043

10% of values less than 0.0991589

50% of values less than 0.0993923

90% of values less than 0.0997365

95% of values less than 0.0998051

99% of values less than 0.0999064

Minimum 0.099023

Maximum 0.0999882

Mean 0.0994223

Std. Dev. 0.000217588

Variance 4.73446E-008

At 300 years

01% of values less than 0.0990512

05% of values less than 0.0991043

10% of values less than 0.0991589

50% of values less than 0.0993923

90% of values less than 0.0997365

95% of values less than 0.0998051

99% of values less than 0.0999064

Minimum 0.099023

Maximum 0.0999882

Mean 0.0994223

Std. Dev. 0.000217588

Variance 4.73446E-008

At 1000 years

01% of values less than 0.0990512

05% of values less than 0.0991043

10% of values less than 0.0991589

50% of values less than 0.0993923

90% of values less than 0.0997365

95% of values less than 0.0998051

99% of values less than 0.0999064

Minimum 0.099023

Maximum 0.0999882

Mean 0.0994223

Std. Dev. 0.000217588

Variance 4.73446E-008

Phase: Cell3C

Source Concentration of TPH Aromatic C21-35 [mg/l]

At infinity

01% of values less than 0.0990512

05% of values less than 0.0991043

10% of values less than 0.0991589

50% of values less than 0.0993923

90% of values less than 0.0997365

95% of values less than 0.0998051

99% of values less than 0.0999064

Minimum 0.099023

Maximum 0.0999882

Mean 0.0994223

Std. Dev. 0.000217588

Variance 4.73446E-008

Phase: Cell3C

Concentration of Ammoniacal_N at base of Clay Liner [mg/l]

At 30 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 1565.24		
Minimum 0	Maximum 3153.63	
Mean 31.0925	Std. Dev. 230.661	Variance 53204.7

At 100 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 806.431		
99% of values less than 1720.99		
Minimum 0	Maximum 2869.73	
Mean 85.6916	Std. Dev. 332.79	Variance 110749

At 300 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 1122.12		
95% of values less than 1427.03		
99% of values less than 1945.06		
Minimum 0	Maximum 2677.2	
Mean 310.353	Std. Dev. 515.162	Variance 265392

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 42.6072		
95% of values less than 84.1733		
99% of values less than 143.717		
Minimum 0	Maximum 311.653	
Mean 11.6117	Std. Dev. 31.3325	Variance 981.723

Phase: Cell3C

Concentration of Ammoniacal_N at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.99956E-014

95% of values less than 9.2891E-014

99% of values less than 3.39298E-013

Minimum 0

Maximum 2.6804E-012

Mean 1.92116E-014

Std. Dev. 1.27699E-013

Variance 1.6307E-026

Phase: Cell3C*Concentration of Chloride at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 356.023

Minimum 0

Maximum 1286.93

Mean 9.59391

Std. Dev. 86.4535

Variance 7474.21

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 86.1515

99% of values less than 479.508

Minimum 0

Maximum 1051.95

Mean 19.0901

Std. Dev. 96.4305

Variance 9298.84

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 179.375

95% of values less than 287.915

99% of values less than 623.283

Minimum 0

Maximum 943.841

Mean 52.0605

Std. Dev. 119.755

Variance 14341.2

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.197259

95% of values less than 0.600403

99% of values less than 2.14425

Minimum 0

Maximum 5.05778

Mean 0.103565

Std. Dev. 0.410946

Variance 0.168876

Phase: Cell3C

Concentration of Chloride at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.0034E-015

95% of values less than 5.18325E-015

99% of values less than 3.68945E-014

Minimum 0

Maximum 9.36402E-014

Mean 1.35385E-015

Std. Dev. 7.22518E-015

Variance 5.22033E-029

Phase: Cell3C*Concentration of Mercury at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.000116143

Minimum 0

Maximum 0.000931003

Mean 3.70872E-006

Std. Dev. 3.89597E-005

Variance 1.51786E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 6.77847E-005

99% of values less than 0.000403124

Minimum 0

Maximum 0.00118252

Mean 1.57401E-005

Std. Dev. 8.26239E-005

Variance 6.82671E-009

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000242668

95% of values less than 0.000361945

99% of values less than 0.000675808

Minimum 0

Maximum 0.00118344

Mean 6.69171E-005

Std. Dev. 0.000142894

Variance 2.04187E-008

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000135734

95% of values less than 0.000195577

99% of values less than 0.000290889

Minimum 0

Maximum 0.000500345

Mean 3.8648E-005

Std. Dev. 7.09201E-005

Variance 5.02966E-009

Phase: Cell3C

Concentration of Mercury at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.12278E-005

95% of values less than 6.91295E-005

99% of values less than 0.000105653

Minimum 0

Maximum 0.000116396

Mean 8.88892E-006

Std. Dev. 2.32177E-005

Variance 5.39061E-010

Phase: Cell3C*Concentration of Phenols group 1 - phenol at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.40965

Minimum 0

Maximum 2.7983

Mean 0.0472697

Std. Dev. 0.334305

Variance 0.11176

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0.00973272

99% of values less than 0.012738

Minimum 0

Maximum 0.0186606

Mean 0.000833615

Std. Dev. 0.00294427

Variance 8.66871E-006

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.28609E-008

95% of values less than 2.34446E-008

99% of values less than 2.4248E-008

Minimum 0

Maximum 3.21088E-008

Mean 7.92444E-009

Std. Dev. 1.07439E-008

Variance 1.15431E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 4.17921E-014

Mean 4.43591E-017

Std. Dev. 1.32342E-015

Variance 1.75143E-030

Phase: Cell3C

Concentration of Phenols group 1 - phenol at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of Phenols group 2 - cresols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0875066

Minimum 0

Maximum 0.252751

Mean 0.00216308

Std. Dev. 0.0169274

Variance 0.000286536

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0.000387438

99% of values less than 0.000905112

Minimum 0

Maximum 0.00173028

Mean 4.47627E-005

Std. Dev. 0.000179679

Variance 3.22845E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.56619E-009

95% of values less than 1.94302E-009

99% of values less than 2.73598E-009

Minimum 0

Maximum 3.22435E-009

Mean 4.43407E-010

Std. Dev. 7.05119E-010

Variance 4.97193E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of Phenols group 2 - cresols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of Phenols group 3 - xlenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0491857

Minimum 0

Maximum 0.0716668

Mean 0.00100427

Std. Dev. 0.00721866

Variance 5.2109E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0.000219572

99% of values less than 0.000309469

Minimum 0

Maximum 0.00052181

Mean 1.88899E-005

Std. Dev. 6.83924E-005

Variance 4.67752E-009

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.83268E-010

95% of values less than 6.475E-010

99% of values less than 7.54724E-010

Minimum 0

Maximum 9.59919E-010

Mean 1.82336E-010

Std. Dev. 2.56528E-010

Variance 6.58068E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of Phenols group 3 - xylenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of Phenols group 4 - chlorophenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.00432311

Minimum 0

Maximum 0.0157218

Mean 0.000108912

Std. Dev. 0.000944896

Variance 8.92829E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.14767E-005

99% of values less than 4.22958E-005

Minimum 0

Maximum 9.63468E-005

Mean 1.74905E-006

Std. Dev. 8.05828E-006

Variance 6.49359E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.34348E-011

95% of values less than 7.92221E-011

99% of values less than 1.28229E-010

Minimum 0

Maximum 1.72858E-010

Mean 1.49972E-011

Std. Dev. 2.8389E-011

Variance 8.05935E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of Phenols group 4 - chlorophenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of Phenols group 5 - nitrophenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.00307722

Minimum 0

Maximum 0.0143585

Mean 7.55619E-005

Std. Dev. 0.000681215

Variance 4.64053E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.16123E-005

99% of values less than 3.61141E-005

Minimum 0

Maximum 6.92417E-005

Mean 1.53495E-006

Std. Dev. 6.56016E-006

Variance 4.30357E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.15333E-011

95% of values less than 7.78382E-011

99% of values less than 1.25154E-010

Minimum 0

Maximum 1.78919E-010

Mean 1.46693E-011

Std. Dev. 2.80371E-011

Variance 7.86078E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of Phenols group 5 - nitrophenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aliphatic C5-6 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0919318

Minimum 0

Maximum 0.104329

Mean 0.00182297

Std. Dev. 0.0128745

Variance 0.000165752

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0.000378487

99% of values less than 0.00049852

Minimum 0

Maximum 0.000713039

Mean 3.24782E-005

Std. Dev. 0.000114623

Variance 1.31384E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.66896E-010

95% of values less than 8.75646E-010

99% of values less than 9.14751E-010

Minimum 0

Maximum 1.27075E-009

Mean 3.08298E-010

Std. Dev. 4.1744E-010

Variance 1.74256E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C5-6 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aliphatic C6-8 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0283399

Minimum 0

Maximum 0.0321615

Mean 0.000561967

Std. Dev. 0.00396882

Variance 1.57515E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0.000116676

99% of values less than 0.000153679

Minimum 0

Maximum 0.000219809

Mean 1.0012E-005

Std. Dev. 3.53348E-005

Variance 1.24855E-009

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.67162E-010

95% of values less than 2.69766E-010

99% of values less than 2.81941E-010

Minimum 0

Maximum 3.91548E-010

Mean 9.50005E-011

Std. Dev. 1.28639E-010

Variance 1.65481E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C6-8 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aliphatic C8-10 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0214221

Minimum 0

Maximum 0.0291243

Mean 0.000433855

Std. Dev. 0.00312477

Variance 9.76418E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 8.87186E-005

99% of values less than 0.000121346

Minimum 0

Maximum 0.000176749

Mean 7.68854E-006

Std. Dev. 2.74208E-005

Variance 7.51901E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.27857E-010

95% of values less than 2.36383E-010

99% of values less than 2.51262E-010

Minimum 0

Maximum 3.57888E-010

Mean 7.34853E-011

Std. Dev. 1.00796E-010

Variance 1.01598E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C8-10 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aliphatic C10-12 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0304451

Minimum 0

Maximum 0.0371576

Mean 0.000612986

Std. Dev. 0.00434803

Variance 1.89054E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0.000128691

99% of values less than 0.000174115

Minimum 0

Maximum 0.000269134

Mean 1.10145E-005

Std. Dev. 3.91617E-005

Variance 1.53363E-009

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.10483E-010

95% of values less than 3.19142E-010

99% of values less than 3.38292E-010

Minimum 0

Maximum 4.03504E-010

Mean 1.03358E-010

Std. Dev. 1.40795E-010

Variance 1.98233E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C10-12 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aliphatic C12-16 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0189525

Minimum 0

Maximum 0.0340296

Mean 0.000418287

Std. Dev. 0.00300922

Variance 9.05543E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 8.11989E-005

99% of values less than 0.000127522

Minimum 0

Maximum 0.000191672

Mean 7.55177E-006

Std. Dev. 2.7236E-005

Variance 7.41802E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.20641E-010

95% of values less than 2.51209E-010

99% of values less than 2.90533E-010

Minimum 0

Maximum 3.20874E-010

Mean 7.06505E-011

Std. Dev. 9.86364E-011

Variance 9.72915E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C12-16 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aliphatic C16-35 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.00695214

Minimum 0

Maximum 0.00899876

Mean 0.00013815

Std. Dev. 0.000985443

Variance 9.71097E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0.00687152

99% of values less than 0.0085309

Minimum 0

Maximum 0.00963432

Mean 0.000566087

Std. Dev. 0.00198486

Variance 3.93967E-006

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00813758

95% of values less than 0.00871269

99% of values less than 0.00926892

Minimum 0

Maximum 0.00969593

Mean 0.00263032

Std. Dev. 0.0036158

Variance 1.3074E-005

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00813757

95% of values less than 0.00871269

99% of values less than 0.00926891

Minimum 0

Maximum 0.00969591

Mean 0.00263038

Std. Dev. 0.00361587

Variance 1.30745E-005

Phase: Cell3C

Concentration of TPH Aliphatic C16-35 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00813759

95% of values less than 0.0087127

99% of values less than 0.00926892

Minimum 0

Maximum 0.00969593

Mean 0.00263039

Std. Dev. 0.00361588

Variance 1.30746E-005

Phase: Cell3C*Concentration of TPH Aromatic C5-7 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.00443535

Minimum 0

Maximum 0.00502698

Mean 8.62463E-005

Std. Dev. 0.000608931

Variance 3.70797E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.79724E-005

99% of values less than 2.36127E-005

Minimum 0

Maximum 3.48037E-005

Mean 1.54369E-006

Std. Dev. 5.45162E-006

Variance 2.97202E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.1873E-011

95% of values less than 4.21182E-011

99% of values less than 4.41491E-011

Minimum 0

Maximum 5.94565E-011

Mean 1.46593E-011

Std. Dev. 1.98602E-011

Variance 3.94428E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C5-7 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C7-8 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.00345608

Minimum 0

Maximum 0.00392214

Mean 6.85326E-005

Std. Dev. 0.000484002

Variance 2.34258E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.42288E-005

99% of values less than 1.87414E-005

Minimum 0

Maximum 2.6806E-005

Mean 1.22098E-006

Std. Dev. 4.30911E-006

Variance 1.85684E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.25815E-011

95% of values less than 3.28901E-011

99% of values less than 3.48587E-011

Minimum 0

Maximum 4.77684E-011

Mean 1.15917E-011

Std. Dev. 1.56956E-011

Variance 2.46352E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C7-8 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C8-10 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0457845

Minimum 0

Maximum 0.0579966

Mean 0.000943034

Std. Dev. 0.00668141

Variance 4.46413E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0.000198623

99% of values less than 0.000270725

Minimum 0

Maximum 0.000422762

Mean 1.69684E-005

Std. Dev. 6.03769E-005

Variance 3.64537E-009

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.84824E-010

95% of values less than 5.0562E-010

99% of values less than 5.28573E-010

Minimum 0

Maximum 7.18458E-010

Mean 1.61802E-010

Std. Dev. 2.20706E-010

Variance 4.8711E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C8-10 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C10-12 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0194687

Minimum 0

Maximum 0.0259629

Mean 0.000404392

Std. Dev. 0.0028754

Variance 8.26795E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 8.40304E-005

99% of values less than 0.000115068

Minimum 0

Maximum 0.000187576

Mean 7.29622E-006

Std. Dev. 2.59521E-005

Variance 6.73512E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.08154E-010

95% of values less than 2.15345E-010

99% of values less than 2.27228E-010

Minimum 0

Maximum 2.9075E-010

Mean 6.90805E-011

Std. Dev. 9.4238E-011

Variance 8.8808E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C10-12 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C12-C16 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0409559

Minimum 0

Maximum 0.0482559

Mean 0.000828138

Std. Dev. 0.0058613

Variance 3.43548E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0.000172612

99% of values less than 0.000230757

Minimum 0

Maximum 0.000341418

Mean 1.4673E-005

Std. Dev. 5.19841E-005

Variance 2.70235E-009

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.1153E-010

95% of values less than 4.21164E-010

99% of values less than 4.36512E-010

Minimum 0

Maximum 5.78335E-010

Mean 1.39789E-010

Std. Dev. 1.89855E-010

Variance 3.60449E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C12-C16 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C16-21 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.146763

Minimum 0

Maximum 0.202499

Mean 0.00304013

Std. Dev. 0.0215089

Variance 0.000462633

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0.150122

99% of values less than 0.189312

Minimum 0

Maximum 0.208006

Mean 0.0123757

Std. Dev. 0.0434773

Variance 0.00189028

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.174705

95% of values less than 0.183955

99% of values less than 0.195234

Minimum 0

Maximum 0.208

Mean 0.0558456

Std. Dev. 0.0768318

Variance 0.00590313

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.174705

95% of values less than 0.183955

99% of values less than 0.195234

Minimum 0

Maximum 0.208

Mean 0.0558469

Std. Dev. 0.0768336

Variance 0.0059034

Phase: Cell3C

Concentration of TPH Aromatic C16-21 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.174705

95% of values less than 0.183955

99% of values less than 0.195234

Minimum 0

Maximum 0.208

Mean 0.055847

Std. Dev. 0.0768337

Variance 0.00590342

Phase: Cell3C*Concentration of TPH Aromatic C21-35 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0960949

Minimum 0

Maximum 0.0992365

Mean 0.00183296

Std. Dev. 0.012903

Variance 0.000166488

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0.0992755

99% of values less than 0.099749

Minimum 0

Maximum 0.0998843

Mean 0.00763747

Std. Dev. 0.0264719

Variance 0.00070076

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0995772

95% of values less than 0.0996816

99% of values less than 0.0998113

Minimum 0

Maximum 0.0999382

Mean 0.0351583

Std. Dev. 0.0475551

Variance 0.00226149

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0995771

95% of values less than 0.0996931

99% of values less than 0.0998112

Minimum 0

Maximum 0.0999381

Mean 0.0351592

Std. Dev. 0.0475563

Variance 0.0022616

Phase: Cell3C

Concentration of TPH Aromatic C21-35 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0995772

95% of values less than 0.0996932

99% of values less than 0.0998114

Minimum 0

Maximum 0.0999383

Mean 0.0351592

Std. Dev. 0.0475563

Variance 0.0022616

Phase: Cell3C*Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 108.536

Minimum 0

Maximum 1509.72

Mean 7.43319

Std. Dev. 83.4665

Variance 6966.66

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1340.55

Minimum 0

Maximum 2738.27

Mean 38.0351

Std. Dev. 218.788

Variance 47868

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1271.51

95% of values less than 1557.67

99% of values less than 2159.89

Minimum 0

Maximum 2797.82

Mean 356.676

Std. Dev. 575.691

Variance 331420

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 465.568

95% of values less than 659.451

99% of values less than 979.809

Minimum 0

Maximum 1479.78

Mean 115.654

Std. Dev. 228.371

Variance 52153.4

Phase: Cell3C

Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.85902E-012

95% of values less than 1.31579E-011

99% of values less than 1.4764E-010

Minimum 0

Maximum 4.36833E-009

Mean 1.22919E-011

Std. Dev. 1.50969E-010

Variance 2.27918E-020

Phase: Cell3C*Concentration of Chloride at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 456.852

Minimum 0

Maximum 1700.42

Mean 11.8631

Std. Dev. 106.43

Variance 11327.3

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 385.766

Minimum 0

Maximum 1070.9

Mean 11.6794

Std. Dev. 82.9735

Variance 6884.6

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 255.231

95% of values less than 391.223

99% of values less than 716.713

Minimum 0

Maximum 1014.83

Mean 70.3899

Std. Dev. 151.515

Variance 22956.7

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 25.4216

95% of values less than 51.9336

99% of values less than 115.672

Minimum 0

Maximum 252.683

Mean 8.2706

Std. Dev. 23.7963

Variance 566.266

Phase: Cell3C

Concentration of Chloride at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.46602E-013

95% of values less than 1.19657E-012

99% of values less than 3.96993E-012

Minimum 0

Maximum 1.02814E-011

Mean 2.09907E-013

Std. Dev. 8.11953E-013

Variance 6.59267E-025

Phase: Cell3C

Concentration of Mercury at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 3.13801E-012	
Mean 3.32555E-015	Std. Dev. 9.92774E-014	Variance 9.85599E-027

Phase: Cell3C

Concentration of Mercury at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.14621E-006

95% of values less than 1.27056E-005

99% of values less than 5.39374E-005

Minimum 0

Maximum 9.54183E-005

Mean 2.39975E-006

Std. Dev. 9.06434E-006

Variance 8.21622E-011

Phase: Cell3C*Concentration of Phenols group 1 - phenol at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.851573

Minimum 0

Maximum 1.5491

Mean 0.0168362

Std. Dev. 0.137577

Variance 0.0189275

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0484642

Minimum 0

Maximum 0.0655804

Mean 0.00136048

Std. Dev. 0.00737782

Variance 5.44322E-005

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.50828E-005

95% of values less than 1.88052E-005

99% of values less than 2.35686E-005

Minimum 0

Maximum 2.72447E-005

Mean 4.10019E-006

Std. Dev. 6.62433E-006

Variance 4.38817E-011

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.41912E-012

Minimum 0

Maximum 2.53011E-011

Mean 1.25997E-013

Std. Dev. 1.0835E-012

Variance 1.17398E-024

Phase: Cell3C

Concentration of Phenols group 1 - phenol at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 2.36104E-016	
Mean 8.17677E-019	Std. Dev. 1.24062E-017	Variance 1.53913E-034

Phase: Cell3C*Concentration of Phenols group 2 - cresols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.00736512

Minimum 0

Maximum 0.0438366

Mean 0.000290226

Std. Dev. 0.00290912

Variance 8.46298E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.000929848

Minimum 0

Maximum 0.00177553

Mean 2.40644E-005

Std. Dev. 0.000157853

Variance 2.49175E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.66276E-007

95% of values less than 5.88035E-007

99% of values less than 1.09999E-006

Minimum 0

Maximum 1.88747E-006

Mean 1.01477E-007

Std. Dev. 2.27146E-007

Variance 5.15955E-014

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 6.28995E-014

Minimum 0

Maximum 1.76137E-013

Mean 1.90664E-015

Std. Dev. 1.26333E-014

Variance 1.59601E-028

Phase: Cell3C

Concentration of Phenols group 2 - cresols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of Phenols group 3 - xlenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.00040451

Minimum 0

Maximum 0.00884654

Mean 2.71442E-005

Std. Dev. 0.000347841

Variance 1.20994E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 4.20856E-005

Minimum 0

Maximum 0.000349771

Mean 1.64753E-006

Std. Dev. 1.48707E-005

Variance 2.21136E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.40952E-008

95% of values less than 4.99724E-008

99% of values less than 1.10554E-007

Minimum 0

Maximum 2.18265E-007

Mean 8.05738E-009

Std. Dev. 2.25517E-008

Variance 5.0858E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 4.94604E-015

Minimum 0

Maximum 1.85228E-014

Mean 1.5525E-016

Std. Dev. 1.12982E-015

Variance 1.27648E-030

Phase: Cell3C

Concentration of Phenols group 3 - xylenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of Phenols group 4 - chlorophenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.000198471

Minimum 0

Maximum 0.00966727

Mean 3.91665E-005

Std. Dev. 0.000494454

Variance 2.44484E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.000573701

Minimum 0

Maximum 0.0010424

Mean 1.55616E-005

Std. Dev. 8.96547E-005

Variance 8.03796E-009

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.50877E-007

95% of values less than 2.35356E-007

99% of values less than 7.43255E-007

Minimum 0

Maximum 0.000195432

Mean 2.77562E-007

Std. Dev. 6.21731E-006

Variance 3.86549E-011

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.14894E-013

Minimum 0

Maximum 1.37798E-009

Mean 2.27405E-012

Std. Dev. 5.17516E-011

Variance 2.67823E-021

Phase: Cell3C

Concentration of Phenols group 4 - chlorophenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of Phenols group 5 - nitrophenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.000168564

Minimum 0

Maximum 0.00399859

Mean 1.74679E-005

Std. Dev. 0.000205251

Variance 4.2128E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.5362E-005

Minimum 0

Maximum 0.000149792

Mean 1.01941E-006

Std. Dev. 8.58207E-006

Variance 7.36519E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.94072E-009

95% of values less than 1.93793E-008

99% of values less than 6.00163E-008

Minimum 0

Maximum 1.19959E-007

Mean 3.5503E-009

Std. Dev. 1.08867E-008

Variance 1.1852E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.9021E-015

Minimum 0

Maximum 8.82477E-015

Mean 7.95197E-017

Std. Dev. 6.67097E-016

Variance 4.45019E-031

Phase: Cell3C

Concentration of Phenols group 5 - nitrophenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aliphatic C5-6 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.00280596

Minimum 0

Maximum 0.0577655

Mean 0.00018842

Std. Dev. 0.00240603

Variance 5.78899E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.000546294

Minimum 0

Maximum 0.00214589

Mean 1.77948E-005

Std. Dev. 0.000131367

Variance 1.72572E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.90491E-007

95% of values less than 3.62228E-007

99% of values less than 5.95465E-007

Minimum 0

Maximum 7.70651E-007

Mean 5.21785E-008

Std. Dev. 1.2551E-007

Variance 1.57527E-014

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.18112E-014

Minimum 0

Maximum 2.20028E-013

Mean 7.49695E-016

Std. Dev. 8.36913E-015

Variance 7.00424E-029

Phase: Cell3C

Concentration of TPH Aliphatic C5-6 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aliphatic C6-8 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.84308E-008

Minimum 0

Maximum 0.00149722

Mean 1.84113E-006

Std. Dev. 4.80532E-005

Variance 2.30911E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.20823E-006

Minimum 0

Maximum 0.00011874

Mean 3.16589E-007

Std. Dev. 4.44141E-006

Variance 1.97261E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.92109E-010

95% of values less than 2.83243E-009

99% of values less than 1.31102E-008

Minimum 0

Maximum 4.96289E-008

Mean 5.88734E-010

Std. Dev. 2.81282E-009

Variance 7.91195E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 3.38077E-015

Mean 9.04624E-018

Std. Dev. 1.4086E-016

Variance 1.98414E-032

Phase: Cell3C

Concentration of TPH Aliphatic C6-8 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aliphatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 5.27174E-010

Mean 5.28306E-013

Std. Dev. 1.66623E-011

Variance 2.77634E-022

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 2.23648E-013

Minimum 0

Maximum 1.83405E-012

Mean 1.00244E-014

Std. Dev. 9.78358E-014

Variance 9.57185E-027

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C8-10 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C5-7 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.000555305

Minimum 0

Maximum 0.00259673

Mean 1.72209E-005

Std. Dev. 0.000164997

Variance 2.72241E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 4.18612E-005

Minimum 0

Maximum 0.00010371

Mean 1.30679E-006

Std. Dev. 8.49114E-006

Variance 7.20995E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.8489E-008

95% of values less than 2.57282E-008

99% of values less than 3.72714E-008

Minimum 0

Maximum 4.73195E-008

Mean 4.6572E-009

Std. Dev. 9.02136E-009

Variance 8.13849E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.70612E-015

Minimum 0

Maximum 8.18307E-015

Mean 7.1817E-017

Std. Dev. 5.24012E-016

Variance 2.74589E-031

Phase: Cell3C

Concentration of TPH Aromatic C5-7 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C7-8 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.16608E-005

Minimum 0

Maximum 0.000692629

Mean 2.86124E-006

Std. Dev. 3.69338E-005

Variance 1.36411E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.50622E-006

Minimum 0

Maximum 2.70581E-005

Mean 2.0353E-007

Std. Dev. 1.80669E-006

Variance 3.26412E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.92286E-009

95% of values less than 4.49047E-009

99% of values less than 9.60723E-009

Minimum 0

Maximum 1.61073E-008

Mean 6.3439E-010

Std. Dev. 1.87839E-009

Variance 3.52834E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 8.69329E-015

Mean 1.92228E-017

Std. Dev. 3.07506E-016

Variance 9.456E-032

Phase: Cell3C

Concentration of TPH Aromatic C7-8 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 3.2115E-006

Minimum 0

Maximum 0.0014888

Mean 3.62719E-006

Std. Dev. 6.32954E-005

Variance 4.00631E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.03777E-006

Minimum 0

Maximum 5.52814E-005

Mean 1.90671E-007

Std. Dev. 2.49399E-006

Variance 6.21998E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.80449E-010

95% of values less than 1.78157E-009

99% of values less than 8.24795E-009

Minimum 0

Maximum 2.26591E-008

Mean 3.6804E-010

Std. Dev. 1.8278E-009

Variance 3.34085E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 4.96066E-015

Mean 1.09029E-017

Std. Dev. 2.20076E-016

Variance 4.84334E-032

Phase: Cell3C

Concentration of TPH Aromatic C8-10 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C10-12 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 7.59072E-008

Minimum 0

Maximum 0.000567436

Mean 6.62955E-007

Std. Dev. 1.80251E-005

Variance 3.24903E-010

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 4.68781E-007

Minimum 0

Maximum 2.15193E-005

Mean 4.87677E-008

Std. Dev. 7.60297E-007

Variance 5.78051E-013

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.633E-011

95% of values less than 4.71468E-010

99% of values less than 2.49808E-009

Minimum 0

Maximum 7.04298E-009

Mean 1.09776E-010

Std. Dev. 5.5662E-010

Variance 3.09826E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C10-12 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C12-C16 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 6.31053E-011

Minimum 0

Maximum 2.98609E-005

Mean 3.42452E-008

Std. Dev. 9.49581E-007

Variance 9.01703E-013

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.65229E-008

Minimum 0

Maximum 1.65118E-006

Mean 4.59142E-009

Std. Dev. 7.15786E-008

Variance 5.12349E-015

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.6423E-012

95% of values less than 3.61581E-011

99% of values less than 3.47986E-010

Minimum 0

Maximum 1.52193E-009

Mean 1.35217E-011

Std. Dev. 8.40257E-011

Variance 7.06033E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C12-C16 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C16-21 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 4.08298E-007

Mean 4.21464E-010

Std. Dev. 1.29117E-008

Variance 1.66713E-016

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 7.75469E-008

Minimum 0

Maximum 0.000269538

Mean 3.33295E-007

Std. Dev. 8.61917E-006

Variance 7.42902E-011

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 1.05906E-006
95% of values less than 8.20897E-006
99% of values less than 0.000137803

Minimum 0

Maximum 0.000758243

Mean 5.13195E-006

Std. Dev. 4.03171E-005

Variance 1.62547E-009

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 1.46671E-006
95% of values less than 9.91914E-006
99% of values less than 0.000144151

Minimum 0

Maximum 0.000858022

Mean 5.61313E-006

Std. Dev. 4.32827E-005

Variance 1.87339E-009

Phase: Cell3C

Concentration of TPH Aromatic C16-21 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.46731E-006

95% of values less than 9.92193E-006

99% of values less than 0.000144168

Minimum 0

Maximum 0.000858059

Mean 5.61345E-006

Std. Dev. 4.32846E-005

Variance 1.87356E-009

Phase: Cell3C*Concentration of TPH Aromatic C21-35 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 4.20774E-015

Minimum 0

Maximum 7.9413E-012

Mean 1.65029E-014

Std. Dev. 3.48559E-013

Variance 1.21494E-025

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 3.17183E-013

Minimum 0

Maximum 5.42361E-011

Mean 8.3002E-014

Std. Dev. 1.76429E-012

Variance 3.1127E-024

Phase: Cell3C

Concentration of TPH Aromatic C21-35 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 4.92271E-016

99% of values less than 3.19644E-013

Minimum 0

Maximum 5.44807E-011

Mean 8.34148E-014

Std. Dev. 1.77238E-012

Variance 3.14132E-024

Phase: Cell3C

Approx. time to Peak Conc. Ammoniacal_N at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 300		
95% of values less than 344		
99% of values less than 380		
Minimum 0	Maximum 420	
Mean 95.2058	Std. Dev. 136.021	Variance 18501.8

Approx. time to Peak Conc. Chloride at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 420	
Mean 81.4276	Std. Dev. 119.884	Variance 14372.3

Approx. time to Peak Conc. Mercury at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 20000		
95% of values less than 20000		
99% of values less than 20000		
Minimum 0	Maximum 20000	
Mean 6618.84	Std. Dev. 9210.27	Variance 8.48292E+007

Approx. time to Peak Conc. Phenols group 1 - phenol at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 80.6024	Std. Dev. 119.091	Variance 14182.8

Approx. time to Peak Conc. Phenols group 2 - cresols at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0

Phase: Cell3C

Approx. time to Peak Conc. Phenols group 2 - cresols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 80.6144	Std. Dev. 119.09	Variance 14182.3

Approx. time to Peak Conc. Phenols group 3 - xylenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 80.6244	Std. Dev. 119.086	Variance 14181.4

Approx. time to Peak Conc. Phenols group 4 - chlorophenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 300		
Minimum 0	Maximum 344	
Mean 82.8661	Std. Dev. 120.345	Variance 14482.9

Approx. time to Peak Conc. Phenols group 5 - nitrophenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 80.6144	Std. Dev. 119.09	Variance 14182.3

Approx. time to Peak Conc. TPH Aliphatic C5-6 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		

Phase: Cell3C

Approx. time to Peak Conc. TPH Aliphatic C5-6 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 80.8881	Std. Dev. 119.082	Variance 14180.4

Approx. time to Peak Conc. TPH Aliphatic C6-8 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 72.4555	Std. Dev. 114.808	Variance 13180.8

Approx. time to Peak Conc. TPH Aliphatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 172		
99% of values less than 300		
Minimum 0	Maximum 312	
Mean 14.8042	Std. Dev. 60.0842	Variance 3610.11

Approx. time to Peak Conc. TPH Aliphatic C10-12 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0

Phase: Cell3C

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aliphatic C16-35 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aromatic C5-7 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 80.6104	Std. Dev. 119.091	Variance 14182.7

Approx. time to Peak Conc. TPH Aromatic C7-8 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 80.045	Std. Dev. 118.804	Variance 14114.4

Approx. time to Peak Conc. TPH Aromatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0

Phase: Cell3C

Approx. time to Peak Conc. TPH Aromatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 71.0809	Std. Dev. 114.153	Variance 13030.8

Approx. time to Peak Conc. TPH Aromatic C10-12 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 73.2178	Std. Dev. 115.186	Variance 13267.9

Approx. time to Peak Conc. TPH Aromatic C12-C16 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 72.5145	Std. Dev. 115.016	Variance 13228.7

Approx. time to Peak Conc. TPH Aromatic C16-21 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 6094		
95% of values less than 9056		
99% of values less than 14859		
Minimum 0	Maximum 16406	
Mean 2218.5	Std. Dev. 3546.39	Variance 1.25769E+007

Approx. time to Peak Conc. TPH Aromatic C21-35 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0

Phase: Cell3C

Approx. time to Peak Conc. TPH Aromatic C21-35 at Base of Unsaturated Zone [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 5519

99% of values less than 9056

Minimum 0

Maximum 18114

Mean 480.48

Std. Dev. 2037.87

Variance 4.15291E+006

Phase: Cell3C*Concentration of Ammoniacal_N at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.0010177

Minimum 0

Maximum 0.170074

Mean 0.000491751

Std. Dev. 0.00740157

Variance 5.47833E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 33.6658

Minimum 0

Maximum 425.248

Mean 1.42074

Std. Dev. 15.4703

Variance 239.331

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 61.5515

95% of values less than 130.09

99% of values less than 369.021

Minimum 0

Maximum 1410.04

Mean 23.6828

Std. Dev. 83.2188

Variance 6925.36

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 91.4765

95% of values less than 216.093

99% of values less than 542.47

Minimum 0

Maximum 1066.19

Mean 33.7645

Std. Dev. 103.757

Variance 10765.5

Phase: Cell3C

Concentration of Ammoniacal_N at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 4.59337E-014

99% of values less than 4.42024E-012

Minimum 0

Maximum 3.5294E-006

Mean 7.07657E-009

Std. Dev. 1.47929E-007

Variance 2.1883E-014

Phase: Cell3C*Concentration of Chloride at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.30463

Minimum 0

Maximum 6.94418

Mean 0.0184761

Std. Dev. 0.261231

Variance 0.0682415

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 9.13381E-009

99% of values less than 28.6274

Minimum 0

Maximum 418.46

Mean 1.46523

Std. Dev. 18.9832

Variance 360.361

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 26.6414

95% of values less than 62.9368

99% of values less than 223.13

Minimum 0

Maximum 350.974

Mean 11.4111

Std. Dev. 38.7483

Variance 1501.43

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.29356

95% of values less than 18.0535

99% of values less than 60.1717

Minimum 0

Maximum 167.826

Mean 2.94387

Std. Dev. 11.6049

Variance 134.673

Phase: Cell3C

Concentration of Chloride at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.59322E-017

95% of values less than 1.32187E-014

99% of values less than 1.60222E-013

Minimum 0

Maximum 6.68522E-013

Mean 6.2593E-015

Std. Dev. 4.32196E-014

Variance 1.86793E-027

Phase: Cell3C

Concentration of Mercury at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of Mercury at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.79782E-007

95% of values less than 1.86244E-006

99% of values less than 6.50049E-006

Minimum 0

Maximum 2.81302E-005

Mean 3.39914E-007

Std. Dev. 1.49187E-006

Variance 2.22566E-012

Phase: Cell3C*Concentration of Phenols group 1 - phenol at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 8.12052E-005

Minimum 0

Maximum 0.00100563

Mean 3.45266E-006

Std. Dev. 4.19984E-005

Variance 1.76386E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0.000936787

Minimum 0

Maximum 0.00303739

Mean 2.45541E-005

Std. Dev. 0.000173403

Variance 3.00684E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 6.17951E-007

95% of values less than 1.13457E-006

99% of values less than 2.87044E-006

Minimum 0

Maximum 8.5005E-006

Mean 2.02424E-007

Std. Dev. 6.00292E-007

Variance 3.60351E-013

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.07889E-016

95% of values less than 8.5999E-016

99% of values less than 3.1004E-015

Minimum 0

Maximum 7.60849E-015

Mean 1.4291E-016

Std. Dev. 6.09029E-016

Variance 3.70916E-031

Phase: Cell3C

Concentration of Phenols group 1 - phenol at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 3.20362E-017	
Mean 5.03503E-020	Std. Dev. 1.09888E-018	Variance 1.20754E-036

Phase: Cell3C*Concentration of Phenols group 2 - cresols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.42669E-007

Minimum 0

Maximum 2.22144E-005

Mean 5.87408E-008

Std. Dev. 9.81117E-007

Variance 9.62591E-013

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.17825E-005

Minimum 0

Maximum 9.11875E-005

Mean 3.69217E-007

Std. Dev. 3.63757E-006

Variance 1.32319E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.20102E-009

95% of values less than 1.98738E-008

99% of values less than 6.46616E-008

Minimum 0

Maximum 9.53132E-008

Mean 3.31843E-009

Std. Dev. 1.05164E-008

Variance 1.10595E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 8.90043E-017

Minimum 0

Maximum 3.52235E-016

Mean 2.77668E-018

Std. Dev. 2.08053E-017

Variance 4.32862E-034

Phase: Cell3C

Concentration of Phenols group 2 - cresols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of Phenols group 3 - xlenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.1742E-008

Minimum 0

Maximum 3.62577E-007

Mean 1.03814E-009

Std. Dev. 1.3653E-008

Variance 1.86405E-016

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 3.28785E-007

Minimum 0

Maximum 2.49005E-006

Mean 1.09433E-008

Std. Dev. 1.06108E-007

Variance 1.12588E-014

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.56103E-010

95% of values less than 8.20086E-010

99% of values less than 2.79471E-009

Minimum 0

Maximum 8.22657E-009

Mean 1.49229E-010

Std. Dev. 6.10919E-010

Variance 3.73222E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 3.36405E-017

Mean 3.36069E-020

Std. Dev. 1.06327E-018

Variance 1.13055E-036

Phase: Cell3C

Concentration of Phenols group 3 - xlenols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of Phenols group 4 - chlorophenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.47099E-009

Minimum 0

Maximum 3.58112E-006

Mean 8.12549E-009

Std. Dev. 1.40571E-007

Variance 1.97601E-014

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 4.31006E-005

Minimum 0

Maximum 0.000655932

Mean 1.44153E-006

Std. Dev. 2.16556E-005

Variance 4.68966E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.73164E-008

95% of values less than 1.9617E-007

99% of values less than 3.99426E-006

Minimum 0

Maximum 3.33219E-005

Mean 2.03083E-007

Std. Dev. 1.98362E-006

Variance 3.93474E-012

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.64643E-010

95% of values less than 1.07126E-009

99% of values less than 5.48233E-008

Minimum 0

Maximum 3.16177E-006

Mean 9.31361E-009

Std. Dev. 1.29104E-007

Variance 1.66679E-014

Phase: Cell3C

Concentration of Phenols group 4 - chlorophenols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 1.30549E-013	
Mean 1.31597E-016	Std. Dev. 4.12627E-015	Variance 1.70261E-029

Phase: Cell3C*Concentration of Phenols group 5 - nitrophenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.56341E-008

Minimum 0

Maximum 1.63477E-006

Mean 2.57116E-009

Std. Dev. 5.30807E-008

Variance 2.81756E-015

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.90955E-007

Minimum 0

Maximum 3.0436E-006

Mean 1.32092E-008

Std. Dev. 1.47548E-007

Variance 2.17704E-014

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.7058E-010

95% of values less than 4.37892E-010

99% of values less than 2.89092E-009

Minimum 0

Maximum 1.66673E-008

Mean 1.30675E-010

Std. Dev. 7.80988E-010

Variance 6.09942E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 1.38453E-016

Mean 1.38314E-019

Std. Dev. 4.37607E-018

Variance 1.915E-035

Phase: Cell3C

Concentration of Phenols group 5 - nitrophenols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aliphatic C5-6 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.06151E-007

Minimum 0

Maximum 3.64466E-006

Mean 1.16516E-008

Std. Dev. 1.67405E-007

Variance 2.80245E-014

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 7.1464E-006

Minimum 0

Maximum 3.80605E-005

Mean 2.32033E-007

Std. Dev. 2.02152E-006

Variance 4.08655E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.46681E-009

95% of values less than 9.40511E-009

99% of values less than 3.76923E-008

Minimum 0

Maximum 1.27072E-007

Mean 1.87946E-009

Std. Dev. 8.43942E-009

Variance 7.12237E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 4.64622E-017

Minimum 0

Maximum 2.18348E-016

Mean 1.46271E-018

Std. Dev. 1.25977E-017

Variance 1.58701E-034

Phase: Cell3C

Concentration of TPH Aliphatic C5-6 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aliphatic C6-8 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.59481E-016

Minimum 0

Maximum 4.03495E-010

Mean 4.09997E-013

Std. Dev. 1.27537E-011

Variance 1.62656E-022

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 6.40924E-009

Minimum 0

Maximum 2.19931E-007

Mean 6.52761E-010

Std. Dev. 9.68679E-009

Variance 9.38339E-017

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.36644E-013

95% of values less than 9.80154E-012

99% of values less than 1.2699E-010

Minimum 0

Maximum 1.31152E-009

Mean 5.372E-012

Std. Dev. 4.9083E-011

Variance 2.40914E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 1.188E-017

Mean 1.18681E-020

Std. Dev. 3.75491E-019

Variance 1.40993E-037

Phase: Cell3C

Concentration of TPH Aliphatic C6-8 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C8-10 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 6.01971E-016	
Mean 8.25561E-019	Std. Dev. 1.94831E-017	Variance 3.79593E-034

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C8-10 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C10-12 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C10-12 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C12-16 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C12-16 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C16-35 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Concentration of TPH Aliphatic C16-35 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C5-7 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.62338E-008

Minimum 0

Maximum 2.14653E-006

Mean 4.0783E-009

Std. Dev. 7.43024E-008

Variance 5.52084E-015

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 3.90717E-007

Minimum 0

Maximum 3.98606E-006

Mean 2.15929E-008

Std. Dev. 2.1498E-007

Variance 4.62164E-014

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.43359E-010

95% of values less than 9.87505E-010

99% of values less than 2.68717E-009

Minimum 0

Maximum 1.1533E-008

Mean 1.69858E-010

Std. Dev. 6.13821E-010

Variance 3.76776E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C5-7 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C7-8 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.52796E-010

Minimum 0

Maximum 2.99069E-008

Mean 7.17991E-011

Std. Dev. 1.17973E-009

Variance 1.39177E-018

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.88436E-008

Minimum 0

Maximum 3.18483E-007

Mean 8.86363E-010

Std. Dev. 1.14571E-008

Variance 1.31264E-016

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.02421E-011

95% of values less than 4.43841E-011

99% of values less than 2.40966E-010

Minimum 0

Maximum 1.55885E-009

Mean 1.14156E-011

Std. Dev. 7.73668E-011

Variance 5.98563E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C7-8 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C8-10 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 9.43787E-013

Minimum 0

Maximum 3.3797E-008

Mean 3.71198E-011

Std. Dev. 1.07044E-009

Variance 1.14585E-018

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 3.87404E-010

Minimum 0

Maximum 1.26767E-007

Mean 2.29494E-010

Std. Dev. 4.34119E-009

Variance 1.88459E-017

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.12276E-013

95% of values less than 4.11889E-012

99% of values less than 5.43355E-011

Minimum 0

Maximum 3.79612E-010

Mean 2.71113E-012

Std. Dev. 2.20926E-011

Variance 4.88085E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C8-10 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C10-12 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 5.11195E-014

Minimum 0

Maximum 9.80507E-010

Mean 1.02023E-012

Std. Dev. 3.09961E-011

Variance 9.60757E-022

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.33204E-010

Minimum 0

Maximum 1.05686E-007

Mean 1.31137E-010

Std. Dev. 3.36349E-009

Variance 1.1313E-017

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.7318E-014

95% of values less than 9.67249E-013

99% of values less than 1.46048E-011

Minimum 0

Maximum 1.12805E-010

Mean 7.43169E-013

Std. Dev. 6.31462E-012

Variance 3.98745E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C10-12 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C12-C16 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 7.03852E-013

Mean 1.12962E-015

Std. Dev. 2.45246E-014

Variance 6.01456E-028

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 9.9056E-012

Minimum 0

Maximum 2.52462E-009

Mean 4.44203E-012

Std. Dev. 8.52173E-011

Variance 7.262E-021

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.69557E-015

95% of values less than 3.25072E-014

99% of values less than 1.22563E-012

Minimum 0

Maximum 4.45993E-012

Mean 2.87111E-014

Std. Dev. 2.36291E-013

Variance 5.58336E-026

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Concentration of TPH Aromatic C12-C16 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C*Concentration of TPH Aromatic C16-21 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 3.07987E-012

Minimum 0

Maximum 6.26735E-010

Mean 1.88785E-012

Std. Dev. 2.94575E-011

Variance 8.67747E-022

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 3.30029E-011
95% of values less than 1.12917E-009
99% of values less than 4.1541E-008

Minimum 0

Maximum 6.32316E-007

Mean 1.84383E-009

Std. Dev. 2.21824E-008

Variance 4.9206E-016

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 1.05484E-010
95% of values less than 4.77261E-009
99% of values less than 7.87322E-008

Minimum 0

Maximum 8.11904E-007

Mean 3.54016E-009

Std. Dev. 3.54576E-008

Variance 1.25724E-015

Phase: Cell3C

Concentration of TPH Aromatic C16-21 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 6.46388E-009

95% of values less than 9.19289E-008

99% of values less than 1.47574E-006

Minimum 0

Maximum 1.25865E-005

Mean 7.54849E-008

Std. Dev. 6.91381E-007

Variance 4.78008E-013

Phase: Cell3C

Concentration of TPH Aromatic C21-35 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 2.75383E-017	
Mean 3.89737E-020	Std. Dev. 9.42602E-019	Variance 8.88498E-037

Phase: Cell3C

Concentration of TPH Aromatic C21-35 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.96333E-017

Minimum 0

Maximum 1.08688E-015

Mean 2.26561E-018

Std. Dev. 3.75233E-017

Variance 1.408E-033

Phase: Cell3C*Approx. time to Peak Conc. Ammoniacal_N at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 512

95% of values less than 624

99% of values less than 689

Minimum 0

Maximum 928

Mean 161.97

Std. Dev. 236.388

Variance 55879.2

Approx. time to Peak Conc. Chloride at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 344

95% of values less than 380

99% of values less than 464

Minimum 0

Maximum 512

Mean 100.069

Std. Dev. 146.38

Variance 21427

Approx. time to Peak Conc. Mercury at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 20000

95% of values less than 20000

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 6652.01

Std. Dev. 9366.4

Variance 8.77294E+007

Approx. time to Peak Conc. Phenols group 1 - phenol at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 300

Mean 87.2118

Std. Dev. 127.123

Variance 16160.2

Phase: Cell3C

Approx. time to Peak Conc. Phenols group 2 - cresols at Phase Monitor Well [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 300		
95% of values less than 300		
99% of values less than 300		
Minimum 0	Maximum 300	
Mean 87.2258	Std. Dev. 127.121	Variance 16159.9

Approx. time to Peak Conc. Phenols group 3 - xylenols at Phase Monitor Well [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 300		
95% of values less than 300		
99% of values less than 300		
Minimum 0	Maximum 300	
Mean 85.8272	Std. Dev. 126.465	Variance 15993.3

Approx. time to Peak Conc. Phenols group 4 - chlorophenols at Phase Monitor Well [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 312		
95% of values less than 312		
99% of values less than 380		
Minimum 0	Maximum 464	
Mean 95.8521	Std. Dev. 137.659	Variance 18949.9

Approx. time to Peak Conc. Phenols group 5 - nitrophenols at Phase Monitor Well [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 300		
95% of values less than 300		
99% of values less than 300		
Minimum 0	Maximum 300	
Mean 86.9261	Std. Dev. 126.973	Variance 16122.1

Phase: Cell3C*Approx. time to Peak Conc. TPH Aliphatic C5-6 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 300

95% of values less than 300

99% of values less than 312

Minimum 0

Maximum 312

Mean 87.2997

Std. Dev. 127.276

Variance 16199.1

Approx. time to Peak Conc. TPH Aliphatic C6-8 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 300

95% of values less than 300

99% of values less than 312

Minimum 0

Maximum 312

Mean 65.7263

Std. Dev. 116.106

Variance 13480.6

Approx. time to Peak Conc. TPH Aliphatic C8-10 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 172

Minimum 0

Maximum 312

Mean 2.88511

Std. Dev. 25.9309

Variance 672.412

Approx. time to Peak Conc. TPH Aliphatic C10-12 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C*Approx. time to Peak Conc. TPH Aliphatic C12-16 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aliphatic C16-35 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aromatic C5-7 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 300

Mean 87.2108

Std. Dev. 127.122

Variance 16160

Approx. time to Peak Conc. TPH Aromatic C7-8 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 300

Mean 80.6573

Std. Dev. 123.984

Variance 15372.1

Phase: Cell3C*Approx. time to Peak Conc. TPH Aromatic C8-10 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 312

Mean 62.2597

Std. Dev. 112.955

Variance 12758.8

Approx. time to Peak Conc. TPH Aromatic C10-12 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 312

Mean 58.7522

Std. Dev. 110.777

Variance 12271.7

Approx. time to Peak Conc. TPH Aromatic C12-C16 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 312

Mean 46.9011

Std. Dev. 100.483

Variance 10096.8

Approx. time to Peak Conc. TPH Aromatic C16-21 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 16406

95% of values less than 18114

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 3944.13

Std. Dev. 6380.55

Variance 4.07115E+007

Phase: Cell3C

Approx. time to Peak Conc. TPH Aromatic C21-35 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 6094

Minimum 0

Maximum 20000

Mean 164.248

Std. Dev. 1613.18

Variance 2.60236E+006

Phase: Cell3C

Flow to Leachate Treatment Plant [l/day]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell3C

Flow to Leachate Treatment Plant [l/day]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell3C

Head on EBS [m]

At 1000 years

- 01% of values less than 10.557
- 05% of values less than 11.7711
- 10% of values less than 13.4158
- 50% of values less than 28.1302
- 90% of values less than 30
- 95% of values less than 30
- 99% of values less than 30

Minimum 10.0439	Maximum 30	
Mean 24.5547	Std. Dev. 6.52406	Variance 42.5633

At infinity

- 01% of values less than 10.557
- 05% of values less than 11.7711
- 10% of values less than 13.4158
- 50% of values less than 28.1302
- 90% of values less than 30
- 95% of values less than 30
- 99% of values less than 30

Minimum 10.0439	Maximum 30	
Mean 24.5547	Std. Dev. 6.52406	Variance 42.5633

Phase: Cell3C

Surface Breakout [l/day]

At 300 years

01% of values less than 1065.1
05% of values less than 1432.02
10% of values less than 1691.43
50% of values less than 2636.29
90% of values less than 3572.57
95% of values less than 3826.07
99% of values less than 4408.02

Minimum 773.057	Maximum 4834.68	
Mean 2632.35	Std. Dev. 725.674	Variance 526603

At 1000 years

01% of values less than 8682
05% of values less than 10112.3
10% of values less than 10889.5
50% of values less than 13427.1
90% of values less than 15821.8
95% of values less than 16490.6
99% of values less than 17955.5

Minimum 6934.69	Maximum 19841.7	
Mean 13356.2	Std. Dev. 1969.04	Variance 3.87713E+006

At infinity

01% of values less than 8054.76
05% of values less than 9560.16
10% of values less than 10443.2
50% of values less than 13059.1
90% of values less than 15755.3
95% of values less than 16355.7
99% of values less than 17955.5

Minimum 6934.69	Maximum 19841.7	
Mean 13063.1	Std. Dev. 2062.25	Variance 4.25289E+006

Phase: Cell3C

Leakage through EBS [l/day]

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 42.8954
99% of values less than 173.312
Minimum 0
Mean 6.68219

Maximum 277.377
Std. Dev. 29.664
Variance 879.952

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 142.257
95% of values less than 188.908
99% of values less than 289.647
Minimum 0
Mean 35.9981

Maximum 368.093
Std. Dev. 67.7938
Variance 4595.99

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 231.097
95% of values less than 306.882
99% of values less than 470.532
Minimum 0
Mean 58.4791

Maximum 597.969
Std. Dev. 110.131
Variance 12128.9

At infinity

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 1233.3
95% of values less than 1491.25
99% of values less than 1753.52
Minimum 0
Mean 351.511

Maximum 1901.59
Std. Dev. 529.713
Variance 280596

Phase: Cell3C

Aquifer Flow [m³/year]

At 30 years

01% of values less than 4.87632
05% of values less than 14.9949
10% of values less than 28.4109
50% of values less than 395.897
90% of values less than 2423.21
95% of values less than 3140.79
99% of values less than 5445.32

Minimum 0	Maximum 9604.61	
Mean 864.635	Std. Dev. 1174.26	Variance 1.3789E+006

At 100 years

01% of values less than 4.87632
05% of values less than 15.3917
10% of values less than 30.9824
50% of values less than 395.897
90% of values less than 2423.21
95% of values less than 3140.79
99% of values less than 5445.32

Minimum 0	Maximum 9604.61	
Mean 865.75	Std. Dev. 1173.63	Variance 1.37741E+006

At 300 years

01% of values less than 6.48302
05% of values less than 19.6462
10% of values less than 41.507
50% of values less than 401.651
90% of values less than 2423.21
95% of values less than 3140.79
99% of values less than 5445.32

Minimum 0	Maximum 9604.61	
Mean 872.1	Std. Dev. 1170.2	Variance 1.36937E+006

At 1000 years

01% of values less than 6.48302
05% of values less than 19.7277
10% of values less than 44.8735
50% of values less than 406.926
90% of values less than 2423.21
95% of values less than 3140.79
99% of values less than 5445.32

Minimum 0	Maximum 9604.61	
Mean 878.987	Std. Dev. 1167.97	Variance 1.36414E+006

Phase: Cell3C

Aquifer Flow [m³/year]

At infinity

- 01% of values less than 6.48302
- 05% of values less than 19.9124
- 10% of values less than 53.4419
- 50% of values less than 582.938
- 90% of values less than 2490.97
- 95% of values less than 3300.71
- 99% of values less than 5445.32

Minimum 0

Maximum 9604.61

Mean 988.178

Std. Dev. 1171.44

Variance 1.37228E+006

Phase: Cell4A*Source Concentration of Ammoniacal_N [mg/l]*

At 30 years

01% of values less than 369.494

05% of values less than 481.999

10% of values less than 579.838

50% of values less than 1096.73

90% of values less than 1418.9

95% of values less than 1499.57

99% of values less than 1652.03

Minimum 304.418

Maximum 1833.9

Mean 1051.18

Std. Dev. 309.491

Variance 95784.4

At 100 years

01% of values less than 267.526

05% of values less than 380.744

10% of values less than 472.158

50% of values less than 974.919

90% of values less than 1320.56

95% of values less than 1398.99

99% of values less than 1521.84

Minimum 208.756

Maximum 1771.92

Mean 934.622

Std. Dev. 312.671

Variance 97762.9

At 300 years

01% of values less than 85.712

05% of values less than 156.878

10% of values less than 244.306

50% of values less than 678.075

90% of values less than 1059.48

95% of values less than 1168.7

99% of values less than 1310.89

Minimum 47.999

Maximum 1578.09

Mean 665.743

Std. Dev. 307.171

Variance 94353.9

At 1000 years

01% of values less than 5.84725E-005

05% of values less than 0.000733321

10% of values less than 0.00782218

50% of values less than 4.00296

90% of values less than 36.5137

95% of values less than 52.6231

99% of values less than 82.3923

Minimum 3.88208E-006

Maximum 165.932

Mean 12.6271

Std. Dev. 19.1184

Variance 365.514

Phase: Cell4A

Source Concentration of Ammoniacal_N [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Source Concentration of Chloride [mg/l]*

At 30 years

01% of values less than 16.4574

05% of values less than 38.1187

10% of values less than 59.0141

50% of values less than 255.061

90% of values less than 791.971

95% of values less than 972.818

99% of values less than 1300.2

Minimum 4.77258

Maximum 1890.93

Mean 349.878

Std. Dev. 304.93

Variance 92982.1

At 100 years

01% of values less than 8.66401

05% of values less than 23.5313

10% of values less than 39.0973

50% of values less than 194.742

90% of values less than 658.523

95% of values less than 814.733

99% of values less than 1084.85

Minimum 3.00411

Maximum 1502.12

Mean 280.145

Std. Dev. 257.752

Variance 66436

At 300 years

01% of values less than 0.914117

05% of values less than 4.3281

10% of values less than 10.1592

50% of values less than 88.5632

90% of values less than 386.475

95% of values less than 501.422

99% of values less than 754.531

Minimum 0.162997

Maximum 1200.85

Mean 151.009

Std. Dev. 167.579

Variance 28082.7

At 1000 years

01% of values less than 2.93697E-013

05% of values less than 4.05157E-011

10% of values less than 5.68123E-009

50% of values less than 0.00255534

90% of values less than 0.244743

95% of values less than 0.548852

99% of values less than 1.42167

Minimum 1.10949E-015

Maximum 9.41837

Mean 0.107486

Std. Dev. 0.430967

Variance 0.185732

Phase: Cell4A

Source Concentration of Chloride [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A*Source Concentration of Mercury [mg/l]*

At 30 years

01% of values less than 8.36638E-006

05% of values less than 1.4941E-005

10% of values less than 2.8466E-005

50% of values less than 0.000152571

90% of values less than 0.000503817

95% of values less than 0.000679226

99% of values less than 0.00101872

Minimum 5.23855E-006

Maximum 0.00128702

Mean 0.000222526

Std. Dev. 0.000220572

Variance 4.8652E-008

At 100 years

01% of values less than 8.36638E-006

05% of values less than 1.4941E-005

10% of values less than 2.8466E-005

50% of values less than 0.000151539

90% of values less than 0.000487237

95% of values less than 0.000654675

99% of values less than 0.000989707

Minimum 5.23855E-006

Maximum 0.00124879

Mean 0.000217811

Std. Dev. 0.000213056

Variance 4.53927E-008

At 300 years

01% of values less than 8.36638E-006

05% of values less than 1.4941E-005

10% of values less than 2.8466E-005

50% of values less than 0.000148413

90% of values less than 0.00044549

95% of values less than 0.00059177

99% of values less than 0.000914357

Minimum 5.23855E-006

Maximum 0.00113668

Mean 0.000204344

Std. Dev. 0.000192469

Variance 3.70442E-008

At 1000 years

01% of values less than 8.06078E-006

05% of values less than 1.42652E-005

10% of values less than 2.49859E-005

50% of values less than 9.71184E-005

90% of values less than 0.000185439

95% of values less than 0.000216873

99% of values less than 0.000283188

Minimum 5.23855E-006

Maximum 0.000404286

Mean 0.000102323

Std. Dev. 6.40161E-005

Variance 4.09806E-009

Phase: Cell4A

Source Concentration of Mercury [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 6.66234E-029

50% of values less than 4.02657E-008

90% of values less than 7.89179E-005

95% of values less than 9.72133E-005

99% of values less than 0.000112479

Minimum 0

Maximum 0.000116463

Mean 2.40408E-005

Std. Dev. 3.35492E-005

Variance 1.12555E-009

Phase: Cell4A*Source Concentration of Phenols group 1 - phenol [mg/l]*

At 30 years

01% of values less than 0.00341709

05% of values less than 0.00558925

10% of values less than 0.00726365

50% of values less than 0.0258435

90% of values less than 0.0672884

95% of values less than 0.08298

99% of values less than 0.102069

Minimum 0.00270314

Maximum 0.131541

Mean 0.0325209

Std. Dev. 0.0243415

Variance 0.000592509

At 100 years

01% of values less than 2.6696E-005

05% of values less than 4.3666E-005

10% of values less than 5.67473E-005

50% of values less than 0.000201903

90% of values less than 0.000525691

95% of values less than 0.000648281

99% of values less than 0.00079741

Minimum 2.1183E-005

Maximum 0.00102766

Mean 0.000254069

Std. Dev. 0.000190168

Variance 3.61639E-008

At 300 years

01% of values less than 2.54593E-011

05% of values less than 4.16431E-011

10% of values less than 5.41184E-011

50% of values less than 1.92549E-010

90% of values less than 5.01338E-010

95% of values less than 6.18249E-010

99% of values less than 7.6047E-010

Minimum 2.014E-011

Maximum 9.80055E-010

Mean 2.42299E-010

Std. Dev. 1.81358E-010

Variance 3.28909E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Source Concentration of Phenols group 1 - phenol [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Source Concentration of Phenols group 2 - cresols [mg/l]*

At 30 years

01% of values less than 0.00208491

05% of values less than 0.00498016

10% of values less than 0.00882978

50% of values less than 0.109

90% of values less than 0.442057

95% of values less than 0.570012

99% of values less than 0.841471

Minimum 0.001073

Maximum 1.0961

Mean 0.174338

Std. Dev. 0.191025

Variance 0.0364907

At 100 years

01% of values less than 1.62884E-005

05% of values less than 3.89075E-005

10% of values less than 6.89827E-005

50% of values less than 0.00085156

90% of values less than 0.00345357

95% of values less than 0.00445322

99% of values less than 0.00657399

Minimum 8.38278E-006

Maximum 0.00856331

Mean 0.00136201

Std. Dev. 0.00149239

Variance 2.22722E-006

At 300 years

01% of values less than 1.55338E-011

05% of values less than 3.71051E-011

10% of values less than 6.5787E-011

50% of values less than 8.12111E-010

90% of values less than 3.29358E-009

95% of values less than 4.24692E-009

99% of values less than 6.26945E-009

Minimum 7.99445E-012

Maximum 8.16661E-009

Mean 1.29892E-009

Std. Dev. 1.42325E-009

Variance 2.02564E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.78977E-030

95% of values less than 3.59728E-030

99% of values less than 5.31043E-030

Minimum 0

Maximum 6.91739E-030

Mean 9.02459E-031

Std. Dev. 1.31743E-030

Variance 1.73563E-060

Phase: Cell4A

Source Concentration of Phenols group 2 - cresols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Source Concentration of Phenols group 3 - xlenols [mg/l]*

At 30 years

01% of values less than 0.00711228

05% of values less than 0.00851628

10% of values less than 0.00981738

50% of values less than 0.017211

90% of values less than 0.0268661

95% of values less than 0.0308012

99% of values less than 0.0356268

Minimum 0.00643184

Maximum 0.0401874

Mean 0.0179845

Std. Dev. 0.00662498

Variance 4.38904E-005

At 100 years

01% of values less than 5.55647E-005

05% of values less than 6.65334E-005

10% of values less than 7.66983E-005

50% of values less than 0.000134461

90% of values less than 0.000209892

95% of values less than 0.000240634

99% of values less than 0.000278334

Minimum 5.02488E-005

Maximum 0.000313964

Mean 0.000140504

Std. Dev. 5.17577E-005

Variance 2.67886E-009

At 300 years

01% of values less than 5.29906E-011

05% of values less than 6.34512E-011

10% of values less than 7.31452E-011

50% of values less than 1.28232E-010

90% of values less than 2.00168E-010

95% of values less than 2.29487E-010

99% of values less than 2.6544E-010

Minimum 4.7921E-011

Maximum 2.99419E-010

Mean 1.33995E-010

Std. Dev. 4.936E-011

Variance 2.43641E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Source Concentration of Phenols group 3 - xylenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Source Concentration of Phenols group 4 - chlorophenols [mg/l]*

At 30 years

01% of values less than 0.000147141

05% of values less than 0.000171651

10% of values less than 0.000191568

50% of values less than 0.000329972

90% of values less than 0.000719611

95% of values less than 0.000839172

99% of values less than 0.00103131

Minimum 0.000125

Maximum 0.00121786

Mean 0.000391367

Std. Dev. 0.000208137

Variance 4.3321E-008

At 100 years

01% of values less than 1.14954E-006

05% of values less than 1.34102E-006

10% of values less than 1.49662E-006

50% of values less than 2.5779E-006

90% of values less than 5.62196E-006

95% of values less than 6.55603E-006

99% of values less than 8.05714E-006

Minimum 9.76562E-007

Maximum 9.51452E-006

Mean 3.05756E-006

Std. Dev. 1.62607E-006

Variance 2.6441E-012

At 300 years

01% of values less than 1.09629E-012

05% of values less than 1.2789E-012

10% of values less than 1.42729E-012

50% of values less than 2.45848E-012

90% of values less than 5.36152E-012

95% of values less than 6.25232E-012

99% of values less than 7.68389E-012

Minimum 9.31323E-013

Maximum 9.07375E-012

Mean 2.91591E-012

Std. Dev. 1.55074E-012

Variance 2.4048E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Source Concentration of Phenols group 4 - chlorophenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Source Concentration of Phenols group 5 - nitrophenols [mg/l]*

At 30 years

01% of values less than 0.000125

05% of values less than 0.000125

10% of values less than 0.000125

50% of values less than 0.000125

90% of values less than 0.000125

95% of values less than 0.000125

99% of values less than 0.000125

Minimum 0.000125

Maximum 0.000125

Mean 0.000125

Std. Dev. 1.67807E-011

Variance -2.81592E-022

At 100 years

01% of values less than 9.76562E-007

05% of values less than 9.76562E-007

10% of values less than 9.76562E-007

50% of values less than 9.76562E-007

90% of values less than 9.76562E-007

95% of values less than 9.76562E-007

99% of values less than 9.76562E-007

Minimum 9.76562E-007

Maximum 9.76562E-007

Mean 9.76562E-007

Std. Dev. 5.14251E-014

Variance -2.64454E-027

At 300 years

01% of values less than 9.31323E-013

05% of values less than 9.31323E-013

10% of values less than 9.31323E-013

50% of values less than 9.31323E-013

90% of values less than 9.31323E-013

95% of values less than 9.31323E-013

99% of values less than 9.31323E-013

Minimum 9.31323E-013

Maximum 9.31323E-013

Mean 9.31323E-013

Std. Dev. 1.36272E-019

Variance -1.85699E-038

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Source Concentration of Phenols group 5 - nitrophenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Source Concentration of TPH Aliphatic C5-6 [mg/l]*

At 30 years

01% of values less than 0.0337575

05% of values less than 0.0340272

10% of values less than 0.0342156

50% of values less than 0.0356012

90% of values less than 0.0375561

95% of values less than 0.0381547

99% of values less than 0.0387723

Minimum 0.0335865

Maximum 0.0390892

Mean 0.0357276

Std. Dev. 0.00124402

Variance 1.54759E-006

At 100 years

01% of values less than 0.00026373

05% of values less than 0.000265837

10% of values less than 0.000267309

50% of values less than 0.000278134

90% of values less than 0.000293407

95% of values less than 0.000298083

99% of values less than 0.000302909

Minimum 0.000262394

Maximum 0.000305385

Mean 0.000279122

Std. Dev. 9.71893E-006

Variance 9.44575E-011

At 300 years

01% of values less than 2.51513E-010

05% of values less than 2.53522E-010

10% of values less than 2.54926E-010

50% of values less than 2.65249E-010

90% of values less than 2.79815E-010

95% of values less than 2.84274E-010

99% of values less than 2.88876E-010

Minimum 2.50239E-010

Maximum 2.91237E-010

Mean 2.66192E-010

Std. Dev. 9.26869E-012

Variance 8.59086E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Source Concentration of TPH Aliphatic C5-6 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Source Concentration of TPH Aliphatic C6-8 [mg/l]*

At 30 years

01% of values less than 0.00987609

05% of values less than 0.0101152

10% of values less than 0.0102806

50% of values less than 0.011233

90% of values less than 0.0126025

95% of values less than 0.0129417

99% of values less than 0.0134476

Minimum 0.00966609

Maximum 0.0138747

Mean 0.0113683

Std. Dev. 0.000872304

Variance 7.60915E-007

At 100 years

01% of values less than 7.7157E-005

05% of values less than 7.90246E-005

10% of values less than 8.03173E-005

50% of values less than 8.77575E-005

90% of values less than 9.84568E-005

95% of values less than 0.000101107

99% of values less than 0.00010506

Minimum 7.55164E-005

Maximum 0.000108396

Mean 8.88151E-005

Std. Dev. 6.81488E-006

Variance 4.64426E-011

At 300 years

01% of values less than 7.35826E-011

05% of values less than 7.53638E-011

10% of values less than 7.65966E-011

50% of values less than 8.3692E-011

90% of values less than 9.38957E-011

95% of values less than 9.64232E-011

99% of values less than 1.00193E-010

Minimum 7.2018E-011

Maximum 1.03374E-010

Mean 8.47007E-011

Std. Dev. 6.49917E-012

Variance 4.22393E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Source Concentration of TPH Aliphatic C6-8 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Source Concentration of TPH Aliphatic C8-10 [mg/l]

At 30 years

01% of values less than 0.00866595		
05% of values less than 0.00903149		
10% of values less than 0.00921483		
50% of values less than 0.0102234		
90% of values less than 0.0119364		
95% of values less than 0.0123884		
99% of values less than 0.0128845		
Minimum 0.00853136	Maximum 0.0133847	
Mean 0.0104153	Std. Dev. 0.00103465	Variance 1.07051E-006

At 100 years

01% of values less than 6.77027E-005		
05% of values less than 7.05585E-005		
10% of values less than 7.19909E-005		
50% of values less than 7.98705E-005		
90% of values less than 9.32532E-005		
95% of values less than 9.67846E-005		
99% of values less than 0.00010066		
Minimum 6.66512E-005	Maximum 0.000104568	
Mean 8.13694E-005	Std. Dev. 8.08324E-006	Variance 6.53388E-011

At 300 years

01% of values less than 6.45664E-011		
05% of values less than 6.72898E-011		
10% of values less than 6.86558E-011		
50% of values less than 7.61704E-011		
90% of values less than 8.89332E-011		
95% of values less than 9.2301E-011		
99% of values less than 9.59968E-011		
Minimum 6.35636E-011	Maximum 9.97241E-011	
Mean 7.75999E-011	Std. Dev. 7.70878E-012	Variance 5.94253E-023

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Source Concentration of TPH Aliphatic C8-10 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Source Concentration of TPH Aliphatic C10-12 [mg/l]*

At 30 years

01% of values less than 0.0175281

05% of values less than 0.0180577

10% of values less than 0.0183333

50% of values less than 0.0200644

90% of values less than 0.021604

95% of values less than 0.0220362

99% of values less than 0.0227178

Minimum 0.0172186

Maximum 0.0231107

Mean 0.0200511

Std. Dev. 0.00121589

Variance 1.47839E-006

At 100 years

01% of values less than 0.000136938

05% of values less than 0.000141075

10% of values less than 0.000143229

50% of values less than 0.000156753

90% of values less than 0.000168782

95% of values less than 0.000172158

99% of values less than 0.000177483

Minimum 0.00013452

Maximum 0.000180553

Mean 0.000156649

Std. Dev. 9.49915E-006

Variance 9.02339E-011

At 300 years

01% of values less than 1.30594E-010

05% of values less than 1.3454E-010

10% of values less than 1.36594E-010

50% of values less than 1.49491E-010

90% of values less than 1.60963E-010

95% of values less than 1.64183E-010

99% of values less than 1.69261E-010

Minimum 1.28289E-010

Maximum 1.72188E-010

Mean 1.49392E-010

Std. Dev. 9.0591E-012

Variance 8.20672E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Source Concentration of TPH Aliphatic C10-12 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Source Concentration of TPH Aliphatic C12-16 [mg/l]

At 30 years

01% of values less than 0.00513606		
05% of values less than 0.00549422		
10% of values less than 0.00582827		
50% of values less than 0.00731887		
90% of values less than 0.00973042		
95% of values less than 0.0105508		
99% of values less than 0.0117588		
Minimum 0.00496527	Maximum 0.0123616	
Mean 0.0075698	Std. Dev. 0.00150434	Variance 2.26305E-006

At 100 years

01% of values less than 4.01255E-005		
05% of values less than 4.29236E-005		
10% of values less than 4.55334E-005		
50% of values less than 5.71786E-005		
90% of values less than 7.60189E-005		
95% of values less than 8.24283E-005		
99% of values less than 9.18658E-005		
Minimum 3.87912E-005	Maximum 9.6575E-005	
Mean 5.91391E-005	Std. Dev. 1.17527E-005	Variance 1.38125E-010

At 300 years

01% of values less than 3.82666E-011		
05% of values less than 4.09351E-011		
10% of values less than 4.3424E-011		
50% of values less than 5.45298E-011		
90% of values less than 7.24973E-011		
95% of values less than 7.86098E-011		
99% of values less than 8.76101E-011		
Minimum 3.69942E-011	Maximum 9.21011E-011	
Mean 5.63994E-011	Std. Dev. 1.12082E-011	Variance 1.25624E-022

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Source Concentration of TPH Aliphatic C12-16 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Source Concentration of TPH Aliphatic C16-35 [mg/l]*

At 30 years

01% of values less than 0.0132245

05% of values less than 0.0183174

10% of values less than 0.023615

50% of values less than 0.0713132

90% of values less than 0.257047

95% of values less than 0.332225

99% of values less than 0.491496

Minimum 0.0112222

Maximum 0.668213

Mean 0.108245

Std. Dev. 0.104832

Variance 0.0109898

At 100 years

01% of values less than 0.0132245

05% of values less than 0.0183174

10% of values less than 0.023615

50% of values less than 0.0713132

90% of values less than 0.257047

95% of values less than 0.332225

99% of values less than 0.491496

Minimum 0.0112222

Maximum 0.668213

Mean 0.108245

Std. Dev. 0.104832

Variance 0.0109898

At 300 years

01% of values less than 0.0132245

05% of values less than 0.0183174

10% of values less than 0.023615

50% of values less than 0.0713132

90% of values less than 0.257047

95% of values less than 0.332225

99% of values less than 0.491496

Minimum 0.0112222

Maximum 0.668213

Mean 0.108245

Std. Dev. 0.104832

Variance 0.0109898

At 1000 years

01% of values less than 0.0132245

05% of values less than 0.0183174

10% of values less than 0.023615

50% of values less than 0.0713132

90% of values less than 0.257047

95% of values less than 0.332225

99% of values less than 0.491496

Minimum 0.0112222

Maximum 0.668213

Mean 0.108245

Std. Dev. 0.104832

Variance 0.0109898

Phase: Cell4A

Source Concentration of TPH Aliphatic C16-35 [mg/l]

At infinity

01% of values less than 0.0132245

05% of values less than 0.0183174

10% of values less than 0.023615

50% of values less than 0.0713132

90% of values less than 0.257047

95% of values less than 0.332225

99% of values less than 0.491496

Minimum 0.0112222

Maximum 0.668213

Mean 0.108245

Std. Dev. 0.104832

Variance 0.0109898

Phase: Cell4A*Source Concentration of TPH Aromatic C5-7 [mg/l]*

At 30 years

01% of values less than 0.000910126

05% of values less than 0.000951137

10% of values less than 0.000980201

50% of values less than 0.00113469

90% of values less than 0.00123013

95% of values less than 0.00123908

99% of values less than 0.00124868

Minimum 0.000878455

Maximum 0.00124961

Mean 0.00111978

Std. Dev. 9.13735E-005

Variance 8.34912E-009

At 100 years

01% of values less than 7.11036E-006

05% of values less than 7.43076E-006

10% of values less than 7.65782E-006

50% of values less than 8.86477E-006

90% of values less than 9.61039E-006

95% of values less than 9.68033E-006

99% of values less than 9.7553E-006

Minimum 6.86293E-006

Maximum 9.76259E-006

Mean 8.74826E-006

Std. Dev. 7.13855E-007

Variance 5.0959E-013

At 300 years

01% of values less than 6.78096E-012

05% of values less than 7.08652E-012

10% of values less than 7.30306E-012

50% of values less than 8.4541E-012

90% of values less than 9.16518E-012

95% of values less than 9.23188E-012

99% of values less than 9.30338E-012

Minimum 6.545E-012

Maximum 9.31034E-012

Mean 8.34299E-012

Std. Dev. 6.80786E-013

Variance 4.63469E-025

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Source Concentration of TPH Aromatic C5-7 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Source Concentration of TPH Aromatic C7-8 [mg/l]*

At 30 years

01% of values less than 0.000710478

05% of values less than 0.000809629

10% of values less than 0.000902606

50% of values less than 0.00141048

90% of values less than 0.00210708

95% of values less than 0.00229725

99% of values less than 0.0025503

Minimum 0.000648709

Maximum 0.00276633

Mean 0.00146541

Std. Dev. 0.000451435

Variance 2.03793E-007

At 100 years

01% of values less than 5.55061E-006

05% of values less than 6.32523E-006

10% of values less than 7.05161E-006

50% of values less than 1.10193E-005

90% of values less than 1.64616E-005

95% of values less than 1.79473E-005

99% of values less than 1.99242E-005

Minimum 5.06804E-006

Maximum 2.16119E-005

Mean 1.14485E-005

Std. Dev. 3.52683E-006

Variance 1.24386E-011

At 300 years

01% of values less than 5.29347E-012

05% of values less than 6.03221E-012

10% of values less than 6.72494E-012

50% of values less than 1.05089E-011

90% of values less than 1.5699E-011

95% of values less than 1.71159E-011

99% of values less than 1.90012E-011

Minimum 4.83326E-012

Maximum 2.06108E-011

Mean 1.09181E-011

Std. Dev. 3.36345E-012

Variance 1.13128E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Source Concentration of TPH Aromatic C7-8 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Source Concentration of TPH Aromatic C8-10 [mg/l]

At 30 years

01% of values less than 0.015073		
05% of values less than 0.0156826		
10% of values less than 0.0160571		
50% of values less than 0.0182462		
90% of values less than 0.0217376		
95% of values less than 0.022817		
99% of values less than 0.0242338		
Minimum 0.0148225	Maximum 0.0249182	
Mean 0.0186335	Std. Dev. 0.0021518	Variance 4.63026E-006

At 100 years

01% of values less than 0.000117758		
05% of values less than 0.00012252		
10% of values less than 0.000125446		
50% of values less than 0.000142549		
90% of values less than 0.000169825		
95% of values less than 0.000178258		
99% of values less than 0.000189327		
Minimum 0.000115801	Maximum 0.000194673	
Mean 0.000145574	Std. Dev. 1.6811E-005	Variance 2.82608E-010

At 300 years

01% of values less than 1.12303E-010		
05% of values less than 1.16844E-010		
10% of values less than 1.19634E-010		
50% of values less than 1.35945E-010		
90% of values less than 1.61958E-010		
95% of values less than 1.7E-010		
99% of values less than 1.80556E-010		
Minimum 1.10436E-010	Maximum 1.85655E-010	
Mean 1.3883E-010	Std. Dev. 1.60322E-011	Variance 2.57031E-022

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Source Concentration of TPH Aromatic C8-10 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Source Concentration of TPH Aromatic C10-12 [mg/l]

At 30 years

01% of values less than 0.0116152		
05% of values less than 0.0119728		
10% of values less than 0.0122386		
50% of values less than 0.0133981		
90% of values less than 0.0144644		
95% of values less than 0.0147658		
99% of values less than 0.0152237		
Minimum 0.0114415	Maximum 0.0154694	
Mean 0.0133811	Std. Dev. 0.000847776	Variance 7.18724E-007

At 100 years

01% of values less than 9.07438E-005		
05% of values less than 9.35374E-005		
10% of values less than 9.56142E-005		
50% of values less than 0.000104673		
90% of values less than 0.000113003		
95% of values less than 0.000115358		
99% of values less than 0.000118935		
Minimum 8.93866E-005	Maximum 0.000120854	
Mean 0.00010454	Std. Dev. 6.62325E-006	Variance 4.38674E-011

At 300 years

01% of values less than 8.654E-011		
05% of values less than 8.92042E-011		
10% of values less than 9.11848E-011		
50% of values less than 9.98236E-011		
90% of values less than 1.07769E-010		
95% of values less than 1.10014E-010		
99% of values less than 1.13425E-010		
Minimum 8.52457E-011	Maximum 1.15256E-010	
Mean 9.96972E-011	Std. Dev. 6.31642E-012	Variance 3.98972E-023

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Source Concentration of TPH Aromatic C10-12 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Source Concentration of TPH Aromatic C12-C16 [mg/l]

At 30 years

01% of values less than 0.0128957		
05% of values less than 0.0133932		
10% of values less than 0.0136996		
50% of values less than 0.0153028		
90% of values less than 0.0163604		
95% of values less than 0.0166051		
99% of values less than 0.0169892		
Minimum 0.0125658	Maximum 0.0171416	
Mean 0.0151415	Std. Dev. 0.00101143	Variance 1.02299E-006

At 100 years

01% of values less than 0.000100747		
05% of values less than 0.000104634		
10% of values less than 0.000107028		
50% of values less than 0.000119553		
90% of values less than 0.000127816		
95% of values less than 0.000129727		
99% of values less than 0.000132728		
Minimum 9.817E-005	Maximum 0.000133918	
Mean 0.000118293	Std. Dev. 7.90178E-006	Variance 6.24381E-011

At 300 years

01% of values less than 9.60803E-011		
05% of values less than 9.97869E-011		
10% of values less than 1.0207E-010		
50% of values less than 1.14015E-010		
90% of values less than 1.21895E-010		
95% of values less than 1.23718E-010		
99% of values less than 1.2658E-010		
Minimum 9.36222E-011	Maximum 1.27715E-010	
Mean 1.12813E-010	Std. Dev. 7.53573E-012	Variance 5.67872E-023

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Source Concentration of TPH Aromatic C12-C16 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Source Concentration of TPH Aromatic C16-21 [mg/l]*

At 30 years

01% of values less than 0.0531171

05% of values less than 0.0560574

10% of values less than 0.0584531

50% of values less than 0.0728364

90% of values less than 0.0990516

95% of values less than 0.10663

99% of values less than 0.115924

Minimum 0.0509038

Maximum 0.124871

Mean 0.0760993

Std. Dev. 0.0154804

Variance 0.000239644

At 100 years

01% of values less than 0.0531171

05% of values less than 0.0560574

10% of values less than 0.0584531

50% of values less than 0.0728364

90% of values less than 0.0990516

95% of values less than 0.10663

99% of values less than 0.115924

Minimum 0.0509038

Maximum 0.124871

Mean 0.0760993

Std. Dev. 0.0154804

Variance 0.000239644

At 300 years

01% of values less than 0.0531171

05% of values less than 0.0560574

10% of values less than 0.0584531

50% of values less than 0.0728364

90% of values less than 0.0990516

95% of values less than 0.10663

99% of values less than 0.115924

Minimum 0.0509038

Maximum 0.124871

Mean 0.0760993

Std. Dev. 0.0154804

Variance 0.000239644

At 1000 years

01% of values less than 0.0531171

05% of values less than 0.0560574

10% of values less than 0.0584531

50% of values less than 0.0728364

90% of values less than 0.0990516

95% of values less than 0.10663

99% of values less than 0.115924

Minimum 0.0509038

Maximum 0.124871

Mean 0.0760993

Std. Dev. 0.0154804

Variance 0.000239644

Phase: Cell4A

Source Concentration of TPH Aromatic C16-21 [mg/l]

At infinity

01% of values less than 0.0531171

05% of values less than 0.0560574

10% of values less than 0.0584531

50% of values less than 0.0728364

90% of values less than 0.0990516

95% of values less than 0.10663

99% of values less than 0.115924

Minimum 0.0509038

Maximum 0.124871

Mean 0.0760993

Std. Dev. 0.0154804

Variance 0.000239644

Phase: Cell4A*Source Concentration of TPH Aromatic C21-35 [mg/l]*

At 30 years

01% of values less than 0.0535415

05% of values less than 0.0571477

10% of values less than 0.0603116

50% of values less than 0.0819289

90% of values less than 0.12424

95% of values less than 0.137574

99% of values less than 0.162268

Minimum 0.0511496

Maximum 0.176638

Mean 0.0875657

Std. Dev. 0.0253727

Variance 0.000643774

At 100 years

01% of values less than 0.0535415

05% of values less than 0.0571477

10% of values less than 0.0603116

50% of values less than 0.0819289

90% of values less than 0.12424

95% of values less than 0.137574

99% of values less than 0.162268

Minimum 0.0511496

Maximum 0.176638

Mean 0.0875657

Std. Dev. 0.0253727

Variance 0.000643774

At 300 years

01% of values less than 0.0535415

05% of values less than 0.0571477

10% of values less than 0.0603116

50% of values less than 0.0819289

90% of values less than 0.12424

95% of values less than 0.137574

99% of values less than 0.162268

Minimum 0.0511496

Maximum 0.176638

Mean 0.0875657

Std. Dev. 0.0253727

Variance 0.000643774

At 1000 years

01% of values less than 0.0535415

05% of values less than 0.0571477

10% of values less than 0.0603116

50% of values less than 0.0819289

90% of values less than 0.12424

95% of values less than 0.137574

99% of values less than 0.162268

Minimum 0.0511496

Maximum 0.176638

Mean 0.0875657

Std. Dev. 0.0253727

Variance 0.000643774

Phase: Cell4A

Source Concentration of TPH Aromatic C21-35 [mg/l]

At infinity

01% of values less than 0.0535415

05% of values less than 0.0571477

10% of values less than 0.0603116

50% of values less than 0.0819289

90% of values less than 0.12424

95% of values less than 0.137574

99% of values less than 0.162268

Minimum 0.0511496

Maximum 0.176638

Mean 0.0875657

Std. Dev. 0.0253727

Variance 0.000643774

Phase: Cell4A*Concentration of Ammoniacal_N at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1337.23

95% of values less than 1439.16

99% of values less than 1642.94

Minimum 0

Maximum 1953.97

Mean 345.591

Std. Dev. 561.683

Variance 315487

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 887.13

90% of values less than 1301.28

95% of values less than 1386.66

99% of values less than 1530.31

Minimum 0

Maximum 1705.79

Mean 791.501

Std. Dev. 450.668

Variance 203102

At 300 years

01% of values less than 0

05% of values less than 147.285

10% of values less than 239.412

50% of values less than 705.643

90% of values less than 1084.25

95% of values less than 1191.4

99% of values less than 1337.99

Minimum 0

Maximum 1603.8

Mean 684.827

Std. Dev. 318.091

Variance 101182

At 1000 years

01% of values less than 0

05% of values less than 0.00304316

10% of values less than 0.03357

50% of values less than 9.15033

90% of values less than 63.8473

95% of values less than 86.4191

99% of values less than 128.58

Minimum 0

Maximum 232.858

Mean 22.2879

Std. Dev. 30.5143

Variance 931.121

Phase: Cell4A

Concentration of Ammoniacal_N at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.4053E-014

95% of values less than 5.42944E-014

99% of values less than 1.966E-013

Minimum 0

Maximum 1.74368E-012

Mean 1.61758E-014

Std. Dev. 8.92769E-014

Variance 7.97037E-027

Phase: Cell4A

Concentration of Chloride at base of Clay Liner [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 555.997
- 95% of values less than 810.908
- 99% of values less than 1414.13

Minimum 0	Maximum 1791.68	
Mean 144.306	Std. Dev. 307.493	Variance 94551.9

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 151.384
- 90% of values less than 624.098
- 95% of values less than 801.711
- 99% of values less than 1088.71

Minimum 0	Maximum 1517.07	
Mean 241.495	Std. Dev. 265.294	Variance 70380.7

At 300 years

- 01% of values less than 0
- 05% of values less than 3.79314
- 10% of values less than 10.1687
- 50% of values less than 93.2378
- 90% of values less than 407.504
- 95% of values less than 529.958
- 99% of values less than 779.427

Minimum 0	Maximum 1228.18	
Mean 160.736	Std. Dev. 176.715	Variance 31228.4

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 4.28929E-007
- 50% of values less than 0.0130087
- 90% of values less than 0.753115
- 95% of values less than 1.57974
- 99% of values less than 3.79896

Minimum 0	Maximum 19.8782	
Mean 0.304861	Std. Dev. 1.02157	Variance 1.0436

Phase: Cell4A

Concentration of Chloride at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.63357E-015

95% of values less than 9.24791E-015

99% of values less than 2.81921E-014

Minimum 0

Maximum 1.24864E-013

Mean 1.81952E-015

Std. Dev. 6.4803E-015

Variance 4.19943E-029

Phase: Cell4A*Concentration of Mercury at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000203148

95% of values less than 0.000330052

99% of values less than 0.000807768

Minimum 0

Maximum 0.0012221

Mean 5.78825E-005

Std. Dev. 0.000153033

Variance 2.3419E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000110235

90% of values less than 0.0004487

95% of values less than 0.000615688

99% of values less than 0.000918267

Minimum 0

Maximum 0.00125229

Mean 0.000180079

Std. Dev. 0.000209541

Variance 4.39074E-008

At 300 years

01% of values less than 0

05% of values less than 1.29163E-005

10% of values less than 2.6034E-005

50% of values less than 0.000144724

90% of values less than 0.00044687

95% of values less than 0.000592272

99% of values less than 0.000919318

Minimum 0

Maximum 0.00114948

Mean 0.000202338

Std. Dev. 0.000194802

Variance 3.7948E-008

At 1000 years

01% of values less than 0

05% of values less than 1.29164E-005

10% of values less than 2.43478E-005

50% of values less than 0.000104857

90% of values less than 0.000204531

95% of values less than 0.000247416

99% of values less than 0.00034655

Minimum 0

Maximum 0.000471117

Mean 0.000110224

Std. Dev. 7.412E-005

Variance 5.49377E-009

Phase: Cell4A

Concentration of Mercury at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.59707E-008

90% of values less than 7.89179E-005

95% of values less than 9.72133E-005

99% of values less than 0.000112479

Minimum 0

Maximum 0.000116463

Mean 2.40791E-005

Std. Dev. 3.35873E-005

Variance 1.12811E-009

Phase: Cell4A*Concentration of Phenols group 1 - phenol at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.10958

95% of values less than 0.162013

99% of values less than 0.260118

Minimum 0

Maximum 0.403188

Mean 0.0280588

Std. Dev. 0.05919

Variance 0.00350345

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000273214

90% of values less than 0.000936374

95% of values less than 0.00116413

99% of values less than 0.00148228

Minimum 0

Maximum 0.00208229

Mean 0.000392998

Std. Dev. 0.000373594

Variance 1.39573E-007

At 300 years

01% of values less than 0

05% of values less than 1.36139E-010

10% of values less than 1.80303E-010

50% of values less than 6.73636E-010

90% of values less than 1.78121E-009

95% of values less than 2.17419E-009

99% of values less than 2.72579E-009

Minimum 0

Maximum 2.83704E-008

Mean 8.7366E-010

Std. Dev. 1.08407E-009

Variance 1.17521E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of Phenols group 1 - phenol at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of Phenols group 2 - cresols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.504827

95% of values less than 0.933142

99% of values less than 1.68634

Minimum 0

Maximum 3.14845

Mean 0.139701

Std. Dev. 0.362356

Variance 0.131302

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000921074

90% of values less than 0.00601782

95% of values less than 0.00810888

99% of values less than 0.0128135

Minimum 0

Maximum 0.0163112

Mean 0.00217031

Std. Dev. 0.00283514

Variance 8.03803E-006

At 300 years

01% of values less than 0

05% of values less than 1.01371E-010

10% of values less than 2.15639E-010

50% of values less than 2.82452E-009

90% of values less than 1.16828E-008

95% of values less than 1.57521E-008

99% of values less than 2.23658E-008

Minimum 0

Maximum 8.36412E-008

Mean 4.65291E-009

Std. Dev. 5.66237E-009

Variance 3.20624E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 1.29384E-014

Mean 2.34861E-017

Std. Dev. 4.61664E-016

Variance 2.13133E-031

Phase: Cell4A

Concentration of Phenols group 2 - cresols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of Phenols group 3 - xlenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0590735

95% of values less than 0.0703916

99% of values less than 0.0978223

Minimum 0

Maximum 0.125457

Mean 0.0152378

Std. Dev. 0.0262546

Variance 0.000689303

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000218973

90% of values less than 0.000395576

95% of values less than 0.000453252

99% of values less than 0.000585636

Minimum 0

Maximum 0.000785392

Mean 0.000220836

Std. Dev. 0.000140468

Variance 1.97313E-008

At 300 years

01% of values less than 0

05% of values less than 2.16401E-010

10% of values less than 2.5084E-010

50% of values less than 4.50104E-010

90% of values less than 7.11553E-010

95% of values less than 8.15534E-010

99% of values less than 9.42096E-010

Minimum 0

Maximum 9.00651E-009

Mean 4.76987E-010

Std. Dev. 3.26263E-010

Variance 1.06448E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 2.39779E-015

Mean 5.49199E-018

Std. Dev. 9.10619E-017

Variance 8.29226E-033

Phase: Cell4A

Concentration of Phenols group 3 - xylenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of Phenols group 4 - chlorophenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0011381

95% of values less than 0.0014615

99% of values less than 0.00234094

Minimum 0

Maximum 0.00353875

Mean 0.000306935

Std. Dev. 0.000562481

Variance 3.16385E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.12677E-006

90% of values less than 9.44081E-006

95% of values less than 1.18955E-005

99% of values less than 1.56098E-005

Minimum 0

Maximum 2.42091E-005

Mean 4.73284E-006

Std. Dev. 3.60211E-006

Variance 1.29752E-011

At 300 years

01% of values less than 0

05% of values less than 4.38147E-012

10% of values less than 4.98351E-012

50% of values less than 8.65819E-012

90% of values less than 1.88559E-011

95% of values less than 2.22367E-011

99% of values less than 2.8364E-011

Minimum 0

Maximum 2.08449E-010

Mean 1.0364E-011

Std. Dev. 8.40557E-012

Variance 7.06535E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of Phenols group 4 - chlorophenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of Phenols group 5 - nitrophenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000374136

95% of values less than 0.000388131

99% of values less than 0.000397122

Minimum 0

Maximum 0.000403849

Mean 0.000100127

Std. Dev. 0.000158733

Variance 2.51962E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.64453E-006

90% of values less than 2.20948E-006

95% of values less than 2.34467E-006

99% of values less than 2.64425E-006

Minimum 0

Maximum 4.84059E-006

Mean 1.5118E-006

Std. Dev. 7.27646E-007

Variance 5.29469E-013

At 300 years

01% of values less than 0

05% of values less than 3.16059E-012

10% of values less than 3.23227E-012

50% of values less than 3.28085E-012

90% of values less than 3.38587E-012

95% of values less than 3.47244E-012

99% of values less than 3.76426E-012

Minimum 0

Maximum 9.15362E-011

Mean 3.34407E-012

Std. Dev. 2.81786E-012

Variance 7.94031E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of Phenols group 5 - nitrophenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aliphatic C5-6 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.10576

95% of values less than 0.110614

99% of values less than 0.117167

Minimum 0

Maximum 0.124041

Mean 0.0286248

Std. Dev. 0.045418

Variance 0.00206279

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000472594

90% of values less than 0.000633246

95% of values less than 0.000668108

99% of values less than 0.000760318

Minimum 0

Maximum 0.0014447

Mean 0.000432143

Std. Dev. 0.000208776

Variance 4.35872E-008

At 300 years

01% of values less than 0

05% of values less than 8.84605E-010

10% of values less than 8.94203E-010

50% of values less than 9.36195E-010

90% of values less than 9.99199E-010

95% of values less than 1.01735E-009

99% of values less than 1.11685E-009

Minimum 0

Maximum 2.73242E-008

Mean 9.58556E-010

Std. Dev. 8.42503E-010

Variance 7.09812E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 5.4806E-015

Mean 1.21352E-017

Std. Dev. 2.17423E-016

Variance 4.72726E-032

Phase: Cell4A

Concentration of TPH Aliphatic C5-6 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aliphatic C6-8 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0331455

95% of values less than 0.0358255

99% of values less than 0.0393966

Minimum 0

Maximum 0.0418059

Mean 0.00906744

Std. Dev. 0.0144404

Variance 0.000208525

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000150268

90% of values less than 0.000200706

95% of values less than 0.000218919

99% of values less than 0.000241971

Minimum 0

Maximum 0.00047301

Mean 0.000137534

Std. Dev. 6.72452E-005

Variance 4.52192E-009

At 300 years

01% of values less than 0

05% of values less than 2.63398E-010

10% of values less than 2.691E-010

50% of values less than 2.95464E-010

90% of values less than 3.34036E-010

95% of values less than 3.44122E-010

99% of values less than 3.6326E-010

Minimum 0

Maximum 8.94491E-009

Mean 3.04741E-010

Std. Dev. 2.76675E-010

Variance 7.65493E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 5.75054E-016

Mean 5.74479E-019

Std. Dev. 1.81757E-017

Variance 3.30356E-034

Phase: Cell4A

Concentration of TPH Aliphatic C6-8 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aliphatic C8-10 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0309853

95% of values less than 0.0328628

99% of values less than 0.0369071

Minimum 0

Maximum 0.0397132

Mean 0.00836955

Std. Dev. 0.0133396

Variance 0.000177945

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000137863

90% of values less than 0.000189348

95% of values less than 0.000203316

99% of values less than 0.000233526

Minimum 0

Maximum 0.000423858

Mean 0.000126299

Std. Dev. 6.25048E-005

Variance 3.90685E-009

At 300 years

01% of values less than 0

05% of values less than 2.3457E-010

10% of values less than 2.41088E-010

50% of values less than 2.69678E-010

90% of values less than 3.16692E-010

95% of values less than 3.29265E-010

99% of values less than 3.51785E-010

Minimum 0

Maximum 8.0146E-009

Mean 2.78982E-010

Std. Dev. 2.48401E-010

Variance 6.17031E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C8-10 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aliphatic C10-12 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0599392

95% of values less than 0.0625738

99% of values less than 0.0666313

Minimum 0

Maximum 0.0709752

Mean 0.0160469

Std. Dev. 0.0254968

Variance 0.000650085

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000265717

90% of values less than 0.000358729

95% of values less than 0.000383769

99% of values less than 0.000443298

Minimum 0

Maximum 0.000820823

Mean 0.000242429

Std. Dev. 0.000118174

Variance 1.39651E-008

At 300 years

01% of values less than 0

05% of values less than 4.66886E-010

10% of values less than 4.78153E-010

50% of values less than 5.27923E-010

90% of values less than 5.74096E-010

95% of values less than 5.88559E-010

99% of values less than 6.45321E-010

Minimum 0

Maximum 1.55219E-008

Mean 5.37347E-010

Std. Dev. 4.79373E-010

Variance 2.29799E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 1.42445E-014

Mean 1.42302E-017

Std. Dev. 4.50225E-016

Variance 2.02702E-031

Phase: Cell4A

Concentration of TPH Aliphatic C10-12 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aliphatic C12-16 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0225707

95% of values less than 0.0257196

99% of values less than 0.0321956

Minimum 0

Maximum 0.0366997

Mean 0.00611346

Std. Dev. 0.00994813

Variance 9.89654E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 9.7158E-005

90% of values less than 0.000144466

95% of values less than 0.000158239

99% of values less than 0.000189199

Minimum 0

Maximum 0.000263593

Mean 9.11737E-005

Std. Dev. 4.82942E-005

Variance 2.33232E-009

At 300 years

01% of values less than 0

05% of values less than 1.42276E-010

10% of values less than 1.50588E-010

50% of values less than 1.91575E-010

90% of values less than 2.55572E-010

95% of values less than 2.78591E-010

99% of values less than 3.12503E-010

Minimum 0

Maximum 4.88931E-009

Mean 2.0174E-010

Std. Dev. 1.5526E-010

Variance 2.41057E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 8.90845E-016

Mean 8.89956E-019

Std. Dev. 2.81569E-017

Variance 7.92813E-034

Phase: Cell4A

Concentration of TPH Aliphatic C12-16 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aliphatic C16-35 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.100964

95% of values less than 0.164025

99% of values less than 0.312438

Minimum 0

Maximum 0.44291

Mean 0.0289072

Std. Dev. 0.0654729

Variance 0.00428669

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.0568614

90% of values less than 0.23407

95% of values less than 0.299972

99% of values less than 0.463449

Minimum 0

Maximum 0.668013

Mean 0.0915275

Std. Dev. 0.102408

Variance 0.0104874

At 300 years

01% of values less than 0

05% of values less than 0.0166855

10% of values less than 0.0227278

50% of values less than 0.0699874

90% of values less than 0.252878

95% of values less than 0.32835

99% of values less than 0.491496

Minimum 0

Maximum 0.668189

Mean 0.106991

Std. Dev. 0.104897

Variance 0.0110035

At 1000 years

01% of values less than 0

05% of values less than 0.0166858

10% of values less than 0.0227278

50% of values less than 0.0699872

90% of values less than 0.252877

95% of values less than 0.328529

99% of values less than 0.491495

Minimum 0

Maximum 0.668211

Mean 0.106995

Std. Dev. 0.104901

Variance 0.0110042

Phase: Cell4A

Concentration of TPH Aliphatic C16-35 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0.0166858

10% of values less than 0.0227278

50% of values less than 0.0699874

90% of values less than 0.252878

95% of values less than 0.328529

99% of values less than 0.491496

Minimum 0

Maximum 0.668213

Mean 0.106995

Std. Dev. 0.104901

Variance 0.0110042

Phase: Cell4A*Concentration of TPH Aromatic C5-7 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00342035

95% of values less than 0.00359153

99% of values less than 0.00381644

Minimum 0

Maximum 0.00391166

Mean 0.0009028

Std. Dev. 0.00143789

Variance 2.06754E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.46902E-005

90% of values less than 2.02335E-005

95% of values less than 2.15395E-005

99% of values less than 2.41975E-005

Minimum 0

Maximum 4.62312E-005

Mean 1.35481E-005

Std. Dev. 6.64453E-006

Variance 4.41498E-011

At 300 years

01% of values less than 0

05% of values less than 2.45168E-011

10% of values less than 2.55846E-011

50% of values less than 2.98543E-011

90% of values less than 3.24427E-011

95% of values less than 3.28493E-011

99% of values less than 3.47793E-011

Minimum 0

Maximum 8.74274E-010

Mean 2.99887E-011

Std. Dev. 2.70515E-011

Variance 7.31785E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aromatic C5-7 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C7-8 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00452726

95% of values less than 0.00542317

99% of values less than 0.00649819

Minimum 0

Maximum 0.00783602

Mean 0.00117448

Std. Dev. 0.00196903

Variance 3.87706E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.80836E-005

90% of values less than 3.10289E-005

95% of values less than 3.41876E-005

99% of values less than 4.07328E-005

Minimum 0

Maximum 5.16147E-005

Mean 1.77366E-005

Std. Dev. 1.03834E-005

Variance 1.07815E-010

At 300 years

01% of values less than 0

05% of values less than 2.06828E-011

10% of values less than 2.33012E-011

50% of values less than 3.70785E-011

90% of values less than 5.54969E-011

95% of values less than 6.08358E-011

99% of values less than 6.83923E-011

Minimum 0

Maximum 9.30427E-010

Mean 3.91078E-011

Std. Dev. 3.09356E-011

Variance 9.57012E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 1.35027E-015

Mean 1.34892E-018

Std. Dev. 4.2678E-017

Variance 1.82141E-033

Phase: Cell4A

Concentration of TPH Aromatic C7-8 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C8-10 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0551727

95% of values less than 0.0608028

99% of values less than 0.0730297

Minimum 0

Maximum 0.0772271

Mean 0.0150193

Std. Dev. 0.0241062

Variance 0.00058111

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000249028

90% of values less than 0.000331441

95% of values less than 0.000363905

99% of values less than 0.000415894

Minimum 0

Maximum 0.000717302

Mean 0.00022567

Std. Dev. 0.000111478

Variance 1.24274E-008

At 300 years

01% of values less than 0

05% of values less than 4.07491E-010

10% of values less than 4.2061E-010

50% of values less than 4.81811E-010

90% of values less than 5.74759E-010

95% of values less than 6.02431E-010

99% of values less than 6.48886E-010

Minimum 0

Maximum 1.35624E-008

Mean 4.98417E-010

Std. Dev. 4.21266E-010

Variance 1.77465E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 3.22995E-015

Mean 5.03006E-018

Std. Dev. 1.16901E-016

Variance 1.36658E-032

Phase: Cell4A

Concentration of TPH Aromatic C8-10 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C10-12 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0396582

95% of values less than 0.0421806

99% of values less than 0.0449415

Minimum 0

Maximum 0.0488459

Mean 0.0107179

Std. Dev. 0.0170572

Variance 0.000290948

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000176641

90% of values less than 0.000237782

95% of values less than 0.000253789

99% of values less than 0.000285728

Minimum 0

Maximum 0.00049337

Mean 0.000161818

Std. Dev. 7.84041E-005

Variance 6.1472E-009

At 300 years

01% of values less than 0

05% of values less than 3.11091E-010

10% of values less than 3.19782E-010

50% of values less than 3.52757E-010

90% of values less than 3.83373E-010

95% of values less than 3.93534E-010

99% of values less than 4.15941E-010

Minimum 0

Maximum 9.32834E-009

Mean 3.57413E-010

Std. Dev. 2.8772E-010

Variance 8.27829E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 2.10189E-015

Mean 2.09979E-018

Std. Dev. 6.64345E-017

Variance 4.41354E-033

Phase: Cell4A

Concentration of TPH Aromatic C10-12 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C12-C16 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0455734

95% of values less than 0.0482738

99% of values less than 0.0508059

Minimum 0

Maximum 0.0526855

Mean 0.0122095

Std. Dev. 0.0194072

Variance 0.000376641

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000200548

90% of values less than 0.000269401

95% of values less than 0.000292963

99% of values less than 0.000330204

Minimum 0

Maximum 0.000561926

Mean 0.000183399

Std. Dev. 8.94347E-005

Variance 7.99857E-009

At 300 years

01% of values less than 0

05% of values less than 3.4942E-010

10% of values less than 3.57512E-010

50% of values less than 4.00287E-010

90% of values less than 4.343E-010

95% of values less than 4.45513E-010

99% of values less than 4.76327E-010

Minimum 0

Maximum 1.06263E-008

Mean 4.04743E-010

Std. Dev. 3.27979E-010

Variance 1.0757E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 5.41614E-015

Mean 1.2975E-017

Std. Dev. 2.14944E-016

Variance 4.62011E-032

Phase: Cell4A

Concentration of TPH Aromatic C12-C16 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C16-21 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.071154

95% of values less than 0.084993

99% of values less than 0.101723

Minimum 0

Maximum 0.112747

Mean 0.0195974

Std. Dev. 0.031981

Variance 0.00102278

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.0691065

90% of values less than 0.0960021

95% of values less than 0.104518

99% of values less than 0.115055

Minimum 0

Maximum 0.124479

Mean 0.0635011

Std. Dev. 0.031275

Variance 0.000978126

At 300 years

01% of values less than 0

05% of values less than 0.0554029

10% of values less than 0.0580568

50% of values less than 0.0725714

90% of values less than 0.0988888

95% of values less than 0.10663

99% of values less than 0.115924

Minimum 0

Maximum 0.124843

Mean 0.0751489

Std. Dev. 0.0176709

Variance 0.000312261

At 1000 years

01% of values less than 0

05% of values less than 0.0554035

10% of values less than 0.0580648

50% of values less than 0.072589

90% of values less than 0.0988888

95% of values less than 0.10663

99% of values less than 0.115924

Minimum 0

Maximum 0.124871

Mean 0.0751519

Std. Dev. 0.017671

Variance 0.000312263

Phase: Cell4A

Concentration of TPH Aromatic C16-21 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0.0554037

10% of values less than 0.0580649

50% of values less than 0.0725892

90% of values less than 0.098889

95% of values less than 0.10663

99% of values less than 0.115924

Minimum 0

Maximum 0.124871

Mean 0.075152

Std. Dev. 0.017671

Variance 0.000312264

Phase: Cell4A*Concentration of TPH Aromatic C21-35 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0869382

95% of values less than 0.102181

99% of values less than 0.141568

Minimum 0

Maximum 0.170358

Mean 0.0232268

Std. Dev. 0.0391155

Variance 0.00153002

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.0750101

90% of values less than 0.119884

95% of values less than 0.134823

99% of values less than 0.162024

Minimum 0

Maximum 0.176638

Mean 0.0733832

Std. Dev. 0.0399662

Variance 0.00159729

At 300 years

01% of values less than 0

05% of values less than 0.0562971

10% of values less than 0.0597794

50% of values less than 0.0815755

90% of values less than 0.123886

95% of values less than 0.137341

99% of values less than 0.162024

Minimum 0

Maximum 0.176637

Mean 0.0862439

Std. Dev. 0.0269541

Variance 0.000726523

At 1000 years

01% of values less than 0

05% of values less than 0.0562971

10% of values less than 0.0597981

50% of values less than 0.0815765

90% of values less than 0.123886

95% of values less than 0.137341

99% of values less than 0.162024

Minimum 0

Maximum 0.176638

Mean 0.0862474

Std. Dev. 0.0269546

Variance 0.000726548

Phase: Cell4A

Concentration of TPH Aromatic C21-35 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0.0562973

10% of values less than 0.0597981

50% of values less than 0.0815766

90% of values less than 0.123886

95% of values less than 0.137341

99% of values less than 0.162025

Minimum 0

Maximum 0.176638

Mean 0.0862475

Std. Dev. 0.0269546

Variance 0.00072655

Phase: Cell4A*Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 46.7436

95% of values less than 212.017

99% of values less than 522.676

Minimum 0

Maximum 1077.14

Mean 29.9417

Std. Dev. 109.822

Variance 12060.9

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 136.506

90% of values less than 1026.68

95% of values less than 1156.37

99% of values less than 1415.3

Minimum 0

Maximum 1672.55

Mean 350.436

Std. Dev. 417.139

Variance 174005

At 300 years

01% of values less than 0

05% of values less than 246.311

10% of values less than 341.722

50% of values less than 844.815

90% of values less than 1207.87

95% of values less than 1292.45

99% of values less than 1424.23

Minimum 0

Maximum 1657.67

Mean 812.969

Std. Dev. 324.597

Variance 105363

At 1000 years

01% of values less than 0

05% of values less than 8.5042

10% of values less than 22.7158

50% of values less than 214.525

90% of values less than 500.383

95% of values less than 584.84

99% of values less than 722.659

Minimum 0

Maximum 904.364

Mean 241.462

Std. Dev. 186.175

Variance 34661.2

Phase: Cell4A

Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 9.67111E-013

90% of values less than 9.5016E-012

95% of values less than 2.94683E-011

99% of values less than 1.9535E-010

Minimum 0

Maximum 7.41101E-010

Mean 1.01449E-011

Std. Dev. 4.96683E-011

Variance 2.46694E-021

Phase: Cell4A*Concentration of Chloride at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 678.607

95% of values less than 971.828

99% of values less than 1635.99

Minimum 0

Maximum 1900.71

Mean 167.409

Std. Dev. 354.735

Variance 125837

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 62.2859

90% of values less than 542.669

95% of values less than 750.578

99% of values less than 1100.81

Minimum 0

Maximum 1607.06

Mean 181.793

Std. Dev. 263.658

Variance 69515.3

At 300 years

01% of values less than 0

05% of values less than 10.0602

10% of values less than 22.5925

50% of values less than 147.054

90% of values less than 548.778

95% of values less than 686.764

99% of values less than 945.639

Minimum 0

Maximum 1341.97

Mean 223.691

Std. Dev. 221.917

Variance 49247.3

At 1000 years

01% of values less than 0

05% of values less than 0.00898784

10% of values less than 0.0807471

50% of values less than 8.40997

90% of values less than 65.7208

95% of values less than 100.965

99% of values less than 194.12

Minimum 0

Maximum 406.032

Mean 23.8426

Std. Dev. 39.3324

Variance 1547.04

Phase: Cell4A

Concentration of Chloride at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.16137E-013

90% of values less than 9.97006E-013

95% of values less than 1.64853E-012

99% of values less than 4.5983E-012

Minimum 0

Maximum 9.31576E-012

Mean 4.04145E-013

Std. Dev. 8.63841E-013

Variance 7.46221E-025

Phase: Cell4A

Concentration of Mercury at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of Mercury at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 4.92689E-014

10% of values less than 1.19349E-012

50% of values less than 5.44177E-008

90% of values less than 4.86494E-006

95% of values less than 1.08411E-005

99% of values less than 3.25592E-005

Minimum 0

Maximum 7.10047E-005

Mean 2.07804E-006

Std. Dev. 6.16889E-006

Variance 3.80552E-011

Phase: Cell4A*Concentration of Phenols group 1 - phenol at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0151926

95% of values less than 0.0316453

99% of values less than 0.0759138

Minimum 0

Maximum 0.185621

Mean 0.00554395

Std. Dev. 0.0160112

Variance 0.000256359

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000142542

90% of values less than 0.00137237

95% of values less than 0.002038

99% of values less than 0.00345818

Minimum 0

Maximum 0.00723391

Mean 0.000468075

Std. Dev. 0.000776242

Variance 6.02551E-007

At 300 years

01% of values less than 0

05% of values less than 1.92619E-008

10% of values less than 3.20665E-008

50% of values less than 1.64737E-007

90% of values less than 6.30641E-007

95% of values less than 8.48715E-007

99% of values less than 1.41887E-006

Minimum 0

Maximum 2.4259E-006

Mean 2.65235E-007

Std. Dev. 2.93487E-007

Variance 8.61348E-014

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.13945E-014

95% of values less than 7.86706E-014

99% of values less than 3.02198E-013

Minimum 0

Maximum 1.11056E-012

Mean 1.75359E-014

Std. Dev. 6.46681E-014

Variance 4.18196E-027

Phase: Cell4A

Concentration of Phenols group 1 - phenol at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of Phenols group 2 - cresols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0181417

95% of values less than 0.0458435

99% of values less than 0.128615

Minimum 0

Maximum 0.429271

Mean 0.00808693

Std. Dev. 0.0302081

Variance 0.000912531

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.65855E-005

90% of values less than 0.0019556

95% of values less than 0.00373119

99% of values less than 0.00904353

Minimum 0

Maximum 0.0241582

Mean 0.00071977

Std. Dev. 0.00185688

Variance 3.44802E-006

At 300 years

01% of values less than 0

05% of values less than 2.98255E-009

10% of values less than 7.93094E-009

50% of values less than 1.46595E-007

90% of values less than 1.10085E-006

95% of values less than 1.68335E-006

99% of values less than 3.55858E-006

Minimum 0

Maximum 8.27643E-006

Mean 4.20726E-007

Std. Dev. 7.40124E-007

Variance 5.47783E-013

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.98914E-014

95% of values less than 1.20715E-013

99% of values less than 5.39834E-013

Minimum 0

Maximum 6.01706E-012

Mean 3.19559E-014

Std. Dev. 2.11321E-013

Variance 4.46564E-026

Phase: Cell4A

Concentration of Phenols group 2 - cresols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 1.66511E-016	
Mean 1.66344E-019	Std. Dev. 5.2629E-018	Variance 2.76981E-035

Phase: Cell4A*Concentration of Phenols group 3 - xlenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000189191

95% of values less than 0.000566904

99% of values less than 0.00174856

Minimum 0

Maximum 0.00477136

Mean 9.6644E-005

Std. Dev. 0.000377243

Variance 1.42312E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.23191E-007

90% of values less than 2.60155E-005

95% of values less than 4.50839E-005

99% of values less than 9.50679E-005

Minimum 0

Maximum 0.00022068

Mean 8.70802E-006

Std. Dev. 2.16682E-005

Variance 4.6951E-010

At 300 years

01% of values less than 0

05% of values less than 1.94204E-011

10% of values less than 5.8095E-011

50% of values less than 1.45455E-009

90% of values less than 1.37685E-008

95% of values less than 2.19015E-008

99% of values less than 4.93761E-008

Minimum 0

Maximum 9.89104E-008

Mean 5.05226E-009

Std. Dev. 9.48607E-009

Variance 8.99856E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.4318E-015

99% of values less than 5.90643E-015

Minimum 0

Maximum 1.78824E-014

Mean 2.47699E-016

Std. Dev. 1.20046E-015

Variance 1.4411E-030

Phase: Cell4A

Concentration of Phenols group 3 - xlenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of Phenols group 4 - chlorophenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000149984

95% of values less than 0.000486048

99% of values less than 0.0017213

Minimum 0

Maximum 0.00314062

Mean 7.86976E-005

Std. Dev. 0.000307081

Variance 9.42988E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.93152E-005

90% of values less than 0.000123996

95% of values less than 0.00016077

99% of values less than 0.00025189

Minimum 0

Maximum 0.000419773

Mean 4.67388E-005

Std. Dev. 5.93646E-005

Variance 3.52416E-009

At 300 years

01% of values less than 0

05% of values less than 1.08366E-008

10% of values less than 1.3112E-008

50% of values less than 3.47486E-008

90% of values less than 6.52577E-007

95% of values less than 1.68597E-006

99% of values less than 6.19212E-006

Minimum 0

Maximum 2.26989E-005

Mean 3.79347E-007

Std. Dev. 1.56869E-006

Variance 2.46079E-012

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.59513E-014

95% of values less than 5.11071E-013

99% of values less than 7.05041E-012

Minimum 0

Maximum 1.39688E-009

Mean 2.41447E-012

Std. Dev. 4.75993E-011

Variance 2.26569E-021

Phase: Cell4A

Concentration of Phenols group 4 - chlorophenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of Phenols group 5 - nitrophenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.98741E-005

95% of values less than 4.57295E-005

99% of values less than 9.81945E-005

Minimum 0

Maximum 0.000211878

Mean 6.84655E-006

Std. Dev. 2.051E-005

Variance 4.20662E-010

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 6.01272E-008

90% of values less than 1.96529E-006

95% of values less than 2.9996E-006

99% of values less than 5.14814E-006

Minimum 0

Maximum 8.26029E-006

Mean 5.94263E-007

Std. Dev. 1.09999E-006

Variance 1.20997E-012

At 300 years

01% of values less than 0

05% of values less than 4.21139E-012

10% of values less than 1.03376E-011

50% of values less than 1.82109E-010

90% of values less than 9.86699E-010

95% of values less than 1.33097E-009

99% of values less than 1.88367E-009

Minimum 0

Maximum 2.76899E-009

Mean 3.52707E-010

Std. Dev. 4.35818E-010

Variance 1.89937E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 7.46446E-016

Mean 7.457E-019

Std. Dev. 2.35929E-017

Variance 5.56625E-034

Phase: Cell4A

Concentration of Phenols group 5 - nitrophenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aliphatic C5-6 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00163681

95% of values less than 0.00612999

99% of values less than 0.0189902

Minimum 0

Maximum 0.03471

Mean 0.000928809

Std. Dev. 0.00346043

Variance 1.19746E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.28599E-007

90% of values less than 0.000458735

95% of values less than 0.000717194

99% of values less than 0.00114826

Minimum 0

Maximum 0.00151334

Mean 0.000132906

Std. Dev. 0.00025131

Variance 6.31568E-008

At 300 years

01% of values less than 0

05% of values less than 1.12753E-012

10% of values less than 3.60811E-011

50% of values less than 3.03479E-008

90% of values less than 1.86065E-007

95% of values less than 2.46575E-007

99% of values less than 3.74199E-007

Minimum 0

Maximum 5.02366E-007

Mean 6.54832E-008

Std. Dev. 8.67407E-008

Variance 7.52395E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.28471E-015

95% of values less than 5.23181E-015

99% of values less than 2.567E-014

Minimum 0

Maximum 1.43054E-013

Mean 1.32776E-015

Std. Dev. 8.54297E-015

Variance 7.29823E-029

Phase: Cell4A

Concentration of TPH Aliphatic C5-6 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aliphatic C6-8 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.70145E-009

95% of values less than 7.14904E-008

99% of values less than 2.85534E-006

Minimum 0

Maximum 4.68987E-005

Mean 1.599E-007

Std. Dev. 2.02747E-006

Variance 4.11062E-012

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.99045E-014

90% of values less than 9.02142E-007

95% of values less than 3.21301E-006

99% of values less than 1.47361E-005

Minimum 0

Maximum 4.15857E-005

Mean 6.67584E-007

Std. Dev. 2.94662E-006

Variance 8.68256E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.98391E-012

90% of values less than 6.17911E-010

95% of values less than 1.5411E-009

99% of values less than 4.41423E-009

Minimum 0

Maximum 1.16679E-008

Mean 2.62915E-010

Std. Dev. 8.75339E-010

Variance 7.66218E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 1.68937E-015

Mean 1.68769E-018

Std. Dev. 5.3396E-017

Variance 2.85114E-033

Phase: Cell4A

Concentration of TPH Aliphatic C6-8 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aliphatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 3.12489E-014

Minimum 0

Maximum 8.11761E-013

Mean 1.81869E-015

Std. Dev. 2.7851E-014

Variance 7.75678E-028

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 9.26779E-015

Minimum 0

Maximum 1.00059E-013

Mean 4.20264E-016

Std. Dev. 4.17149E-015

Variance 1.74013E-029

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C8-10 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C5-7 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00035269

95% of values less than 0.000596016

99% of values less than 0.00115602

Minimum 0

Maximum 0.0016061

Mean 9.04894E-005

Std. Dev. 0.000234103

Variance 5.48043E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 9.13882E-007

90% of values less than 2.6792E-005

95% of values less than 3.47967E-005

99% of values less than 4.95108E-005

Minimum 0

Maximum 7.28186E-005

Mean 8.12548E-006

Std. Dev. 1.23597E-005

Variance 1.52762E-010

At 300 years

01% of values less than 0

05% of values less than 2.90848E-011

10% of values less than 1.39834E-010

50% of values less than 3.47876E-009

90% of values less than 1.21878E-008

95% of values less than 1.49132E-008

99% of values less than 1.99567E-008

Minimum 0

Maximum 2.76138E-008

Mean 4.99363E-009

Std. Dev. 4.89704E-009

Variance 2.3981E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.42113E-015

99% of values less than 6.05117E-015

Minimum 0

Maximum 1.12722E-014

Mean 2.22932E-016

Std. Dev. 9.99985E-016

Variance 9.99969E-031

Phase: Cell4A

Concentration of TPH Aromatic C5-7 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C7-8 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.6996E-005

95% of values less than 8.78265E-005

99% of values less than 0.000253922

Minimum 0

Maximum 0.000565396

Mean 1.35655E-005

Std. Dev. 5.27373E-005

Variance 2.78122E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 9.59455E-010

90% of values less than 3.27647E-006

95% of values less than 6.05503E-006

99% of values less than 1.35962E-005

Minimum 0

Maximum 2.99275E-005

Mean 1.10141E-006

Std. Dev. 2.95475E-006

Variance 8.73056E-012

At 300 years

01% of values less than 0

05% of values less than 4.75023E-015

10% of values less than 8.87846E-014

50% of values less than 1.3475E-010

90% of values less than 1.74735E-009

95% of values less than 2.66861E-009

99% of values less than 5.82917E-009

Minimum 0

Maximum 1.02938E-008

Mean 5.95464E-010

Std. Dev. 1.12477E-009

Variance 1.2651E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 2.82852E-015

Mean 1.4167E-017

Std. Dev. 1.51975E-016

Variance 2.30963E-032

Phase: Cell4A

Concentration of TPH Aromatic C7-8 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.46844E-007

95% of values less than 3.42927E-006

99% of values less than 7.75209E-005

Minimum 0

Maximum 0.000294962

Mean 2.30291E-006

Std. Dev. 1.62416E-005

Variance 2.63788E-010

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.29978E-014

90% of values less than 2.70729E-007

95% of values less than 1.00866E-006

99% of values less than 5.79654E-006

Minimum 0

Maximum 2.52934E-005

Mean 2.46376E-007

Std. Dev. 1.31881E-006

Variance 1.73927E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.3546E-012

90% of values less than 2.58309E-010

95% of values less than 5.72188E-010

99% of values less than 2.7835E-009

Minimum 0

Maximum 8.38858E-009

Mean 1.33667E-010

Std. Dev. 5.50056E-010

Variance 3.02561E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aromatic C8-10 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C10-12 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.8192E-008

95% of values less than 5.61017E-007

99% of values less than 8.0482E-006

Minimum 0

Maximum 0.000149543

Mean 6.90485E-007

Std. Dev. 7.3427E-006

Variance 5.39152E-011

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.13639E-014

90% of values less than 1.68403E-007

95% of values less than 5.68532E-007

99% of values less than 3.8829E-006

Minimum 0

Maximum 1.10624E-005

Mean 1.55723E-007

Std. Dev. 8.1137E-007

Variance 6.58322E-013

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.90213E-013

90% of values less than 1.33818E-010

95% of values less than 3.49943E-010

99% of values less than 1.50162E-009

Minimum 0

Maximum 3.2078E-009

Mean 7.34775E-011

Std. Dev. 2.81771E-010

Variance 7.93951E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aromatic C10-12 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C12-C16 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.86032E-011

95% of values less than 6.52873E-010

99% of values less than 2.06337E-008

Minimum 0

Maximum 9.72772E-007

Mean 3.21568E-009

Std. Dev. 4.16489E-008

Variance 1.73463E-015

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.77115E-014

90% of values less than 2.51656E-009

95% of values less than 1.10647E-008

99% of values less than 1.16982E-007

Minimum 0

Maximum 5.18811E-007

Mean 4.42546E-009

Std. Dev. 3.04476E-008

Variance 9.27054E-016

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.46069E-015

90% of values less than 2.12975E-012

95% of values less than 8.74182E-012

99% of values less than 4.85005E-011

Minimum 0

Maximum 1.89134E-010

Mean 2.17107E-012

Std. Dev. 1.15087E-011

Variance 1.3245E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aromatic C12-C16 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C16-21 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 6.4377E-012

Mean 9.62149E-015

Std. Dev. 2.15443E-013

Variance 4.64156E-026

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 5.74663E-010
95% of values less than 7.86875E-009
99% of values less than 2.1601E-007

Minimum 0

Maximum 1.95721E-006

Mean 1.14513E-008

Std. Dev. 1.0719E-007

Variance 1.14897E-014

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 3.41405E-010
90% of values less than 4.01582E-007
95% of values less than 1.47342E-006
99% of values less than 9.01937E-006

Minimum 0

Maximum 2.012E-005

Mean 3.77484E-007

Std. Dev. 1.73625E-006

Variance 3.01457E-012

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 3.47502E-010
90% of values less than 4.44622E-007
95% of values less than 1.63432E-006
99% of values less than 1.04212E-005

Minimum 0

Maximum 2.23681E-005

Mean 4.08014E-007

Std. Dev. 1.88395E-006

Variance 3.54926E-012

Phase: Cell4A

Concentration of TPH Aromatic C16-21 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.47503E-010

90% of values less than 4.44769E-007

95% of values less than 1.63489E-006

99% of values less than 1.0422E-005

Minimum 0

Maximum 2.23704E-005

Mean 4.08091E-007

Std. Dev. 1.88425E-006

Variance 3.55039E-012

Phase: Cell4A

Concentration of TPH Aromatic C21-35 at base of Unsaturated Zone [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 4.59107E-015

Mean 7.71956E-018

Std. Dev. 1.61101E-016

Variance 2.59536E-032

Phase: Cell4A

Concentration of TPH Aromatic C21-35 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 3.16527E-016

Minimum 0

Maximum 4.68022E-015

Mean 1.44895E-017

Std. Dev. 1.75648E-016

Variance 3.08523E-032

Phase: Cell4A

Approx. time to Peak Conc. Ammoniacal_N at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 47		
10% of values less than 116		
50% of values less than 190		
90% of values less than 282		
95% of values less than 312		
99% of values less than 380		
Minimum 0	Maximum 420	
Mean 194.941	Std. Dev. 73.3597	Variance 5381.65

Approx. time to Peak Conc. Chloride at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 26		
10% of values less than 30		
50% of values less than 86		
90% of values less than 210		
95% of values less than 232		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 104.813	Std. Dev. 66.8778	Variance 4472.64

Approx. time to Peak Conc. Mercury at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 18114		
10% of values less than 20000		
50% of values less than 20000		
90% of values less than 20000		
95% of values less than 20000		
99% of values less than 20000		
Minimum 0	Maximum 20000	
Mean 19389.8	Std. Dev. 3024.57	Variance 9.14803E+006

Approx. time to Peak Conc. Phenols group 1 - phenol at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 26		
10% of values less than 30		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 99.8232	Std. Dev. 65.9904	Variance 4354.74

Approx. time to Peak Conc. Phenols group 2 - cresols at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 26
10% of values less than 30
50% of values less than 78

Phase: Cell4A

Approx. time to Peak Conc. Phenols group 2 - cresols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 26		
10% of values less than 30		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 99.961	Std. Dev. 65.8567	Variance 4337.1

Approx. time to Peak Conc. Phenols group 3 - xylenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 28		
10% of values less than 30		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 100.55	Std. Dev. 65.3506	Variance 4270.7

Approx. time to Peak Conc. Phenols group 4 - chlorophenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 43		
10% of values less than 47		
50% of values less than 128		
90% of values less than 210		
95% of values less than 256		
99% of values less than 282		
Minimum 0	Maximum 344	
Mean 126.329	Std. Dev. 65.5502	Variance 4296.83

Approx. time to Peak Conc. Phenols group 5 - nitrophenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 26		
10% of values less than 30		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 100.005	Std. Dev. 65.8069	Variance 4330.54

Approx. time to Peak Conc. TPH Aliphatic C5-6 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 32
10% of values less than 39
50% of values less than 86

Phase: Cell4A

Approx. time to Peak Conc. TPH Aliphatic C5-6 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 32		
10% of values less than 39		
50% of values less than 86		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 104.586	Std. Dev. 64.0207	Variance 4098.64

Approx. time to Peak Conc. TPH Aliphatic C6-8 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 105		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 108.277	Std. Dev. 67.9639	Variance 4619.09

Approx. time to Peak Conc. TPH Aliphatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 141		
95% of values less than 172		
99% of values less than 232		
Minimum 0	Maximum 282	
Mean 19.2238	Std. Dev. 56.8686	Variance 3234.04

Approx. time to Peak Conc. TPH Aliphatic C10-12 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0

Phase: Cell4A

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aliphatic C16-35 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aromatic C5-7 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 26		
10% of values less than 30		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 99.7992	Std. Dev. 66.0138	Variance 4357.83

Approx. time to Peak Conc. TPH Aromatic C7-8 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 26		
10% of values less than 30		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 99.8132	Std. Dev. 66.0075	Variance 4356.99

Approx. time to Peak Conc. TPH Aromatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 78

Phase: Cell4A

Approx. time to Peak Conc. TPH Aromatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 78		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 92.3117	Std. Dev. 67.0784	Variance 4499.51

Approx. time to Peak Conc. TPH Aromatic C10-12 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 86		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 94.1808	Std. Dev. 67.5918	Variance 4568.65

Approx. time to Peak Conc. TPH Aromatic C12-C16 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 100		
90% of values less than 210		
95% of values less than 210		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 99.8442	Std. Dev. 65.3739	Variance 4273.75

Approx. time to Peak Conc. TPH Aromatic C16-21 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 6094		
90% of values less than 9056		
95% of values less than 9056		
99% of values less than 18114		
Minimum 0	Maximum 20000	
Mean 6254.66	Std. Dev. 3083.83	Variance 9.51001E+006

Approx. time to Peak Conc. TPH Aromatic C21-35 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0

Phase: Cell4A

Approx. time to Peak Conc. TPH Aromatic C21-35 at Base of Unsaturated Zone [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 8202

Minimum 0

Maximum 20000

Mean 198.658

Std. Dev. 1297.87

Variance 1.68447E+006

Phase: Cell4A*Concentration of Ammoniacal_N at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000889379

95% of values less than 0.00643766

99% of values less than 0.0734307

Minimum 0

Maximum 0.612052

Mean 0.00378849

Std. Dev. 0.0294601

Variance 0.000867899

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.197547

90% of values less than 12.9447

95% of values less than 25.9017

99% of values less than 75.2955

Minimum 0

Maximum 183.172

Mean 5.03178

Std. Dev. 14.0894

Variance 198.511

At 300 years

01% of values less than 0

05% of values less than 0.914765

10% of values less than 2.06815

50% of values less than 16.6052

90% of values less than 135.697

95% of values less than 230.008

99% of values less than 370.347

Minimum 0

Maximum 669.14

Mean 49.884

Std. Dev. 82.5023

Variance 6806.62

At 1000 years

01% of values less than 0

05% of values less than 0.185705

10% of values less than 0.705317

50% of values less than 9.55028

90% of values less than 130.01

95% of values less than 220.684

99% of values less than 379.303

Minimum 0

Maximum 567.525

Mean 42.4864

Std. Dev. 78.7464

Variance 6201

Phase: Cell4A

Concentration of Ammoniacal_N at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.42276E-013

95% of values less than 2.58441E-012

99% of values less than 9.74135E-008

Minimum 0

Maximum 7.01067E-005

Mean 2.30454E-007

Std. Dev. 3.45297E-006

Variance 1.1923E-011

Phase: Cell4A*Concentration of Chloride at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.328048

95% of values less than 1.024

99% of values less than 4.27349

Minimum 0

Maximum 8.80502

Mean 0.188762

Std. Dev. 0.762045

Variance 0.580713

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.511871

90% of values less than 28.6629

95% of values less than 54.2948

99% of values less than 191.995

Minimum 0

Maximum 367.465

Mean 11.1993

Std. Dev. 33.0007

Variance 1089.05

At 300 years

01% of values less than 0

05% of values less than 0.0912292

10% of values less than 0.217591

50% of values less than 4.38921

90% of values less than 61.3347

95% of values less than 115.641

99% of values less than 313.486

Minimum 0

Maximum 649.212

Mean 23.8478

Std. Dev. 56.4497

Variance 3186.56

At 1000 years

01% of values less than 0

05% of values less than 0.00121827

10% of values less than 0.00667059

50% of values less than 0.549437

90% of values less than 12.4756

95% of values less than 25.528

99% of values less than 79.9889

Minimum 0

Maximum 256.743

Mean 5.34942

Std. Dev. 16.5335

Variance 273.358

Phase: Cell4A

Concentration of Chloride at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.99703E-014

95% of values less than 1.5309E-013

99% of values less than 4.99842E-013

Minimum 0

Maximum 2.05014E-012

Mean 3.57092E-014

Std. Dev. 1.26081E-013

Variance 1.58965E-026

Phase: Cell4A

Concentration of Mercury at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of Mercury at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 1.20135E-016

10% of values less than 5.05524E-015

50% of values less than 1.63023E-009

90% of values less than 4.90841E-007

95% of values less than 1.07755E-006

99% of values less than 5.5466E-006

Minimum 0

Maximum 2.52983E-005

Mean 2.76047E-007

Std. Dev. 1.39496E-006

Variance 1.94592E-012

Phase: Cell4A*Concentration of Phenols group 1 - phenol at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.23789E-006

95% of values less than 5.30406E-006

99% of values less than 1.57181E-005

Minimum 0

Maximum 3.89515E-005

Mean 9.58983E-007

Std. Dev. 3.49163E-006

Variance 1.21915E-011

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.9541E-007

90% of values less than 1.45811E-005

95% of values less than 2.33754E-005

99% of values less than 4.40766E-005

Minimum 0

Maximum 9.32324E-005

Mean 4.6162E-006

Std. Dev. 9.91949E-006

Variance 9.83962E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.53697E-009

90% of values less than 1.34912E-008

95% of values less than 2.48135E-008

99% of values less than 5.10152E-008

Minimum 0

Maximum 2.07532E-007

Mean 5.32063E-009

Std. Dev. 1.25603E-008

Variance 1.57762E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.82495E-016

Minimum 0

Maximum 9.40238E-015

Mean 1.58132E-017

Std. Dev. 3.03519E-016

Variance 9.21241E-032

Phase: Cell4A

Concentration of Phenols group 1 - phenol at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of Phenols group 2 - cresols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.51908E-006

95% of values less than 3.93955E-006

99% of values less than 2.80802E-005

Minimum 0

Maximum 0.000133341

Mean 1.17828E-006

Std. Dev. 6.86205E-006

Variance 4.70877E-011

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 8.60706E-008

90% of values less than 1.32465E-005

95% of values less than 2.4463E-005

99% of values less than 8.3682E-005

Minimum 0

Maximum 0.000243636

Mean 5.37624E-006

Std. Dev. 1.79639E-005

Variance 3.22702E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.00292E-010

90% of values less than 1.343E-008

95% of values less than 2.18999E-008

99% of values less than 6.65201E-008

Minimum 0

Maximum 2.97207E-007

Mean 5.51668E-009

Std. Dev. 1.70864E-008

Variance 2.91945E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.8854E-016

Minimum 0

Maximum 3.60956E-015

Mean 1.54976E-017

Std. Dev. 1.86268E-016

Variance 3.46958E-032

Phase: Cell4A

Concentration of Phenols group 2 - cresols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of Phenols group 3 - xlenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.60923E-009

95% of values less than 2.41157E-008

99% of values less than 1.77689E-007

Minimum 0

Maximum 1.59974E-006

Mean 8.28178E-009

Std. Dev. 6.26108E-008

Variance 3.92011E-015

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.12141E-010

90% of values less than 8.18046E-008

95% of values less than 1.78921E-007

99% of values less than 5.88112E-007

Minimum 0

Maximum 1.7704E-006

Mean 3.52261E-008

Std. Dev. 1.19338E-007

Variance 1.42415E-014

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.87208E-012

90% of values less than 9.08834E-011

95% of values less than 1.96596E-010

99% of values less than 6.19983E-010

Minimum 0

Maximum 1.45223E-009

Mean 3.99949E-011

Std. Dev. 1.18903E-010

Variance 1.41379E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of Phenols group 3 - xlenols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of Phenols group 4 - chlorophenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.67646E-009

95% of values less than 2.93043E-008

99% of values less than 2.72646E-007

Minimum 0

Maximum 3.41423E-006

Mean 1.29719E-008

Std. Dev. 1.27446E-007

Variance 1.62426E-014

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 6.40945E-008

90% of values less than 3.27474E-006

95% of values less than 5.74227E-006

99% of values less than 1.69976E-005

Minimum 0

Maximum 3.71486E-005

Mean 1.23622E-006

Std. Dev. 3.17094E-006

Variance 1.00548E-011

At 300 years

01% of values less than 0

05% of values less than 2.17093E-010

10% of values less than 4.8188E-010

50% of values less than 2.0862E-008

90% of values less than 7.63997E-007

95% of values less than 1.9654E-006

99% of values less than 6.20032E-006

Minimum 0

Maximum 2.51046E-005

Mean 3.84675E-007

Std. Dev. 1.41347E-006

Variance 1.99789E-012

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.95978E-011

90% of values less than 2.48643E-008

95% of values less than 9.17089E-008

99% of values less than 4.40024E-007

Minimum 0

Maximum 1.24709E-006

Mean 2.00104E-008

Std. Dev. 9.02832E-008

Variance 8.15106E-015

Phase: Cell4A

Concentration of Phenols group 4 - chlorophenols at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.8459E-013

Minimum 0

Maximum 1.75457E-011

Mean 2.93597E-014

Std. Dev. 5.76081E-013

Variance 3.3187E-025

Phase: Cell4A*Concentration of Phenols group 5 - nitrophenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.58854E-009

95% of values less than 4.70042E-009

99% of values less than 2.4985E-008

Minimum 0

Maximum 7.75564E-008

Mean 1.07322E-009

Std. Dev. 5.35815E-009

Variance 2.87098E-017

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.24566E-010

90% of values less than 1.28442E-008

95% of values less than 2.58375E-008

99% of values less than 7.09144E-008

Minimum 0

Maximum 1.83316E-007

Mean 4.99418E-009

Std. Dev. 1.44556E-008

Variance 2.08963E-016

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 8.29893E-013

90% of values less than 1.30012E-011

95% of values less than 2.32141E-011

99% of values less than 5.49099E-011

Minimum 0

Maximum 9.09388E-011

Mean 4.76414E-012

Std. Dev. 1.04426E-011

Variance 1.09049E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of Phenols group 5 - nitrophenols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aliphatic C5-6 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.52498E-008

95% of values less than 1.84351E-007

99% of values less than 1.73888E-006

Minimum 0

Maximum 1.43427E-005

Mean 8.53017E-008

Std. Dev. 6.43406E-007

Variance 4.13971E-013

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 8.08072E-010

90% of values less than 2.6949E-006

95% of values less than 5.97698E-006

99% of values less than 1.623E-005

Minimum 0

Maximum 3.78008E-005

Mean 1.05942E-006

Std. Dev. 3.29019E-006

Variance 1.08254E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.13311E-011

90% of values less than 2.44185E-009

95% of values less than 4.29469E-009

99% of values less than 8.92123E-009

Minimum 0

Maximum 2.29927E-008

Mean 8.32547E-010

Std. Dev. 1.97961E-009

Variance 3.91887E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.06918E-016

Minimum 0

Maximum 2.73153E-016

Mean 2.61539E-018

Std. Dev. 1.94284E-017

Variance 3.77461E-034

Phase: Cell4A

Concentration of TPH Aliphatic C5-6 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aliphatic C6-8 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.43753E-016

95% of values less than 1.04317E-014

99% of values less than 7.61989E-012

Minimum 0

Maximum 5.30538E-010

Mean 1.34884E-012

Std. Dev. 2.259E-011

Variance 5.10308E-022

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.2624E-010

95% of values less than 1.89448E-009

99% of values less than 1.94673E-008

Minimum 0

Maximum 9.52929E-008

Mean 8.65807E-010

Std. Dev. 5.64857E-009

Variance 3.19064E-017

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.36662E-016

90% of values less than 1.30477E-012

95% of values less than 5.257E-012

99% of values less than 2.69299E-011

Minimum 0

Maximum 1.04563E-010

Mean 1.15731E-012

Std. Dev. 6.00838E-012

Variance 3.61006E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C6-8 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C8-10 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C8-10 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C10-12 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C10-12 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C12-16 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C12-16 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C16-35 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aliphatic C16-35 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C5-7 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.62301E-008

95% of values less than 7.79937E-008

99% of values less than 3.71598E-007

Minimum 0

Maximum 3.21461E-006

Mean 1.90815E-008

Std. Dev. 1.24596E-007

Variance 1.55243E-014

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.00462E-009

90% of values less than 1.75036E-007

95% of values less than 3.65226E-007

99% of values less than 1.0507E-006

Minimum 0

Maximum 2.02066E-006

Mean 7.14088E-008

Std. Dev. 2.00731E-007

Variance 4.02929E-014

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.42431E-011

90% of values less than 2.07177E-010

95% of values less than 3.88833E-010

99% of values less than 7.98417E-010

Minimum 0

Maximum 1.69434E-009

Mean 7.67019E-011

Std. Dev. 1.67978E-010

Variance 2.82167E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aromatic C5-7 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C7-8 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.89876E-010

95% of values less than 2.23233E-009

99% of values less than 2.13576E-008

Minimum 0

Maximum 1.08844E-007

Mean 8.5704E-010

Std. Dev. 5.97232E-009

Variance 3.56686E-017

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.5056E-013

90% of values less than 7.30224E-009

95% of values less than 1.8625E-008

99% of values less than 6.65235E-008

Minimum 0

Maximum 1.33901E-007

Mean 3.36985E-009

Std. Dev. 1.21531E-008

Variance 1.47698E-016

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 8.02776E-014

90% of values less than 8.88565E-012

95% of values less than 1.97688E-011

99% of values less than 6.16226E-011

Minimum 0

Maximum 1.1101E-010

Mean 3.84165E-012

Std. Dev. 1.16199E-011

Variance 1.35023E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aromatic C7-8 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C8-10 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.47944E-013

95% of values less than 9.7669E-012

99% of values less than 1.71808E-009

Minimum 0

Maximum 1.35842E-008

Mean 6.565E-011

Std. Dev. 7.15761E-010

Variance 5.12313E-019

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.36057E-010

95% of values less than 5.98885E-010

99% of values less than 9.87185E-009

Minimum 0

Maximum 5.28287E-008

Mean 3.41726E-010

Std. Dev. 2.53909E-009

Variance 6.44696E-018

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.29513E-013

95% of values less than 1.18667E-012

99% of values less than 9.00713E-012

Minimum 0

Maximum 7.04268E-011

Mean 4.44857E-013

Std. Dev. 3.46325E-012

Variance 1.19941E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aromatic C8-10 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C10-12 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.20715E-014

95% of values less than 7.36507E-013

99% of values less than 7.37628E-011

Minimum 0

Maximum 3.55169E-009

Mean 9.55325E-012

Std. Dev. 1.4438E-010

Variance 2.08455E-020

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.96583E-011

95% of values less than 3.46776E-010

99% of values less than 3.65381E-009

Minimum 0

Maximum 4.69786E-008

Mean 2.73854E-010

Std. Dev. 2.39219E-009

Variance 5.72258E-018

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.52565E-013

95% of values less than 5.98779E-013

99% of values less than 4.98886E-012

Minimum 0

Maximum 2.79947E-011

Mean 2.12607E-013

Std. Dev. 1.50884E-012

Variance 2.27658E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aromatic C10-12 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C12-C16 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.04423E-017

99% of values less than 2.21216E-014

Minimum 0

Maximum 4.40973E-012

Mean 6.69786E-015

Std. Dev. 1.45469E-013

Variance 2.11613E-026

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.11759E-013

95% of values less than 2.61829E-012

99% of values less than 5.31663E-011

Minimum 0

Maximum 8.75664E-010

Mean 3.1043E-012

Std. Dev. 3.54668E-011

Variance 1.25789E-021

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.56383E-016

95% of values less than 4.08699E-015

99% of values less than 7.86782E-014

Minimum 0

Maximum 4.95197E-013

Mean 3.2599E-015

Std. Dev. 2.60491E-014

Variance 6.78557E-028

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A

Concentration of TPH Aromatic C12-C16 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Concentration of TPH Aromatic C16-21 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 1.48264E-015
95% of values less than 7.10588E-014
99% of values less than 5.62338E-012

Minimum 0

Maximum 2.82445E-010

Mean 9.04399E-013

Std. Dev. 1.30922E-011

Variance 1.71405E-022

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 5.20519E-015
90% of values less than 5.1078E-011
95% of values less than 2.3347E-010
99% of values less than 5.14909E-009

Minimum 0

Maximum 2.55257E-008

Mean 1.77822E-010

Std. Dev. 1.35402E-009

Variance 1.83337E-018

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 1.17785E-014
90% of values less than 8.06597E-011
95% of values less than 4.71811E-010
99% of values less than 8.07899E-009

Minimum 0

Maximum 3.45572E-008

Mean 2.61062E-010

Std. Dev. 1.93824E-009

Variance 3.75677E-018

Phase: Cell4A

Concentration of TPH Aromatic C16-21 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.56566E-012

90% of values less than 5.43648E-009

95% of values less than 2.67102E-008

99% of values less than 2.74116E-007

Minimum 0

Maximum 1.06258E-006

Mean 9.93984E-009

Std. Dev. 6.2454E-008

Variance 3.9005E-015

Phase: Cell4A

Concentration of TPH Aromatic C21-35 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Concentration of TPH Aromatic C21-35 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A*Approx. time to Peak Conc. Ammoniacal_N at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 156

10% of values less than 190

50% of values less than 380

90% of values less than 624

95% of values less than 689

99% of values less than 761

Minimum 0

Maximum 1000

Mean 377.61

Std. Dev. 163.992

Variance 26893.5

Approx. time to Peak Conc. Chloride at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 78

10% of values less than 86

50% of values less than 156

90% of values less than 300

95% of values less than 344

99% of values less than 464

Minimum 0

Maximum 512

Mean 188.059

Std. Dev. 95.854

Variance 9187.99

Approx. time to Peak Conc. Mercury at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 20000

10% of values less than 20000

50% of values less than 20000

90% of values less than 20000

95% of values less than 20000

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 19097.1

Std. Dev. 4146.22

Variance 1.71911E+007

Approx. time to Peak Conc. Phenols group 1 - phenol at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 70

10% of values less than 70

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 119.961

Std. Dev. 62.5091

Variance 3907.39

Phase: Cell4A*Approx. time to Peak Conc. Phenols group 2 - cresols at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 70

10% of values less than 70

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 120.048

Std. Dev. 62.4488

Variance 3899.85

Approx. time to Peak Conc. Phenols group 3 - xylenols at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 70

10% of values less than 70

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 120.287

Std. Dev. 62.4504

Variance 3900.05

Approx. time to Peak Conc. Phenols group 4 - chlorophenols at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 86

10% of values less than 95

50% of values less than 156

90% of values less than 256

95% of values less than 300

99% of values less than 344

Minimum 0

Maximum 420

Mean 166.249

Std. Dev. 67.9806

Variance 4621.37

Approx. time to Peak Conc. Phenols group 5 - nitrophenols at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 70

10% of values less than 70

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 119.755

Std. Dev. 62.5541

Variance 3913.02

Phase: Cell4A*Approx. time to Peak Conc. TPH Aliphatic C5-6 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 70

10% of values less than 78

50% of values less than 95

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 125.878

Std. Dev. 61.2848

Variance 3755.82

Approx. time to Peak Conc. TPH Aliphatic C6-8 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 116

90% of values less than 210

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 312

Mean 110.497

Std. Dev. 76.5165

Variance 5854.77

Approx. time to Peak Conc. TPH Aliphatic C8-10 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 232

Mean 1.59041

Std. Dev. 17.8728

Variance 319.436

Approx. time to Peak Conc. TPH Aliphatic C10-12 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4A*Approx. time to Peak Conc. TPH Aliphatic C12-16 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aliphatic C16-35 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aromatic C5-7 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 70

10% of values less than 70

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 119.945

Std. Dev. 62.5188

Variance 3908.6

Approx. time to Peak Conc. TPH Aromatic C7-8 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 64

10% of values less than 70

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 115.714

Std. Dev. 64.224

Variance 4124.72

Phase: Cell4A*Approx. time to Peak Conc. TPH Aromatic C8-10 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 86

90% of values less than 232

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 300

Mean 92.4286

Std. Dev. 72.9726

Variance 5325

Approx. time to Peak Conc. TPH Aromatic C10-12 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 95

90% of values less than 172

95% of values less than 232

99% of values less than 300

Minimum 0

Maximum 312

Mean 90.5125

Std. Dev. 72.0624

Variance 5192.99

Approx. time to Peak Conc. TPH Aromatic C12-C16 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 95

90% of values less than 172

95% of values less than 190

99% of values less than 232

Minimum 0

Maximum 300

Mean 76.6014

Std. Dev. 72.1527

Variance 5206.02

Approx. time to Peak Conc. TPH Aromatic C16-21 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 16406

90% of values less than 20000

95% of values less than 20000

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 12831.2

Std. Dev. 6810.79

Variance 4.63869E+007

Phase: Cell4A

Approx. time to Peak Conc. TPH Aromatic C21-35 at Phase Monitor Well [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

Phase: Cell4A

Flow to Leachate Treatment Plant [l/day]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4A

Flow to Leachate Treatment Plant [l/day]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

Phase: Cell4A

Head on EBS [m]

At 1000 years

01% of values less than 10.2447

05% of values less than 11.3787

10% of values less than 13.0203

50% of values less than 16

90% of values less than 16

95% of values less than 16

99% of values less than 16

Minimum 10.0131

Maximum 16

Mean 15.4228

Std. Dev. 1.43137

Variance 2.04883

At infinity

01% of values less than 10.2447

05% of values less than 11.3787

10% of values less than 13.0203

50% of values less than 16

90% of values less than 16

95% of values less than 16

99% of values less than 16

Minimum 10.0131

Maximum 16

Mean 15.4228

Std. Dev. 1.43137

Variance 2.04883

Phase: Cell4A

Surface Breakout [l/day]

At 300 years

01% of values less than 1585.19		
05% of values less than 2171.69		
10% of values less than 2477.43		
50% of values less than 3750.68		
90% of values less than 5153.38		
95% of values less than 5513.68		
99% of values less than 6281.35		
Minimum 1085.98	Maximum 6884.1	
Mean 3788.48	Std. Dev. 1026.18	Variance 1.05304E+006

At 1000 years

01% of values less than 12897		
05% of values less than 14706.7		
10% of values less than 15558.6		
50% of values less than 18878.2		
90% of values less than 22499.5		
95% of values less than 23554.9		
99% of values less than 25496.4		
Minimum 10083.9	Maximum 28134.6	
Mean 18960.6	Std. Dev. 2712.72	Variance 7.35887E+006

At infinity

01% of values less than 11695.8		
05% of values less than 13461.4		
10% of values less than 14408.7		
50% of values less than 17742.7		
90% of values less than 21367.3		
95% of values less than 22437.1		
99% of values less than 24368.5		
Minimum 8517.07	Maximum 27099.8	
Mean 17815.5	Std. Dev. 2715.85	Variance 7.37583E+006

Phase: Cell4A

Leakage through EBS [l/day]

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 30.5022

90% of values less than 76.6275

95% of values less than 92.5465

99% of values less than 122.566

Minimum 0

Maximum 233.881

Mean 35.7047

Std. Dev. 31.3161

Variance 980.696

At 300 years

01% of values less than 0

05% of values less than 7.03273

10% of values less than 11.5164

50% of values less than 48.78

90% of values less than 115.265

95% of values less than 150.898

99% of values less than 192.942

Minimum 0

Maximum 259.507

Mean 58.0454

Std. Dev. 44.0195

Variance 1937.72

At 1000 years

01% of values less than 0

05% of values less than 11.4247

10% of values less than 18.7084

50% of values less than 79.2434

90% of values less than 187.248

95% of values less than 245.135

99% of values less than 313.435

Minimum 0

Maximum 421.571

Mean 94.295

Std. Dev. 71.51

Variance 5113.68

At infinity

01% of values less than 0

05% of values less than 750.062

10% of values less than 814.215

50% of values less than 1208.85

90% of values less than 1756.87

95% of values less than 1837.38

99% of values less than 1987.69

Minimum 0

Maximum 2107.31

Mean 1239.39

Std. Dev. 376.397

Variance 141674

Phase: Cell4A

Aquifer Flow [m³/year]

At 30 years

01% of values less than 7.75373
05% of values less than 20.0357
10% of values less than 37.7265
50% of values less than 497.301
90% of values less than 3043.89
95% of values less than 3945.27
99% of values less than 6840.08

Minimum 0	Maximum 12064.7	
Mean 1086.66	Std. Dev. 1474.65	Variance 2.1746E+006

At 100 years

01% of values less than 11.976
05% of values less than 29.8318
10% of values less than 52.3796
50% of values less than 497.301
90% of values less than 3043.89
95% of values less than 3945.27
99% of values less than 6840.08

Minimum 0	Maximum 12064.7	
Mean 1090.08	Std. Dev. 1472.37	Variance 2.16788E+006

At 300 years

01% of values less than 18.525
05% of values less than 36.64
10% of values less than 59.2076
50% of values less than 499.703
90% of values less than 3043.89
95% of values less than 3945.27
99% of values less than 6840.08

Minimum 0	Maximum 12064.7	
Mean 1094.31	Std. Dev. 1469.72	Variance 2.16008E+006

At 1000 years

01% of values less than 21.7226
05% of values less than 45.5075
10% of values less than 73.5128
50% of values less than 522.985
90% of values less than 3043.89
95% of values less than 3945.27
99% of values less than 6840.08

Minimum 0	Maximum 12064.7	
Mean 1103.19	Std. Dev. 1464.89	Variance 2.14589E+006

Phase: Cell4A

Aquifer Flow [m³/year]

At infinity

- 01% of values less than 279.418
- 05% of values less than 373.491
- 10% of values less than 451.498
- 50% of values less than 947.067
- 90% of values less than 3412.42
- 95% of values less than 4322.95
- 99% of values less than 6913.3

Minimum 0

Maximum 12064.7

Mean 1522.19

Std. Dev. 1432.16

Variance 2.05107E+006

Phase: Cell4B*Source Concentration of Ammoniacal_N [mg/l]*

At 30 years

01% of values less than 24.1499

05% of values less than 44.8193

10% of values less than 59.0844

50% of values less than 197.534

90% of values less than 469.117

95% of values less than 544.589

99% of values less than 658.451

Minimum 18.0317

Maximum 882.437

Mean 236.37

Std. Dev. 160.52

Variance 25766.7

At 100 years

01% of values less than 20.7029

05% of values less than 36.4401

10% of values less than 49.7407

50% of values less than 170.023

90% of values less than 409.433

95% of values less than 477.252

99% of values less than 593.315

Minimum 16.1019

Maximum 758.667

Mean 204.347

Std. Dev. 140.784

Variance 19820.1

At 300 years

01% of values less than 11.4211

05% of values less than 20.5141

10% of values less than 30.0846

50% of values less than 108.447

90% of values less than 276.026

95% of values less than 334.12

99% of values less than 440.787

Minimum 8.36979

Maximum 543.39

Mean 133.322

Std. Dev. 99.8417

Variance 9968.36

At 1000 years

01% of values less than 0.00138504

05% of values less than 0.00682438

10% of values less than 0.0148372

50% of values less than 0.186717

90% of values less than 1.08156

95% of values less than 1.81854

99% of values less than 3.53874

Minimum 0.000297089

Maximum 12.0132

Mean 0.447061

Std. Dev. 0.792668

Variance 0.628323

Phase: Cell4B

Source Concentration of Ammoniacal_N [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of Chloride [mg/l]*

At 30 years

01% of values less than 29.3501

05% of values less than 45.6183

10% of values less than 58.7158

50% of values less than 176.691

90% of values less than 434.49

95% of values less than 502.914

99% of values less than 667.008

Minimum 19.0151

Maximum 813.64

Mean 218.42

Std. Dev. 149.108

Variance 22233.2

At 100 years

01% of values less than 20.3559

05% of values less than 32.0528

10% of values less than 43.4366

50% of values less than 129.051

90% of values less than 328.193

95% of values less than 387.482

99% of values less than 506.521

Minimum 14.1472

Maximum 669.904

Mean 162.315

Std. Dev. 115.547

Variance 13351

At 300 years

01% of values less than 5.09177

05% of values less than 9.51461

10% of values less than 13.5756

50% of values less than 49.0446

90% of values less than 159.534

95% of values less than 199.082

99% of values less than 286.266

Minimum 3.03489

Maximum 517.794

Mean 70.9594

Std. Dev. 65.1545

Variance 4245.11

At 1000 years

01% of values less than 7.89245E-009

05% of values less than 2.26383E-007

10% of values less than 6.63121E-007

50% of values less than 9.60552E-005

90% of values less than 0.00280519

95% of values less than 0.00606509

99% of values less than 0.0211214

Minimum 6.34327E-010

Maximum 0.0568072

Mean 0.00129035

Std. Dev. 0.00453462

Variance 2.05627E-005

Phase: Cell4B

Source Concentration of Chloride [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B*Source Concentration of Mercury [mg/l]*

At 30 years

01% of values less than 8.5123E-006
05% of values less than 1.53219E-005
10% of values less than 2.51717E-005
50% of values less than 0.000150847
90% of values less than 0.00053093
95% of values less than 0.000697047
99% of values less than 0.00103473

Minimum 6.11534E-006

Maximum 0.00124904

Mean 0.00022421

Std. Dev. 0.00022512

Variance 5.06788E-008

At 100 years

01% of values less than 8.5123E-006
05% of values less than 1.53219E-005
10% of values less than 2.51717E-005
50% of values less than 0.000149523
90% of values less than 0.000516239
95% of values less than 0.000669275
99% of values less than 0.000996393

Minimum 6.11534E-006

Maximum 0.00120417

Mean 0.0002189

Std. Dev. 0.000216

Variance 4.66561E-008

At 300 years

01% of values less than 8.5123E-006
05% of values less than 1.53219E-005
10% of values less than 2.51717E-005
50% of values less than 0.000147978
90% of values less than 0.000467513
95% of values less than 0.000608593
99% of values less than 0.000904208

Minimum 6.11534E-006

Maximum 0.00107504

Mean 0.000203752

Std. Dev. 0.000190922

Variance 3.64514E-008

At 1000 years

01% of values less than 8.5123E-006
05% of values less than 1.53219E-005
10% of values less than 2.51717E-005
50% of values less than 0.000101287
90% of values less than 0.000135975
95% of values less than 0.000147304
99% of values less than 0.00017787

Minimum 6.11534E-006

Maximum 0.00025642

Mean 9.0701E-005

Std. Dev. 4.2375E-005

Variance 1.79564E-009

Phase: Cell4B

Source Concentration of Mercury [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 6.39916E-009

90% of values less than 8.28306E-005

95% of values less than 9.69289E-005

99% of values less than 0.000114043

Minimum 0

Maximum 0.00011708

Mean 2.31909E-005

Std. Dev. 3.37256E-005

Variance 1.13742E-009

Phase: Cell4B*Source Concentration of Phenols group 1 - phenol [mg/l]*

At 30 years

01% of values less than 0.018286

05% of values less than 0.0363441

10% of values less than 0.0529403

50% of values less than 0.390855

90% of values less than 1.19802

95% of values less than 1.43204

99% of values less than 1.89137

Minimum 0.0108202

Maximum 2.20069

Mean 0.518104

Std. Dev. 0.462024

Variance 0.213466

At 100 years

01% of values less than 0.000142859

05% of values less than 0.000283938

10% of values less than 0.000413596

50% of values less than 0.00305356

90% of values less than 0.00935955

95% of values less than 0.0111878

99% of values less than 0.0147763

Minimum 8.45325E-005

Maximum 0.0171929

Mean 0.00404769

Std. Dev. 0.00360956

Variance 1.3029E-005

At 300 years

01% of values less than 1.36241E-010

05% of values less than 2.70785E-010

10% of values less than 3.94436E-010

50% of values less than 2.9121E-009

90% of values less than 8.92596E-009

95% of values less than 1.06695E-008

99% of values less than 1.40918E-008

Minimum 8.06165E-011

Maximum 1.63964E-008

Mean 3.86017E-009

Std. Dev. 3.44235E-009

Variance 1.18498E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.46664E-030

90% of values less than 7.56058E-030

95% of values less than 9.03742E-030

99% of values less than 1.19362E-029

Minimum 0

Maximum 1.38883E-029

Mean 3.1339E-030

Std. Dev. 3.0479E-030

Variance 9.28969E-060

Phase: Cell4B

Source Concentration of Phenols group 1 - phenol [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of Phenols group 2 - cresols [mg/l]*

At 30 years

01% of values less than 0.00193229

05% of values less than 0.00431114

10% of values less than 0.00795622

50% of values less than 0.0552568

90% of values less than 0.210998

95% of values less than 0.266876

99% of values less than 0.373733

Minimum 0.00128778

Maximum 0.430154

Mean 0.0857422

Std. Dev. 0.0858335

Variance 0.00736738

At 100 years

01% of values less than 1.5096E-005

05% of values less than 3.36808E-005

10% of values less than 6.2158E-005

50% of values less than 0.000431694

90% of values less than 0.00164842

95% of values less than 0.00208497

99% of values less than 0.00291979

Minimum 1.00608E-005

Maximum 0.00336058

Mean 0.000669861

Std. Dev. 0.000670574

Variance 4.49669E-007

At 300 years

01% of values less than 1.43967E-011

05% of values less than 3.21205E-011

10% of values less than 5.92785E-011

50% of values less than 4.11695E-010

90% of values less than 1.57206E-009

95% of values less than 1.98838E-009

99% of values less than 2.78453E-009

Minimum 9.59469E-012

Maximum 3.2049E-009

Mean 6.38829E-010

Std. Dev. 6.39509E-010

Variance 4.08972E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.33159E-030

95% of values less than 1.68422E-030

99% of values less than 2.35859E-030

Minimum 0

Maximum 2.71466E-030

Mean 2.67897E-031

Std. Dev. 6.00121E-031

Variance 3.60145E-061

Phase: Cell4B

Source Concentration of Phenols group 2 - cresols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of Phenols group 3 - xlenols [mg/l]*

At 30 years

01% of values less than 0.00192093

05% of values less than 0.00277185

10% of values less than 0.00372931

50% of values less than 0.0124002

90% of values less than 0.0312203

95% of values less than 0.0403308

99% of values less than 0.0486346

Minimum 0.00135726

Maximum 0.0675037

Mean 0.0152523

Std. Dev. 0.0114694

Variance 0.000131547

At 100 years

01% of values less than 1.50073E-005

05% of values less than 2.16551E-005

10% of values less than 2.91352E-005

50% of values less than 9.68764E-005

90% of values less than 0.000243909

95% of values less than 0.000315085

99% of values less than 0.000379958

Minimum 1.06036E-005

Maximum 0.000527373

Mean 0.000119159

Std. Dev. 8.96047E-005

Variance 8.029E-009

At 300 years

01% of values less than 1.43121E-011

05% of values less than 2.06519E-011

10% of values less than 2.77855E-011

50% of values less than 9.23885E-011

90% of values less than 2.3261E-010

95% of values less than 3.00488E-010

99% of values less than 3.62356E-010

Minimum 1.01124E-011

Maximum 5.02942E-010

Mean 1.13639E-010

Std. Dev. 8.54537E-011

Variance 7.30233E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Source Concentration of Phenols group 3 - xylenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of Phenols group 4 - chlorophenols [mg/l]*

At 30 years

01% of values less than 0.00152819

05% of values less than 0.00189224

10% of values less than 0.00226602

50% of values less than 0.00468626

90% of values less than 0.0079961

95% of values less than 0.00903601

99% of values less than 0.0110612

Minimum 0.00128567

Maximum 0.0122881

Mean 0.00495635

Std. Dev. 0.00220677

Variance 4.86983E-006

At 100 years

01% of values less than 1.19389E-005

05% of values less than 1.47831E-005

10% of values less than 1.77033E-005

50% of values less than 3.66114E-005

90% of values less than 6.24696E-005

95% of values less than 7.05938E-005

99% of values less than 8.64157E-005

Minimum 1.00443E-005

Maximum 9.6001E-005

Mean 3.87215E-005

Std. Dev. 1.72404E-005

Variance 2.97231E-010

At 300 years

01% of values less than 1.13859E-011

05% of values less than 1.40983E-011

10% of values less than 1.68831E-011

50% of values less than 3.49154E-011

90% of values less than 5.95756E-011

95% of values less than 6.73235E-011

99% of values less than 8.24124E-011

Minimum 9.57899E-012

Maximum 9.15537E-011

Mean 3.69277E-011

Std. Dev. 1.64417E-011

Variance 2.7033E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Source Concentration of Phenols group 4 - chlorophenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of Phenols group 5 - nitrophenols [mg/l]*

At 30 years

01% of values less than 0.00153711

05% of values less than 0.00186248

10% of values less than 0.00227784

50% of values less than 0.00484231

90% of values less than 0.00831549

95% of values less than 0.00952225

99% of values less than 0.0111842

Minimum 0.00136975

Maximum 0.0120885

Mean 0.00514786

Std. Dev. 0.00233355

Variance 5.44546E-006

At 100 years

01% of values less than 1.20087E-005

05% of values less than 1.45506E-005

10% of values less than 1.77957E-005

50% of values less than 3.78306E-005

90% of values less than 6.49648E-005

95% of values less than 7.43926E-005

99% of values less than 8.73763E-005

Minimum 1.07012E-005

Maximum 9.44417E-005

Mean 4.02177E-005

Std. Dev. 1.82309E-005

Variance 3.32364E-010

At 300 years

01% of values less than 1.14524E-011

05% of values less than 1.38766E-011

10% of values less than 1.69713E-011

50% of values less than 3.6078E-011

90% of values less than 6.19552E-011

95% of values less than 7.09463E-011

99% of values less than 8.33286E-011

Minimum 1.02054E-011

Maximum 9.00666E-011

Mean 3.83546E-011

Std. Dev. 1.73863E-011

Variance 3.02284E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Source Concentration of Phenols group 5 - nitrophenols [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of TPH Aliphatic C5-6 [mg/l]*

At 30 years

01% of values less than 0.000662069

05% of values less than 0.000711147

10% of values less than 0.000750627

50% of values less than 0.00098652

90% of values less than 0.00114749

95% of values less than 0.00118297

99% of values less than 0.00122256

Minimum 0.000633878

Maximum 0.0012407

Mean 0.000969087

Std. Dev. 0.000147258

Variance 2.1685E-008

At 100 years

01% of values less than 5.17241E-006

05% of values less than 5.55584E-006

10% of values less than 5.86428E-006

50% of values less than 7.70719E-006

90% of values less than 8.96477E-006

95% of values less than 9.24194E-006

99% of values less than 9.55128E-006

Minimum 4.95217E-006

Maximum 9.693E-006

Mean 7.57099E-006

Std. Dev. 1.15046E-006

Variance 1.32355E-012

At 300 years

01% of values less than 4.9328E-012

05% of values less than 5.29846E-012

10% of values less than 5.59261E-012

50% of values less than 7.35015E-012

90% of values less than 8.54947E-012

95% of values less than 8.8138E-012

99% of values less than 9.10881E-012

Minimum 4.72276E-012

Maximum 9.24397E-012

Mean 7.22026E-012

Std. Dev. 1.09716E-012

Variance 1.20376E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Source Concentration of TPH Aliphatic C5-6 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of TPH Aliphatic C6-8 [mg/l]*

At 30 years

01% of values less than 0.000665298

05% of values less than 0.000728249

10% of values less than 0.000768413

50% of values less than 0.000978744

90% of values less than 0.00114802

95% of values less than 0.00117939

99% of values less than 0.00121452

Minimum 0.000633301

Maximum 0.00124627

Mean 0.000967836

Std. Dev. 0.000140943

Variance 1.98651E-008

At 100 years

01% of values less than 5.19764E-006

05% of values less than 5.68945E-006

10% of values less than 6.00322E-006

50% of values less than 7.64644E-006

90% of values less than 8.96887E-006

95% of values less than 9.21398E-006

99% of values less than 9.48844E-006

Minimum 4.94766E-006

Maximum 9.73651E-006

Mean 7.56122E-006

Std. Dev. 1.10112E-006

Variance 1.21247E-012

At 300 years

01% of values less than 4.95686E-012

05% of values less than 5.42588E-012

10% of values less than 5.72512E-012

50% of values less than 7.29221E-012

90% of values less than 8.55338E-012

95% of values less than 8.78713E-012

99% of values less than 9.04888E-012

Minimum 4.71846E-012

Maximum 9.28546E-012

Mean 7.21094E-012

Std. Dev. 1.05011E-012

Variance 1.10273E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Source Concentration of TPH Aliphatic C6-8 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of TPH Aliphatic C8-10 [mg/l]*

At 30 years

01% of values less than 0.000662354

05% of values less than 0.000716784

10% of values less than 0.000764819

50% of values less than 0.000969601

90% of values less than 0.0011312

95% of values less than 0.00116511

99% of values less than 0.00120872

Minimum 0.000633594

Maximum 0.00123493

Mean 0.00095977

Std. Dev. 0.000135501

Variance 1.83604E-008

At 100 years

01% of values less than 5.17464E-006

05% of values less than 5.59987E-006

10% of values less than 5.97515E-006

50% of values less than 7.57501E-006

90% of values less than 8.83746E-006

95% of values less than 9.10245E-006

99% of values less than 9.44312E-006

Minimum 4.94995E-006

Maximum 9.6479E-006

Mean 7.4982E-006

Std. Dev. 1.0586E-006

Variance 1.12063E-012

At 300 years

01% of values less than 4.93492E-012

05% of values less than 5.34046E-012

10% of values less than 5.69834E-012

50% of values less than 7.22409E-012

90% of values less than 8.42806E-012

95% of values less than 8.68077E-012

99% of values less than 9.00566E-012

Minimum 4.72064E-012

Maximum 9.20095E-012

Mean 7.15084E-012

Std. Dev. 1.00956E-012

Variance 1.01921E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Source Concentration of TPH Aliphatic C8-10 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of TPH Aliphatic C10-12 [mg/l]*

At 30 years

01% of values less than 0.000655706

05% of values less than 0.000712203

10% of values less than 0.000756192

50% of values less than 0.000989016

90% of values less than 0.00115268

95% of values less than 0.00118228

99% of values less than 0.00121424

Minimum 0.000632352

Maximum 0.00124279

Mean 0.00097088

Std. Dev. 0.000146356

Variance 2.14202E-008

At 100 years

01% of values less than 5.1227E-006

05% of values less than 5.56409E-006

10% of values less than 5.90775E-006

50% of values less than 7.72669E-006

90% of values less than 9.00527E-006

95% of values less than 9.23655E-006

99% of values less than 9.48625E-006

Minimum 4.94025E-006

Maximum 9.70932E-006

Mean 7.585E-006

Std. Dev. 1.14341E-006

Variance 1.30738E-012

At 300 years

01% of values less than 4.88539E-012

05% of values less than 5.30633E-012

10% of values less than 5.63407E-012

50% of values less than 7.36874E-012

90% of values less than 8.5881E-012

95% of values less than 8.80866E-012

99% of values less than 9.04679E-012

Minimum 4.71139E-012

Maximum 9.25953E-012

Mean 7.23362E-012

Std. Dev. 1.09044E-012

Variance 1.18906E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Source Concentration of TPH Aliphatic C10-12 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Source Concentration of TPH Aliphatic C12-16 [mg/l]

At 30 years

01% of values less than 0.000670905		
05% of values less than 0.000716686		
10% of values less than 0.000760194		
50% of values less than 0.000981047		
90% of values less than 0.001149		
95% of values less than 0.00117682		
99% of values less than 0.00121557		
Minimum 0.000632681	Maximum 0.00123649	
Mean 0.000968678	Std. Dev. 0.000142917	Variance 2.04252E-008

At 100 years

01% of values less than 5.24144E-006		
05% of values less than 5.59911E-006		
10% of values less than 5.93902E-006		
50% of values less than 7.66443E-006		
90% of values less than 8.97654E-006		
95% of values less than 9.19389E-006		
99% of values less than 9.49665E-006		
Minimum 4.94282E-006	Maximum 9.66006E-006	
Mean 7.5678E-006	Std. Dev. 1.11654E-006	Variance 1.24666E-012

At 300 years

01% of values less than 4.99863E-012		
05% of values less than 5.33973E-012		
10% of values less than 5.66389E-012		
50% of values less than 7.30937E-012		
90% of values less than 8.5607E-012		
95% of values less than 8.76798E-012		
99% of values less than 9.05671E-012		
Minimum 4.71384E-012	Maximum 9.21255E-012	
Mean 7.21722E-012	Std. Dev. 1.06481E-012	Variance 1.13383E-024

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Source Concentration of TPH Aliphatic C12-16 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Source Concentration of TPH Aliphatic C16-35 [mg/l]

At 30 years

01% of values less than 0.0052332		
05% of values less than 0.00566854		
10% of values less than 0.00601264		
50% of values less than 0.00750933		
90% of values less than 0.00880929		
95% of values less than 0.00915334		
99% of values less than 0.00964549		
Minimum 0.00506543	Maximum 0.00994692	
Mean 0.00744546	Std. Dev. 0.00105444	Variance 1.11185E-006

At 100 years

01% of values less than 0.0052332		
05% of values less than 0.00566854		
10% of values less than 0.00601264		
50% of values less than 0.00750933		
90% of values less than 0.00880929		
95% of values less than 0.00915334		
99% of values less than 0.00964549		
Minimum 0.00506543	Maximum 0.00994692	
Mean 0.00744546	Std. Dev. 0.00105444	Variance 1.11185E-006

At 300 years

01% of values less than 0.0052332		
05% of values less than 0.00566854		
10% of values less than 0.00601264		
50% of values less than 0.00750933		
90% of values less than 0.00880929		
95% of values less than 0.00915334		
99% of values less than 0.00964549		
Minimum 0.00506543	Maximum 0.00994692	
Mean 0.00744546	Std. Dev. 0.00105444	Variance 1.11185E-006

At 1000 years

01% of values less than 0.0052332		
05% of values less than 0.00566854		
10% of values less than 0.00601264		
50% of values less than 0.00750933		
90% of values less than 0.00880929		
95% of values less than 0.00915334		
99% of values less than 0.00964549		
Minimum 0.00506543	Maximum 0.00994692	
Mean 0.00744546	Std. Dev. 0.00105444	Variance 1.11185E-006

Phase: Cell4B

Source Concentration of TPH Aliphatic C16-35 [mg/l]

At infinity

01% of values less than 0.0052332

05% of values less than 0.00566854

10% of values less than 0.00601264

50% of values less than 0.00750933

90% of values less than 0.00880929

95% of values less than 0.00915334

99% of values less than 0.00964549

Minimum 0.00506543

Maximum 0.00994692

Mean 0.00744546

Std. Dev. 0.00105444

Variance 1.11185E-006

Phase: Cell4B*Source Concentration of TPH Aromatic C5-7 [mg/l]*

At 30 years

01% of values less than 0.000681187

05% of values less than 0.000735541

10% of values less than 0.000771738

50% of values less than 0.000982736

90% of values less than 0.00114673

95% of values less than 0.001176

99% of values less than 0.00123006

Minimum 0.00063442

Maximum 0.0012407

Mean 0.000971024

Std. Dev. 0.000139567

Variance 1.94791E-008

At 100 years

01% of values less than 5.32177E-006

05% of values less than 5.74641E-006

10% of values less than 6.0292E-006

50% of values less than 7.67762E-006

90% of values less than 8.95884E-006

95% of values less than 9.18748E-006

99% of values less than 9.60986E-006

Minimum 4.95641E-006

Maximum 9.693E-006

Mean 7.58612E-006

Std. Dev. 1.09037E-006

Variance 1.18891E-012

At 300 years

01% of values less than 5.07524E-012

05% of values less than 5.48021E-012

10% of values less than 5.7499E-012

50% of values less than 7.32195E-012

90% of values less than 8.54382E-012

95% of values less than 8.76186E-012

99% of values less than 9.16467E-012

Minimum 4.7268E-012

Maximum 9.24397E-012

Mean 7.23469E-012

Std. Dev. 1.03986E-012

Variance 1.08131E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Source Concentration of TPH Aromatic C5-7 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of TPH Aromatic C7-8 [mg/l]*

At 30 years

01% of values less than 0.000665694

05% of values less than 0.000711591

10% of values less than 0.000756661

50% of values less than 0.000973025

90% of values less than 0.00114197

95% of values less than 0.0011743

99% of values less than 0.00121547

Minimum 0.000637188

Maximum 0.00124627

Mean 0.000961086

Std. Dev. 0.000144253

Variance 2.08091E-008

At 100 years

01% of values less than 5.20073E-006

05% of values less than 5.55931E-006

10% of values less than 5.91141E-006

50% of values less than 7.60176E-006

90% of values less than 8.92161E-006

95% of values less than 9.17422E-006

99% of values less than 9.49589E-006

Minimum 4.97803E-006

Maximum 9.73651E-006

Mean 7.50848E-006

Std. Dev. 1.12698E-006

Variance 1.27008E-012

At 300 years

01% of values less than 4.95981E-012

05% of values less than 5.30177E-012

10% of values less than 5.63756E-012

50% of values less than 7.2496E-012

90% of values less than 8.50831E-012

95% of values less than 8.74922E-012

99% of values less than 9.05599E-012

Minimum 4.74742E-012

Maximum 9.28546E-012

Mean 7.16065E-012

Std. Dev. 1.07477E-012

Variance 1.15514E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Source Concentration of TPH Aromatic C7-8 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of TPH Aromatic C8-10 [mg/l]*

At 30 years

01% of values less than 0.000656296

05% of values less than 0.000703801

10% of values less than 0.000759323

50% of values less than 0.000980194

90% of values less than 0.0011495

95% of values less than 0.00117894

99% of values less than 0.00121701

Minimum 0.000638175

Maximum 0.00125

Mean 0.000964016

Std. Dev. 0.00014528

Variance 2.11062E-008

At 100 years

01% of values less than 5.12731E-006

05% of values less than 5.49844E-006

10% of values less than 5.93221E-006

50% of values less than 7.65777E-006

90% of values less than 8.98047E-006

95% of values less than 9.21046E-006

99% of values less than 9.50788E-006

Minimum 4.98574E-006

Maximum 9.76562E-006

Mean 7.53137E-006

Std. Dev. 1.135E-006

Variance 1.28822E-012

At 300 years

01% of values less than 4.88979E-012

05% of values less than 5.24372E-012

10% of values less than 5.6574E-012

50% of values less than 7.30301E-012

90% of values less than 8.56445E-012

95% of values less than 8.78378E-012

99% of values less than 9.06742E-012

Minimum 4.75478E-012

Maximum 9.31323E-012

Mean 7.18248E-012

Std. Dev. 1.08242E-012

Variance 1.17163E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Source Concentration of TPH Aromatic C8-10 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Source Concentration of TPH Aromatic C10-12 [mg/l]

At 30 years

01% of values less than 0.000664022		
05% of values less than 0.000725041		
10% of values less than 0.000765454		
50% of values less than 0.000977101		
90% of values less than 0.00114793		
95% of values less than 0.00117314		
99% of values less than 0.00121341		
Minimum 0.000630422	Maximum 0.00123563	
Mean 0.000966514	Std. Dev. 0.000143134	Variance 2.04873E-008

At 100 years

01% of values less than 5.18767E-006		
05% of values less than 5.66438E-006		
10% of values less than 5.98011E-006		
50% of values less than 7.6336E-006		
90% of values less than 8.96817E-006		
95% of values less than 9.16514E-006		
99% of values less than 9.47977E-006		
Minimum 4.92517E-006	Maximum 9.65335E-006	
Mean 7.55089E-006	Std. Dev. 1.11823E-006	Variance 1.25045E-012

At 300 years

01% of values less than 4.94735E-012		
05% of values less than 5.40198E-012		
10% of values less than 5.70307E-012		
50% of values less than 7.27997E-012		
90% of values less than 8.55271E-012		
95% of values less than 8.74056E-012		
99% of values less than 9.04061E-012		
Minimum 4.69701E-012	Maximum 9.20615E-012	
Mean 7.20109E-012	Std. Dev. 1.06643E-012	Variance 1.13727E-024

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Source Concentration of TPH Aromatic C10-12 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Source Concentration of TPH Aromatic C12-C16 [mg/l]*

At 30 years

01% of values less than 0.000684938

05% of values less than 0.000744927

10% of values less than 0.000802875

50% of values less than 0.00104444

90% of values less than 0.00128982

95% of values less than 0.00135041

99% of values less than 0.00144332

Minimum 0.000633639

Maximum 0.00148295

Mean 0.00104443

Std. Dev. 0.00018151

Variance 3.2946E-008

At 100 years

01% of values less than 5.35108E-006

05% of values less than 5.81974E-006

10% of values less than 6.27246E-006

50% of values less than 8.15966E-006

90% of values less than 1.00767E-005

95% of values less than 1.055E-005

99% of values less than 1.1276E-005

Minimum 4.95031E-006

Maximum 1.15856E-005

Mean 8.15958E-006

Std. Dev. 1.41805E-006

Variance 2.01086E-012

At 300 years

01% of values less than 5.10318E-012

05% of values less than 5.55014E-012

10% of values less than 5.98188E-012

50% of values less than 7.78166E-012

90% of values less than 9.6099E-012

95% of values less than 1.00613E-011

99% of values less than 1.07536E-011

Minimum 4.72098E-012

Maximum 1.10488E-011

Mean 7.78159E-012

Std. Dev. 1.35236E-012

Variance 1.82887E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Source Concentration of TPH Aromatic C12-C16 [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Source Concentration of TPH Aromatic C16-21 [mg/l]

At 30 years

01% of values less than 0.00543939		
05% of values less than 0.00593921		
10% of values less than 0.00637683		
50% of values less than 0.00888295		
90% of values less than 0.0111431		
95% of values less than 0.0115872		
99% of values less than 0.0122426		
Minimum 0.00517108	Maximum 0.0125544	
Mean 0.00882211	Std. Dev. 0.00173466	Variance 3.00906E-006

At 100 years

01% of values less than 0.00543939		
05% of values less than 0.00593921		
10% of values less than 0.00637683		
50% of values less than 0.00888295		
90% of values less than 0.0111431		
95% of values less than 0.0115872		
99% of values less than 0.0122426		
Minimum 0.00517108	Maximum 0.0125544	
Mean 0.00882211	Std. Dev. 0.00173466	Variance 3.00906E-006

At 300 years

01% of values less than 0.00543939		
05% of values less than 0.00593921		
10% of values less than 0.00637683		
50% of values less than 0.00888295		
90% of values less than 0.0111431		
95% of values less than 0.0115872		
99% of values less than 0.0122426		
Minimum 0.00517108	Maximum 0.0125544	
Mean 0.00882211	Std. Dev. 0.00173466	Variance 3.00906E-006

At 1000 years

01% of values less than 0.00543939		
05% of values less than 0.00593921		
10% of values less than 0.00637683		
50% of values less than 0.00888295		
90% of values less than 0.0111431		
95% of values less than 0.0115872		
99% of values less than 0.0122426		
Minimum 0.00517108	Maximum 0.0125544	
Mean 0.00882211	Std. Dev. 0.00173466	Variance 3.00906E-006

Phase: Cell4B

Source Concentration of TPH Aromatic C16-21 [mg/l]

At infinity

- 01% of values less than 0.00543939
- 05% of values less than 0.00593921
- 10% of values less than 0.00637683
- 50% of values less than 0.00888295
- 90% of values less than 0.0111431
- 95% of values less than 0.0115872
- 99% of values less than 0.0122426

Minimum 0.00517108
Mean 0.00882211

Maximum 0.0125544
Std. Dev. 0.00173466

Variance 3.00906E-006

Phase: Cell4B

Source Concentration of TPH Aromatic C21-35 [mg/l]

At 30 years

01% of values less than 0.00596191		
05% of values less than 0.00694124		
10% of values less than 0.00780998		
50% of values less than 0.0133232		
90% of values less than 0.0215591		
95% of values less than 0.0238969		
99% of values less than 0.0272667		
Minimum 0.00517654	Maximum 0.0300476	
Mean 0.0140262	Std. Dev. 0.00518877	Variance 2.69234E-005

At 100 years

01% of values less than 0.00596191		
05% of values less than 0.00694124		
10% of values less than 0.00780998		
50% of values less than 0.0133232		
90% of values less than 0.0215591		
95% of values less than 0.0238969		
99% of values less than 0.0272667		
Minimum 0.00517654	Maximum 0.0300476	
Mean 0.0140262	Std. Dev. 0.00518877	Variance 2.69234E-005

At 300 years

01% of values less than 0.00596191		
05% of values less than 0.00694124		
10% of values less than 0.00780998		
50% of values less than 0.0133232		
90% of values less than 0.0215591		
95% of values less than 0.0238969		
99% of values less than 0.0272667		
Minimum 0.00517654	Maximum 0.0300476	
Mean 0.0140262	Std. Dev. 0.00518877	Variance 2.69234E-005

At 1000 years

01% of values less than 0.00596191		
05% of values less than 0.00694124		
10% of values less than 0.00780998		
50% of values less than 0.0133232		
90% of values less than 0.0215591		
95% of values less than 0.0238969		
99% of values less than 0.0272667		
Minimum 0.00517654	Maximum 0.0300476	
Mean 0.0140262	Std. Dev. 0.00518877	Variance 2.69234E-005

Phase: Cell4B

Source Concentration of TPH Aromatic C21-35 [mg/l]

At infinity

- 01% of values less than 0.00596191
- 05% of values less than 0.00694124
- 10% of values less than 0.00780998
- 50% of values less than 0.0133232
- 90% of values less than 0.0215591
- 95% of values less than 0.0238969
- 99% of values less than 0.0272667

Minimum 0.00517654
Mean 0.0140262

Maximum 0.0300476
Std. Dev. 0.00518877

Variance 2.69234E-005

Phase: Cell4B*Concentration of Ammoniacal_N at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 76.409

95% of values less than 255.355

99% of values less than 559.505

Minimum 0

Maximum 790.043

Mean 31.5538

Std. Dev. 106.129

Variance 11263.3

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 32.6928

90% of values less than 330.3

95% of values less than 405.635

99% of values less than 530.654

Minimum 0

Maximum 766.951

Mean 105.848

Std. Dev. 142.305

Variance 20250.9

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 17.6812

50% of values less than 102.962

90% of values less than 280.596

95% of values less than 339.396

99% of values less than 453.135

Minimum 0

Maximum 512.525

Mean 128.686

Std. Dev. 105.016

Variance 11028.4

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.0124716

50% of values less than 0.418709

90% of values less than 2.31806

95% of values less than 3.85227

99% of values less than 7.65474

Minimum 0

Maximum 12.0089

Mean 0.9506

Std. Dev. 1.46767

Variance 2.15405

Phase: Cell4B

Concentration of Ammoniacal_N at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.59243E-015

95% of values less than 4.38547E-015

99% of values less than 1.23339E-014

Minimum 0

Maximum 5.71056E-014

Mean 9.32851E-016

Std. Dev. 2.79109E-015

Variance 7.7902E-030

Phase: Cell4B

Concentration of Chloride at base of Clay Liner [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 84.5621
- 95% of values less than 232.45
- 99% of values less than 481.398

Minimum 0	Maximum 779.152	
Mean 28.4351	Std. Dev. 93.3445	Variance 8713.2

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 29.0988
- 90% of values less than 251.978
- 95% of values less than 342.28
- 99% of values less than 450.655

Minimum 0	Maximum 597.624	
Mean 84.1528	Std. Dev. 116.446	Variance 13559.7

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 8.35832
- 50% of values less than 48.8146
- 90% of values less than 164.339
- 95% of values less than 210.07
- 99% of values less than 303.573

Minimum 0	Maximum 541.277	
Mean 72.0507	Std. Dev. 70.0047	Variance 4900.66

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0.00054475
- 90% of values less than 0.0140943
- 95% of values less than 0.0270495
- 99% of values less than 0.0887031

Minimum 0	Maximum 0.239163	
Mean 0.00576007	Std. Dev. 0.0181469	Variance 0.000329309

Phase: Cell4B

Concentration of Chloride at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.10196E-016

95% of values less than 1.92827E-015

99% of values less than 5.43991E-015

Minimum 0

Maximum 1.82725E-014

Mean 3.64904E-016

Std. Dev. 1.37524E-015

Variance 1.89129E-030

Phase: Cell4B*Concentration of Mercury at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.62693E-005

95% of values less than 0.000186539

99% of values less than 0.000499918

Minimum 0

Maximum 0.000998151

Mean 2.57313E-005

Std. Dev. 0.000100119

Variance 1.00238E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.502E-005

90% of values less than 0.000348266

95% of values less than 0.000481411

99% of values less than 0.000846807

Minimum 0

Maximum 0.00110763

Mean 0.000109878

Std. Dev. 0.000182732

Variance 3.33908E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.22203E-005

50% of values less than 0.000137082

90% of values less than 0.000458154

95% of values less than 0.000588211

99% of values less than 0.000875502

Minimum 0

Maximum 0.00108985

Mean 0.000191092

Std. Dev. 0.000193497

Variance 3.74412E-008

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.22202E-005

50% of values less than 0.000107559

90% of values less than 0.000154821

95% of values less than 0.000171626

99% of values less than 0.000222943

Minimum 0

Maximum 0.000299774

Mean 9.34056E-005

Std. Dev. 5.51355E-005

Variance 3.03992E-009

Phase: Cell4B

Concentration of Mercury at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.77297E-010

90% of values less than 7.82261E-005

95% of values less than 9.50473E-005

99% of values less than 0.000112074

Minimum 0

Maximum 0.00011708

Mean 2.11022E-005

Std. Dev. 3.26014E-005

Variance 1.06285E-009

Phase: Cell4B*Concentration of Phenols group 1 - phenol at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.176692

95% of values less than 0.844664

99% of values less than 1.88933

Minimum 0

Maximum 3.10965

Mean 0.0944513

Std. Dev. 0.340018

Variance 0.115612

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.000348331

90% of values less than 0.0101401

95% of values less than 0.0134929

99% of values less than 0.018652

Minimum 0

Maximum 0.0242948

Mean 0.00306769

Std. Dev. 0.00468887

Variance 2.19855E-005

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 6.65179E-010

50% of values less than 8.91715E-009

90% of values less than 3.06208E-008

95% of values less than 3.67465E-008

99% of values less than 4.8077E-008

Minimum 0

Maximum 5.77567E-008

Mean 1.25817E-008

Std. Dev. 1.20919E-008

Variance 1.46214E-016

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.54126E-015

Minimum 0

Maximum 3.50483E-013

Mean 5.92709E-016

Std. Dev. 1.17843E-014

Variance 1.3887E-028

Phase: Cell4B

Concentration of Phenols group 1 - phenol at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of Phenols group 2 - cresols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0194733

95% of values less than 0.103241

99% of values less than 0.342055

Minimum 0

Maximum 0.600796

Mean 0.015383

Std. Dev. 0.0617243

Variance 0.00380989

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.56028E-005

90% of values less than 0.00182036

95% of values less than 0.00253012

99% of values less than 0.00371451

Minimum 0

Maximum 0.00475731

Mean 0.000512289

Std. Dev. 0.000868729

Variance 7.5469E-007

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 7.41118E-011

50% of values less than 1.22336E-009

90% of values less than 5.25788E-009

95% of values less than 6.83569E-009

99% of values less than 9.75148E-009

Minimum 0

Maximum 1.12471E-008

Mean 2.07408E-009

Std. Dev. 2.25162E-009

Variance 5.06979E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 2.33091E-014

Mean 5.8957E-017

Std. Dev. 9.78986E-016

Variance 9.58413E-031

Phase: Cell4B

Concentration of Phenols group 2 - cresols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of Phenols group 3 - xlenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00705038

95% of values less than 0.0196211

99% of values less than 0.0464776

Minimum 0

Maximum 0.0710721

Mean 0.00256321

Std. Dev. 0.00865714

Variance 7.49462E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.86647E-005

90% of values less than 0.000270066

95% of values less than 0.000376721

99% of values less than 0.000521963

Minimum 0

Maximum 0.000746128

Mean 8.99581E-005

Std. Dev. 0.000128177

Variance 1.64294E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 6.09163E-011

50% of values less than 3.01264E-010

90% of values less than 7.94927E-010

95% of values less than 1.04692E-009

99% of values less than 1.26598E-009

Minimum 0

Maximum 1.7565E-009

Mean 3.70184E-010

Std. Dev. 3.0664E-010

Variance 9.40282E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 3.54355E-015

Mean 6.13681E-018

Std. Dev. 1.27038E-016

Variance 1.61388E-032

Phase: Cell4B

Concentration of Phenols group 3 - xylenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of Phenols group 4 - chlorophenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0034936

95% of values less than 0.00663393

99% of values less than 0.0116408

Minimum 0

Maximum 0.0158023

Mean 0.00079284

Std. Dev. 0.00239246

Variance 5.72387E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.01522E-005

90% of values less than 7.3695E-005

95% of values less than 8.90438E-005

99% of values less than 0.000115697

Minimum 0

Maximum 0.000132343

Mean 2.85543E-005

Std. Dev. 3.2436E-005

Variance 1.0521E-009

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 4.39567E-011

50% of values less than 1.16996E-010

90% of values less than 2.0335E-010

95% of values less than 2.32929E-010

99% of values less than 2.83961E-010

Minimum 0

Maximum 3.19916E-010

Mean 1.19606E-010

Std. Dev. 6.50716E-011

Variance 4.23431E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 9.348E-016

Mean 1.44133E-018

Std. Dev. 3.36127E-017

Variance 1.12981E-033

Phase: Cell4B

Concentration of Phenols group 4 - chlorophenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of Phenols group 5 - nitrophenols at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00400937

95% of values less than 0.00780026

99% of values less than 0.0115725

Minimum 0

Maximum 0.0152132

Mean 0.000881309

Std. Dev. 0.00258919

Variance 6.70391E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.95297E-005

90% of values less than 7.98805E-005

95% of values less than 9.2606E-005

99% of values less than 0.00012071

Minimum 0

Maximum 0.000133678

Mean 2.91716E-005

Std. Dev. 3.39245E-005

Variance 1.15087E-009

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 4.46811E-011

50% of values less than 1.2104E-010

90% of values less than 2.15502E-010

95% of values less than 2.46552E-010

99% of values less than 2.89654E-010

Minimum 0

Maximum 3.14549E-010

Mean 1.24361E-010

Std. Dev. 6.87735E-011

Variance 4.72979E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 9.11304E-016

Mean 3.09998E-018

Std. Dev. 4.96629E-017

Variance 2.4664E-033

Phase: Cell4B

Concentration of Phenols group 5 - nitrophenols at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C5-6 at base of Clay Liner [mg/l]

At 30 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0.00112952		
95% of values less than 0.00141408		
99% of values less than 0.00163397		
Minimum 0	Maximum 0.00178784	
Mean 0.000164506	Std. Dev. 0.000447238	Variance 2.00022E-007

At 100 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 7.57231E-006		
90% of values less than 1.23093E-005		
95% of values less than 1.27229E-005		
99% of values less than 1.3289E-005		
Minimum 0	Maximum 1.36251E-005	
Mean 5.51895E-006	Std. Dev. 5.44776E-006	Variance 2.96781E-011

At 300 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 1.78511E-011		
50% of values less than 2.51984E-011		
90% of values less than 2.98991E-011		
95% of values less than 3.0786E-011		
99% of values less than 3.18433E-011		
Minimum 0	Maximum 3.24197E-011	
Mean 2.33552E-011	Std. Dev. 7.61738E-012	Variance 5.80245E-023

At 1000 years

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C5-6 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aliphatic C6-8 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00114969

95% of values less than 0.00137151

99% of values less than 0.0016595

Minimum 0

Maximum 0.00178188

Mean 0.000163827

Std. Dev. 0.000445484

Variance 1.98456E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.99147E-006

90% of values less than 1.22913E-005

95% of values less than 1.27782E-005

99% of values less than 1.33922E-005

Minimum 0

Maximum 1.41942E-005

Mean 5.54558E-006

Std. Dev. 5.45485E-006

Variance 2.97554E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.83461E-011

50% of values less than 2.50969E-011

90% of values less than 2.98045E-011

95% of values less than 3.06146E-011

99% of values less than 3.17696E-011

Minimum 0

Maximum 3.27776E-011

Mean 2.333E-011

Std. Dev. 7.51759E-012

Variance 5.65141E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C6-8 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aliphatic C8-10 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00114755

95% of values less than 0.00136818

99% of values less than 0.00154067

Minimum 0

Maximum 0.00191705

Mean 0.000161028

Std. Dev. 0.000437004

Variance 1.90972E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.75225E-006

90% of values less than 1.20371E-005

95% of values less than 1.25483E-005

99% of values less than 1.32848E-005

Minimum 0

Maximum 1.36516E-005

Mean 5.51314E-006

Std. Dev. 5.41534E-006

Variance 2.93259E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.79475E-011

50% of values less than 2.48258E-011

90% of values less than 2.94775E-011

95% of values less than 3.03835E-011

99% of values less than 3.1521E-011

Minimum 0

Maximum 3.21483E-011

Mean 2.31628E-011

Std. Dev. 7.40956E-012

Variance 5.49016E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C8-10 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B*Concentration of TPH Aliphatic C10-12 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00111814

95% of values less than 0.0014132

99% of values less than 0.0016032

Minimum 0

Maximum 0.00186607

Mean 0.000162425

Std. Dev. 0.000441679

Variance 1.9508E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.81021E-006

90% of values less than 1.23463E-005

95% of values less than 1.28415E-005

99% of values less than 1.3345E-005

Minimum 0

Maximum 1.3716E-005

Mean 5.61175E-006

Std. Dev. 5.52042E-006

Variance 3.04751E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.8E-011

50% of values less than 2.53161E-011

90% of values less than 2.9954E-011

95% of values less than 3.0722E-011

99% of values less than 3.16029E-011

Minimum 0

Maximum 3.25739E-011

Mean 2.3444E-011

Std. Dev. 7.61059E-012

Variance 5.7921E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C10-12 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aliphatic C12-16 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00114638

95% of values less than 0.00135839

99% of values less than 0.00161132

Minimum 0

Maximum 0.00197341

Mean 0.000161395

Std. Dev. 0.000438757

Variance 1.92508E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.90508E-006

90% of values less than 1.22605E-005

95% of values less than 1.26323E-005

99% of values less than 1.33018E-005

Minimum 0

Maximum 1.36836E-005

Mean 5.57186E-006

Std. Dev. 5.47897E-006

Variance 3.00192E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.82331E-011

50% of values less than 2.50871E-011

90% of values less than 2.97979E-011

95% of values less than 3.06692E-011

99% of values less than 3.17741E-011

Minimum 0

Maximum 3.31062E-011

Mean 2.33806E-011

Std. Dev. 7.55569E-012

Variance 5.70884E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C12-16 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aliphatic C16-35 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00625053

95% of values less than 0.00764347

99% of values less than 0.00865363

Minimum 0

Maximum 0.00973743

Mean 0.000884926

Std. Dev. 0.00240363

Variance 5.77746E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.00558984

90% of values less than 0.00824524

95% of values less than 0.00879674

99% of values less than 0.00937138

Minimum 0

Maximum 0.00994726

Mean 0.00383263

Std. Dev. 0.0037607

Variance 1.41428E-005

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.0055151

50% of values less than 0.00740985

90% of values less than 0.00877337

95% of values less than 0.00912389

99% of values less than 0.00964549

Minimum 0

Maximum 0.00994692

Mean 0.00689578

Std. Dev. 0.0022071

Variance 4.8713E-006

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.0055151

50% of values less than 0.00740985

90% of values less than 0.00877335

95% of values less than 0.00912388

99% of values less than 0.00964548

Minimum 0

Maximum 0.00994691

Mean 0.00689577

Std. Dev. 0.0022071

Variance 4.87129E-006

Phase: Cell4B

Concentration of TPH Aliphatic C16-35 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0.0055151

50% of values less than 0.00740986

90% of values less than 0.00877337

95% of values less than 0.00912389

99% of values less than 0.00964549

Minimum 0

Maximum 0.00994692

Mean 0.00689578

Std. Dev. 0.0022071

Variance 4.8713E-006

Phase: Cell4B*Concentration of TPH Aromatic C5-7 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00113301

95% of values less than 0.00140226

99% of values less than 0.00165312

Minimum 0

Maximum 0.00178166

Mean 0.000162524

Std. Dev. 0.000442607

Variance 1.95901E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.94302E-006

90% of values less than 1.2236E-005

95% of values less than 1.26818E-005

99% of values less than 1.3465E-005

Minimum 0

Maximum 1.39006E-005

Mean 5.55809E-006

Std. Dev. 5.46955E-006

Variance 2.9916E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.86065E-011

50% of values less than 2.5185E-011

90% of values less than 2.98619E-011

95% of values less than 3.061E-011

99% of values less than 3.20365E-011

Minimum 0

Maximum 3.26347E-011

Mean 2.34494E-011

Std. Dev. 7.55277E-012

Variance 5.70444E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aromatic C5-7 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C7-8 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00114511

95% of values less than 0.00139964

99% of values less than 0.00162049

Minimum 0

Maximum 0.0018436

Mean 0.000164799

Std. Dev. 0.000448189

Variance 2.00873E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.81844E-006

90% of values less than 1.2211E-005

95% of values less than 1.25898E-005

99% of values less than 1.33182E-005

Minimum 0

Maximum 1.35826E-005

Mean 5.53835E-006

Std. Dev. 5.44906E-006

Variance 2.96923E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.79921E-011

50% of values less than 2.48981E-011

90% of values less than 2.97125E-011

95% of values less than 3.04934E-011

99% of values less than 3.17518E-011

Minimum 0

Maximum 3.24563E-011

Mean 2.31569E-011

Std. Dev. 7.53835E-012

Variance 5.68268E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aromatic C7-8 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C8-10 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00113013

95% of values less than 0.00140558

99% of values less than 0.00159571

Minimum 0

Maximum 0.00195494

Mean 0.000162205

Std. Dev. 0.000441517

Variance 1.94937E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.58564E-006

90% of values less than 1.21962E-005

95% of values less than 1.27444E-005

99% of values less than 1.34382E-005

Minimum 0

Maximum 1.4386E-005

Mean 5.52441E-006

Std. Dev. 5.44209E-006

Variance 2.96164E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.76887E-011

50% of values less than 2.50362E-011

90% of values less than 2.98404E-011

95% of values less than 3.06452E-011

99% of values less than 3.19052E-011

Minimum 0

Maximum 3.2435E-011

Mean 2.32927E-011

Std. Dev. 7.55385E-012

Variance 5.70606E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aromatic C8-10 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C10-12 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00112041

95% of values less than 0.00140037

99% of values less than 0.00165331

Minimum 0

Maximum 0.00172397

Mean 0.000163733

Std. Dev. 0.000445556

Variance 1.9852E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.83596E-006

90% of values less than 1.22626E-005

95% of values less than 1.26963E-005

99% of values less than 1.32983E-005

Minimum 0

Maximum 1.36607E-005

Mean 5.57034E-006

Std. Dev. 5.47738E-006

Variance 3.00017E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.82164E-011

50% of values less than 2.49143E-011

90% of values less than 2.98265E-011

95% of values less than 3.04786E-011

99% of values less than 3.15639E-011

Minimum 0

Maximum 3.29601E-011

Mean 2.33185E-011

Std. Dev. 7.54435E-012

Variance 5.69173E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aromatic C10-12 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C12-C16 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00119732

95% of values less than 0.00148957

99% of values less than 0.00184536

Minimum 0

Maximum 0.00211377

Mean 0.000176727

Std. Dev. 0.000484282

Variance 2.34529E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 8.02016E-006

90% of values less than 1.3363E-005

95% of values less than 1.42611E-005

99% of values less than 1.54727E-005

Minimum 0

Maximum 1.64219E-005

Mean 5.99127E-006

Std. Dev. 5.93946E-006

Variance 3.52772E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.84534E-011

50% of values less than 2.64644E-011

90% of values less than 3.32416E-011

95% of values less than 3.47025E-011

99% of values less than 3.72265E-011

Minimum 0

Maximum 3.91396E-011

Mean 2.50843E-011

Std. Dev. 8.44508E-012

Variance 7.13194E-023

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aromatic C12-C16 at base of Clay Liner [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C16-21 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00676096

95% of values less than 0.00930286

99% of values less than 0.0114052

Minimum 0

Maximum 0.0125489

Mean 0.00107288

Std. Dev. 0.00294919

Variance 8.69775E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.00575452

90% of values less than 0.0104002

95% of values less than 0.0110246

99% of values less than 0.0119498

Minimum 0

Maximum 0.0125544

Mean 0.00455422

Std. Dev. 0.00455624

Variance 2.07593E-005

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.00575273

50% of values less than 0.00863519

90% of values less than 0.0110843

95% of values less than 0.0115564

99% of values less than 0.0122083

Minimum 0

Maximum 0.0125544

Mean 0.00815452

Std. Dev. 0.0028611

Variance 8.1859E-006

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.00575273

50% of values less than 0.00863518

90% of values less than 0.0110842

95% of values less than 0.0115564

99% of values less than 0.0122083

Minimum 0

Maximum 0.0125544

Mean 0.00815451

Std. Dev. 0.0028611

Variance 8.18588E-006

Phase: Cell4B

Concentration of TPH Aromatic C16-21 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0.00575274

50% of values less than 0.00863519

90% of values less than 0.0110843

95% of values less than 0.0115564

99% of values less than 0.0122083

Minimum 0

Maximum 0.0125544

Mean 0.00815452

Std. Dev. 0.0028611

Variance 8.1859E-006

Phase: Cell4B*Concentration of TPH Aromatic C21-35 at base of Clay Liner [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00859952

95% of values less than 0.014388

99% of values less than 0.0217678

Minimum 0

Maximum 0.0279282

Mean 0.00167992

Std. Dev. 0.00487376

Variance 2.37536E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0.00671454

90% of values less than 0.0185862

95% of values less than 0.0214436

99% of values less than 0.0271332

Minimum 0

Maximum 0.0300476

Mean 0.00722304

Std. Dev. 0.00792446

Variance 6.27971E-005

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.006491

50% of values less than 0.0127128

90% of values less than 0.0214125

95% of values less than 0.0237527

99% of values less than 0.0272667

Minimum 0

Maximum 0.0300475

Mean 0.0129824

Std. Dev. 0.00624608

Variance 3.90136E-005

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.006491

50% of values less than 0.0127128

90% of values less than 0.0214125

95% of values less than 0.0237527

99% of values less than 0.0272667

Minimum 0

Maximum 0.0300475

Mean 0.0129824

Std. Dev. 0.00624608

Variance 3.90135E-005

Phase: Cell4B

Concentration of TPH Aromatic C21-35 at base of Clay Liner [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0.006491

50% of values less than 0.0127128

90% of values less than 0.0214125

95% of values less than 0.0237527

99% of values less than 0.0272667

Minimum 0

Maximum 0.0300476

Mean 0.0129824

Std. Dev. 0.00624609

Variance 3.90136E-005

Phase: Cell4B*Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 116.765

95% of values less than 356.193

99% of values less than 759.922

Minimum 0

Maximum 1032

Mean 43.911

Std. Dev. 147.56

Variance 21774

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 300.351

95% of values less than 394.514

99% of values less than 551.251

Minimum 0

Maximum 834.254

Mean 73.6374

Std. Dev. 137.555

Variance 18921.3

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 23.699

50% of values less than 131.118

90% of values less than 343.994

95% of values less than 406.278

99% of values less than 531.732

Minimum 0

Maximum 649.485

Mean 162.427

Std. Dev. 127.046

Variance 16140.7

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 2.38168

50% of values less than 22.7362

90% of values less than 73.5367

95% of values less than 96.4983

99% of values less than 138.722

Minimum 0

Maximum 192.553

Mean 31.5698

Std. Dev. 30.7854

Variance 947.74

Phase: Cell4B

Concentration of Ammoniacal_N at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 7.20641E-014

90% of values less than 5.86485E-013

95% of values less than 1.00244E-012

99% of values less than 2.8495E-012

Minimum 0

Maximum 1.94981E-011

Mean 2.60933E-013

Std. Dev. 8.51972E-013

Variance 7.25856E-025

Phase: Cell4B*Concentration of Chloride at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 143.835

95% of values less than 373.056

99% of values less than 767.551

Minimum 0

Maximum 1240.24

Mean 45.9353

Std. Dev. 150.406

Variance 22621.9

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 248.221

95% of values less than 323.361

99% of values less than 490.942

Minimum 0

Maximum 646.759

Mean 62.4941

Std. Dev. 117.546

Variance 13817.2

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 16.816

50% of values less than 83.6048

90% of values less than 246.332

95% of values less than 298.687

99% of values less than 398.281

Minimum 0

Maximum 605.433

Mean 111.895

Std. Dev. 94.9465

Variance 9014.85

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.112604

50% of values less than 2.03685

90% of values less than 10.6834

95% of values less than 16.7916

99% of values less than 32.228

Minimum 0

Maximum 59.2284

Mean 4.44375

Std. Dev. 6.56251

Variance 43.0665

Phase: Cell4B

Concentration of Chloride at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.04589E-014

90% of values less than 2.70468E-013

95% of values less than 4.38841E-013

99% of values less than 8.82594E-013

Minimum 0

Maximum 2.40272E-012

Mean 1.00281E-013

Std. Dev. 1.99103E-013

Variance 3.9642E-026

Phase: Cell4B*Concentration of Mercury at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.84097E-011

95% of values less than 1.53365E-010

99% of values less than 1.18542E-009

Minimum 0

Maximum 4.84358E-009

Mean 4.99437E-011

Std. Dev. 2.98962E-010

Variance 8.93784E-020

Phase: Cell4B

Concentration of Mercury at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 8.45511E-009

50% of values less than 1.05395E-006

90% of values less than 3.99667E-005

95% of values less than 6.10718E-005

99% of values less than 9.59429E-005

Minimum 0

Maximum 0.000110864

Mean 1.16192E-005

Std. Dev. 2.13525E-005

Variance 4.5593E-010

Phase: Cell4B*Concentration of Phenols group 1 - phenol at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.198831

95% of values less than 0.931325

99% of values less than 1.88842

Minimum 0

Maximum 3.97541

Mean 0.103962

Std. Dev. 0.37517

Variance 0.140752

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0545432

95% of values less than 0.0807921

99% of values less than 0.133236

Minimum 0

Maximum 0.210416

Mean 0.0137412

Std. Dev. 0.0293113

Variance 0.000859151

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 7.02512E-007

50% of values less than 9.68019E-006

90% of values less than 3.29752E-005

95% of values less than 4.05106E-005

99% of values less than 5.50954E-005

Minimum 0

Maximum 7.18943E-005

Mean 1.36543E-005

Std. Dev. 1.32931E-005

Variance 1.76706E-010

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.69766E-012

95% of values less than 2.76486E-012

99% of values less than 5.399E-012

Minimum 0

Maximum 2.43805E-011

Mean 4.50909E-013

Std. Dev. 1.45505E-012

Variance 2.11717E-024

Phase: Cell4B

Concentration of Phenols group 1 - phenol at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 5.63447E-017

99% of values less than 4.49906E-016

Minimum 0

Maximum 2.98999E-015

Mean 1.80056E-017

Std. Dev. 1.38214E-016

Variance 1.91032E-032

Phase: Cell4B*Concentration of Phenols group 2 - cresols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0153977

95% of values less than 0.0593384

99% of values less than 0.274902

Minimum 0

Maximum 0.449662

Mean 0.0109421

Std. Dev. 0.0457006

Variance 0.00208855

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0047933

95% of values less than 0.00918228

99% of values less than 0.0161353

Minimum 0

Maximum 0.0243286

Mean 0.00142753

Std. Dev. 0.00342214

Variance 1.17111E-005

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 5.06697E-008

50% of values less than 7.47159E-007

90% of values less than 3.65436E-006

95% of values less than 4.87184E-006

99% of values less than 6.70407E-006

Minimum 0

Maximum 1.12567E-005

Mean 1.39212E-006

Std. Dev. 1.63242E-006

Variance 2.66479E-012

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.11122E-013

95% of values less than 2.66307E-013

99% of values less than 6.16507E-013

Minimum 0

Maximum 5.3563E-012

Mean 4.5736E-014

Std. Dev. 2.11944E-013

Variance 4.492E-026

Phase: Cell4B

Concentration of Phenols group 2 - cresols at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.9602E-017

Minimum 0

Maximum 1.75141E-016

Mean 7.13943E-019

Std. Dev. 7.86452E-018

Variance 6.18506E-035

Phase: Cell4B*Concentration of Phenols group 3 - xlenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00139434

95% of values less than 0.00438497

99% of values less than 0.0142234

Minimum 0

Maximum 0.0370341

Mean 0.000655855

Std. Dev. 0.00266575

Variance 7.10622E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000307266

95% of values less than 0.000495871

99% of values less than 0.00108237

Minimum 0

Maximum 0.00197743

Mean 9.24946E-005

Std. Dev. 0.000220571

Variance 4.86514E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 7.37229E-009

50% of values less than 5.49308E-008

90% of values less than 1.90405E-007

95% of values less than 2.69408E-007

99% of values less than 4.30631E-007

Minimum 0

Maximum 6.79869E-007

Mean 8.49214E-008

Std. Dev. 9.33399E-008

Variance 8.71234E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.19731E-015

95% of values less than 1.60393E-014

99% of values less than 4.82579E-014

Minimum 0

Maximum 4.53635E-013

Mean 3.66884E-015

Std. Dev. 2.08114E-014

Variance 4.33116E-028

Phase: Cell4B

Concentration of Phenols group 3 - xlenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of Phenols group 4 - chlorophenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00867365

95% of values less than 0.0168713

99% of values less than 0.0273661

Minimum 0

Maximum 0.0397653

Mean 0.00196845

Std. Dev. 0.00590828

Variance 3.49078E-005

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00097849

95% of values less than 0.00124042

99% of values less than 0.00181315

Minimum 0

Maximum 0.00272639

Mean 0.000277517

Std. Dev. 0.000465968

Variance 2.17126E-007

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 9.02697E-008

50% of values less than 2.41524E-007

90% of values less than 4.27261E-007

95% of values less than 4.86008E-007

99% of values less than 5.93269E-007

Minimum 0

Maximum 7.18536E-007

Mean 2.47848E-007

Std. Dev. 1.35359E-007

Variance 1.83219E-014

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.9036E-014

95% of values less than 3.23408E-014

99% of values less than 1.01967E-013

Minimum 0

Maximum 4.7925E-013

Mean 6.43307E-015

Std. Dev. 2.75437E-014

Variance 7.58653E-028

Phase: Cell4B

Concentration of Phenols group 4 - chlorophenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 4.46475E-017	
Mean 4.46028E-020	Std. Dev. 1.41117E-018	Variance 1.9914E-036

Phase: Cell4B*Concentration of Phenols group 5 - nitrophenols at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00230457

95% of values less than 0.00495951

99% of values less than 0.0102964

Minimum 0

Maximum 0.0150045

Mean 0.000604054

Std. Dev. 0.00191767

Variance 3.67745E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000303403

95% of values less than 0.000405371

99% of values less than 0.000643413

Minimum 0

Maximum 0.000994273

Mean 8.08151E-005

Std. Dev. 0.000149234

Variance 2.22709E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.46552E-008

50% of values less than 7.06473E-008

90% of values less than 1.64203E-007

95% of values less than 1.96649E-007

99% of values less than 2.70863E-007

Minimum 0

Maximum 3.54997E-007

Mean 8.16111E-008

Std. Dev. 6.04282E-008

Variance 3.65157E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.99562E-015

95% of values less than 1.48576E-014

99% of values less than 3.16634E-014

Minimum 0

Maximum 1.31749E-013

Mean 2.73024E-015

Std. Dev. 8.96576E-015

Variance 8.03849E-029

Phase: Cell4B

Concentration of Phenols group 5 - nitrophenols at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aliphatic C5-6 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000143178

95% of values less than 0.000938578

99% of values less than 0.00146033

Minimum 0

Maximum 0.00169372

Mean 9.09871E-005

Std. Dev. 0.000304252

Variance 9.25692E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.17919E-005

95% of values less than 6.43783E-005

99% of values less than 8.44981E-005

Minimum 0

Maximum 0.000100492

Mean 1.19757E-005

Std. Dev. 2.25898E-005

Variance 5.10301E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 7.84666E-011

50% of values less than 1.12057E-008

90% of values less than 2.39095E-008

95% of values less than 2.67321E-008

99% of values less than 3.1038E-008

Minimum 0

Maximum 3.44601E-008

Mean 1.17449E-008

Std. Dev. 8.86249E-009

Variance 7.85437E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.07428E-015

95% of values less than 1.96869E-015

99% of values less than 3.68591E-015

Minimum 0

Maximum 4.14397E-014

Mean 3.05985E-016

Std. Dev. 1.62258E-015

Variance 2.63276E-030

Phase: Cell4B

Concentration of TPH Aliphatic C5-6 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aliphatic C6-8 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.90564E-007

95% of values less than 5.59928E-005

99% of values less than 0.000226121

Minimum 0

Maximum 0.000398322

Mean 8.92348E-006

Std. Dev. 4.00237E-005

Variance 1.60189E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.60673E-006

95% of values less than 8.73892E-006

99% of values less than 1.68309E-005

Minimum 0

Maximum 2.64032E-005

Mean 1.25346E-006

Std. Dev. 3.40721E-006

Variance 1.16091E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.83923E-010

90% of values less than 2.99874E-009

95% of values less than 3.98012E-009

99% of values less than 5.60426E-009

Minimum 0

Maximum 7.87964E-009

Mean 9.86475E-010

Std. Dev. 1.36958E-009

Variance 1.87575E-018

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 1.55752E-015

Mean 1.55597E-018

Std. Dev. 4.92285E-017

Variance 2.42345E-033

Phase: Cell4B

Concentration of TPH Aliphatic C6-8 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aliphatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.00346E-011

Minimum 0

Maximum 2.12285E-010

Mean 4.84672E-013

Std. Dev. 7.24226E-012

Variance 5.24504E-023

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.0173E-011

95% of values less than 1.3613E-010

99% of values less than 3.49929E-009

Minimum 0

Maximum 2.92185E-008

Mean 1.316E-010

Std. Dev. 1.19728E-009

Variance 1.43347E-018

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.31087E-013

95% of values less than 1.06362E-012

99% of values less than 4.31473E-012

Minimum 0

Maximum 8.46931E-012

Mean 1.93206E-013

Std. Dev. 7.19926E-013

Variance 5.18293E-025

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C8-10 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C10-12 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C12-16 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C16-35 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C5-7 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000569784

95% of values less than 0.00120554

99% of values less than 0.00168122

Minimum 0

Maximum 0.00189091

Mean 0.000130069

Std. Dev. 0.000384245

Variance 1.47645E-007

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 7.32894E-005

95% of values less than 8.67768E-005

99% of values less than 0.000100582

Minimum 0

Maximum 0.000123475

Mean 1.8704E-005

Std. Dev. 3.08885E-005

Variance 9.54102E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 3.39859E-009

50% of values less than 1.98761E-008

90% of values less than 3.12201E-008

95% of values less than 3.35553E-008

99% of values less than 3.71324E-008

Minimum 0

Maximum 4.26251E-008

Mean 1.8583E-008

Std. Dev. 9.99164E-009

Variance 9.98329E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.31114E-015

95% of values less than 3.0988E-015

99% of values less than 4.4413E-015

Minimum 0

Maximum 4.48288E-014

Mean 5.5566E-016

Std. Dev. 2.31505E-015

Variance 5.35944E-030

Phase: Cell4B

Concentration of TPH Aromatic C5-7 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C7-8 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 4.77589E-005

95% of values less than 0.00040062

99% of values less than 0.000809986

Minimum 0

Maximum 0.00102463

Mean 4.23734E-005

Std. Dev. 0.000147013

Variance 2.16128E-008

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.63409E-005

95% of values less than 3.47436E-005

99% of values less than 4.68907E-005

Minimum 0

Maximum 6.69723E-005

Mean 6.00528E-006

Std. Dev. 1.20577E-005

Variance 1.45389E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 4.70325E-011

50% of values less than 4.93546E-009

90% of values less than 1.29724E-008

95% of values less than 1.47513E-008

99% of values less than 1.78779E-008

Minimum 0

Maximum 2.30099E-008

Mean 5.73593E-009

Std. Dev. 5.02767E-009

Variance 2.52775E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 9.92153E-016

99% of values less than 1.90093E-015

Minimum 0

Maximum 4.68471E-015

Mean 1.02231E-016

Std. Dev. 4.02723E-016

Variance 1.62186E-031

Phase: Cell4B

Concentration of TPH Aromatic C7-8 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C8-10 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.91769E-007

95% of values less than 2.85018E-005

99% of values less than 0.000138799

Minimum 0

Maximum 0.000249222

Mean 5.07092E-006

Std. Dev. 2.42844E-005

Variance 5.89733E-010

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.06256E-006

95% of values less than 3.68577E-006

99% of values less than 8.87182E-006

Minimum 0

Maximum 1.19717E-005

Mean 5.89592E-007

Std. Dev. 1.61709E-006

Variance 2.615E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.13208E-014

50% of values less than 1.85816E-010

90% of values less than 1.71263E-009

95% of values less than 2.25944E-009

99% of values less than 3.36987E-009

Minimum 0

Maximum 5.07949E-009

Mean 5.61591E-010

Std. Dev. 8.0435E-010

Variance 6.46978E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 2.9823E-015

Mean 5.68049E-018

Std. Dev. 1.07402E-016

Variance 1.15352E-032

Phase: Cell4B

Concentration of TPH Aromatic C8-10 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C10-12 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.22897E-007

95% of values less than 2.66557E-005

99% of values less than 0.000138389

Minimum 0

Maximum 0.000309332

Mean 4.86543E-006

Std. Dev. 2.37477E-005

Variance 5.63955E-010

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.54189E-006

95% of values less than 3.27446E-006

99% of values less than 8.15273E-006

Minimum 0

Maximum 1.30275E-005

Mean 5.02184E-007

Std. Dev. 1.48927E-006

Variance 2.21791E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.13279E-014

50% of values less than 1.32859E-010

90% of values less than 1.40624E-009

95% of values less than 1.94677E-009

99% of values less than 3.12536E-009

Minimum 0

Maximum 4.33681E-009

Mean 4.51728E-010

Std. Dev. 6.94799E-010

Variance 4.82745E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 2.68308E-015

Mean 3.58063E-018

Std. Dev. 8.71347E-017

Variance 7.59246E-033

Phase: Cell4B

Concentration of TPH Aromatic C10-12 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C12-C16 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.12537E-007

95% of values less than 2.40229E-006

99% of values less than 1.71784E-005

Minimum 0

Maximum 4.36431E-005

Mean 6.04936E-007

Std. Dev. 3.31318E-006

Variance 1.09771E-011

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.90781E-007

95% of values less than 4.00539E-007

99% of values less than 1.28914E-006

Minimum 0

Maximum 2.39265E-006

Mean 7.00982E-008

Std. Dev. 2.24902E-007

Variance 5.0581E-014

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.36981E-013

50% of values less than 1.7322E-011

90% of values less than 1.84708E-010

95% of values less than 2.86916E-010

99% of values less than 5.19381E-010

Minimum 0

Maximum 7.44278E-010

Mean 6.16417E-011

Std. Dev. 1.07682E-010

Variance 1.15955E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aromatic C12-C16 at base of Unsaturated Zone [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C16-21 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.0038E-009

95% of values less than 4.39929E-008

99% of values less than 1.6777E-006

Minimum 0

Maximum 5.61184E-006

Mean 4.75588E-008

Std. Dev. 3.32222E-007

Variance 1.10371E-013

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.17753E-006

95% of values less than 1.62123E-005

99% of values less than 8.02251E-005

Minimum 0

Maximum 0.000143798

Mean 3.47109E-006

Std. Dev. 1.43321E-005

Variance 2.0541E-010

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 3.01415E-011

50% of values less than 2.2095E-006

90% of values less than 4.86251E-005

95% of values less than 8.76331E-005

99% of values less than 0.00015455

Minimum 0

Maximum 0.000221405

Mean 1.55751E-005

Std. Dev. 3.14983E-005

Variance 9.92141E-010

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 3.01414E-011

50% of values less than 2.25591E-006

90% of values less than 4.8833E-005

95% of values less than 8.79114E-005

99% of values less than 0.000155183

Minimum 0

Maximum 0.00022182

Mean 1.57545E-005

Std. Dev. 3.17833E-005

Variance 1.01018E-009

Phase: Cell4B

Concentration of TPH Aromatic C16-21 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 3.01415E-011

50% of values less than 2.25591E-006

90% of values less than 4.88347E-005

95% of values less than 8.79129E-005

99% of values less than 0.000155186

Minimum 0

Maximum 0.000221822

Mean 1.57547E-005

Std. Dev. 3.17837E-005

Variance 1.0102E-009

Phase: Cell4B*Concentration of TPH Aromatic C21-35 at base of Unsaturated Zone [mg/l]*

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 4.76151E-015

Minimum 0

Maximum 1.41364E-013

Mean 3.63747E-016

Std. Dev. 5.30302E-015

Variance 2.8122E-029

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 2.0521E-015
90% of values less than 2.86354E-012
95% of values less than 1.67031E-011
99% of values less than 1.35822E-010

Minimum 0

Maximum 6.20345E-010

Mean 5.85349E-012

Std. Dev. 3.74988E-011

Variance 1.40616E-021

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 1.15469E-014
90% of values less than 9.16928E-012
95% of values less than 3.9088E-011
99% of values less than 2.10222E-010

Minimum 0

Maximum 7.70111E-010

Mean 9.59047E-012

Std. Dev. 5.0333E-011

Variance 2.53341E-021

Phase: Cell4B

Concentration of TPH Aromatic C21-35 at base of Unsaturated Zone [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.15475E-014

90% of values less than 9.1727E-012

95% of values less than 3.9145E-011

99% of values less than 2.106E-010

Minimum 0

Maximum 7.71971E-010

Mean 9.61204E-012

Std. Dev. 5.04421E-011

Variance 2.5444E-021

Phase: Cell4B

Approx. time to Peak Conc. Ammoniacal_N at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 21		
50% of values less than 156		
90% of values less than 282		
95% of values less than 282		
99% of values less than 300		
Minimum 0	Maximum 300	
Mean 150.96	Std. Dev. 91.2832	Variance 8332.63

Approx. time to Peak Conc. Chloride at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 11		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 420	
Mean 139.31	Std. Dev. 92.9195	Variance 8634.03

Approx. time to Peak Conc. Mercury at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 4527		
50% of values less than 20000		
90% of values less than 20000		
95% of values less than 20000		
99% of values less than 20000		
Minimum 0	Maximum 20000	
Mean 14447	Std. Dev. 7209.29	Variance 5.19739E+007

Approx. time to Peak Conc. Phenols group 1 - phenol at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 11		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 137.578	Std. Dev. 94.3626	Variance 8904.31

Approx. time to Peak Conc. Phenols group 2 - cresols at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 13
50% of values less than 128

Phase: Cell4B

Approx. time to Peak Conc. Phenols group 2 - cresols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 13		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 137.639	Std. Dev. 94.2815	Variance 8889.01

Approx. time to Peak Conc. Phenols group 3 - xylenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 13		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 137.77	Std. Dev. 94.1089	Variance 8856.48

Approx. time to Peak Conc. Phenols group 4 - chlorophenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 17		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 140.437	Std. Dev. 91.9875	Variance 8461.7

Approx. time to Peak Conc. Phenols group 5 - nitrophenols at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 11		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 137.667	Std. Dev. 94.2508	Variance 8883.22

Approx. time to Peak Conc. TPH Aliphatic C5-6 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 16
50% of values less than 128

Phase: Cell4B

Approx. time to Peak Conc. TPH Aliphatic C5-6 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 16		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 138.121	Std. Dev. 93.6568	Variance 8771.6

Approx. time to Peak Conc. TPH Aliphatic C6-8 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 21		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 139.667	Std. Dev. 91.3058	Variance 8336.74

Approx. time to Peak Conc. TPH Aliphatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 116		
90% of values less than 232		
95% of values less than 282		
99% of values less than 300		
Minimum 0	Maximum 300	
Mean 102.643	Std. Dev. 99.3015	Variance 9860.78

Approx. time to Peak Conc. TPH Aliphatic C10-12 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0

Phase: Cell4B

Approx. time to Peak Conc. TPH Aliphatic C12-16 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aliphatic C16-35 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 0		
50% of values less than 0		
90% of values less than 0		
95% of values less than 0		
99% of values less than 0		
Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Approx. time to Peak Conc. TPH Aromatic C5-7 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 11		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 137.583	Std. Dev. 94.356	Variance 8903.06

Approx. time to Peak Conc. TPH Aromatic C7-8 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 11		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 137.635	Std. Dev. 94.2869	Variance 8890.03

Approx. time to Peak Conc. TPH Aromatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 16
50% of values less than 128

Phase: Cell4B

Approx. time to Peak Conc. TPH Aromatic C8-10 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 16		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 138.201	Std. Dev. 93.5542	Variance 8752.4

Approx. time to Peak Conc. TPH Aromatic C10-12 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 19		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 138.381	Std. Dev. 92.676	Variance 8588.84

Approx. time to Peak Conc. TPH Aromatic C12-C16 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 26		
50% of values less than 128		
90% of values less than 282		
95% of values less than 282		
99% of values less than 282		
Minimum 0	Maximum 282	
Mean 142.133	Std. Dev. 90.5953	Variance 8207.51

Approx. time to Peak Conc. TPH Aromatic C16-21 at Base of Unsaturated Zone [years]

01% of values less than 0		
05% of values less than 0		
10% of values less than 156		
50% of values less than 6094		
90% of values less than 9056		
95% of values less than 9056		
99% of values less than 20000		
Minimum 0	Maximum 20000	
Mean 6625.65	Std. Dev. 3297.21	Variance 1.08716E+007

Approx. time to Peak Conc. TPH Aromatic C21-35 at Base of Unsaturated Zone [years]

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 6094

Phase: Cell4B

Approx. time to Peak Conc. TPH Aromatic C21-35 at Base of Unsaturated Zone [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 6094

90% of values less than 9056

95% of values less than 16406

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 6360.47

Std. Dev. 4310.72

Variance 1.85823E+007

Phase: Cell4B*Concentration of Ammoniacal_N at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.0592349

95% of values less than 0.373136

99% of values less than 2.89388

Minimum 0

Maximum 11.2077

Mean 0.116959

Std. Dev. 0.641086

Variance 0.410991

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 14.0982

95% of values less than 26.5126

99% of values less than 69.1667

Minimum 0

Maximum 138.112

Mean 4.70603

Std. Dev. 13.9523

Variance 194.667

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.233216

50% of values less than 5.09834

90% of values less than 42.6929

95% of values less than 75.2109

99% of values less than 164.18

Minimum 0

Maximum 269.449

Mean 16.5496

Std. Dev. 30.4382

Variance 926.486

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.0773071

50% of values less than 2.06521

90% of values less than 22.7711

95% of values less than 38.6284

99% of values less than 76.8094

Minimum 0

Maximum 123.33

Mean 8.0171

Std. Dev. 15.1615

Variance 229.871

Phase: Cell4B

Concentration of Ammoniacal_N at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.36683E-014

95% of values less than 8.45453E-014

99% of values less than 2.61738E-012

Minimum 0

Maximum 1.25125E-005

Mean 2.11355E-008

Std. Dev. 4.66485E-007

Variance 2.17608E-013

Phase: Cell4B*Concentration of Chloride at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.329266

95% of values less than 2.20915

99% of values less than 17.5617

Minimum 0

Maximum 84.2509

Mean 0.685003

Std. Dev. 4.13927

Variance 17.1335

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 21.923

95% of values less than 50.942

99% of values less than 138.507

Minimum 0

Maximum 229.852

Mean 8.17218

Std. Dev. 24.5789

Variance 604.124

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.161143

50% of values less than 4.37314

90% of values less than 46.4073

95% of values less than 80.7205

99% of values less than 148.904

Minimum 0

Maximum 280.884

Mean 16.2456

Std. Dev. 29.9387

Variance 896.323

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0.00567936

50% of values less than 0.308893

90% of values less than 4.33787

95% of values less than 7.30688

99% of values less than 16.8121

Minimum 0

Maximum 46.2699

Mean 1.54731

Std. Dev. 3.79272

Variance 14.3847

Phase: Cell4B

Concentration of Chloride at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.51356E-014

95% of values less than 8.62625E-014

99% of values less than 2.42177E-013

Minimum 0

Maximum 6.94414E-013

Mean 1.49168E-014

Std. Dev. 4.92209E-014

Variance 2.4227E-027

Phase: Cell4B

Concentration of Mercury at Phase Monitor Well [mg/l]

At 30 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 0
90% of values less than 0
95% of values less than 0
99% of values less than 1.11654E-015

Minimum 0

Maximum 1.40145E-014

Mean 5.27817E-017

Std. Dev. 5.81E-016

Variance 3.37561E-031

Phase: Cell4B

Concentration of Mercury at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.72539E-007

90% of values less than 1.32987E-005

95% of values less than 2.28513E-005

99% of values less than 5.12776E-005

Minimum 0

Maximum 9.21388E-005

Mean 4.45355E-006

Std. Dev. 9.90592E-006

Variance 9.81272E-011

Phase: Cell4B*Concentration of Phenols group 1 - phenol at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00017412

95% of values less than 0.000886444

99% of values less than 0.00363354

Minimum 0

Maximum 0.0374708

Mean 0.000200871

Std. Dev. 0.00138867

Variance 1.9284E-006

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.00116609

95% of values less than 0.0024145

99% of values less than 0.00730284

Minimum 0

Maximum 0.0191106

Mean 0.000442014

Std. Dev. 0.00149338

Variance 2.23019E-006

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.07349E-007

90% of values less than 1.7692E-006

95% of values less than 2.74956E-006

99% of values less than 5.66747E-006

Minimum 0

Maximum 1.13952E-005

Mean 6.37473E-007

Std. Dev. 1.12251E-006

Variance 1.26003E-012

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.21897E-016

95% of values less than 2.96552E-015

99% of values less than 6.45981E-014

Minimum 0

Maximum 3.35064E-013

Mean 2.43987E-015

Std. Dev. 1.89469E-014

Variance 3.58986E-028

Phase: Cell4B

Concentration of Phenols group 1 - phenol at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.67943E-017

Minimum 0

Maximum 3.49014E-016

Mean 1.4674E-018

Std. Dev. 1.65259E-017

Variance 2.73104E-034

Phase: Cell4B*Concentration of Phenols group 2 - cresols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 6.93425E-006

95% of values less than 6.60745E-005

99% of values less than 0.000329726

Minimum 0

Maximum 0.00156534

Mean 1.50983E-005

Std. Dev. 9.01001E-005

Variance 8.11803E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.26266E-005

95% of values less than 0.000174034

99% of values less than 0.000580795

Minimum 0

Maximum 0.00222092

Mean 3.3169E-005

Std. Dev. 0.000119683

Variance 1.43241E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.10331E-008

90% of values less than 1.43837E-007

95% of values less than 2.4393E-007

99% of values less than 5.21771E-007

Minimum 0

Maximum 1.22795E-006

Mean 5.08494E-008

Std. Dev. 1.11771E-007

Variance 1.24927E-014

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 6.79678E-017

95% of values less than 2.10354E-016

99% of values less than 1.85513E-015

Minimum 0

Maximum 9.18659E-014

Mean 1.56847E-016

Std. Dev. 2.92592E-015

Variance 8.56103E-030

Phase: Cell4B

Concentration of Phenols group 2 - cresols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of Phenols group 3 - xlenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.34496E-007

95% of values less than 1.60259E-006

99% of values less than 1.22453E-005

Minimum 0

Maximum 0.000120871

Mean 5.89977E-007

Std. Dev. 4.55466E-006

Variance 2.0745E-011

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.1278E-006

95% of values less than 6.90359E-006

99% of values less than 2.33176E-005

Minimum 0

Maximum 9.09698E-005

Mean 1.3793E-006

Std. Dev. 5.54467E-006

Variance 3.07434E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 5.49658E-010

90% of values less than 4.83134E-009

95% of values less than 7.79162E-009

99% of values less than 1.96407E-008

Minimum 0

Maximum 3.34595E-008

Mean 1.85196E-009

Std. Dev. 3.51629E-009

Variance 1.23643E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 9.28112E-017

Minimum 0

Maximum 7.84252E-016

Mean 3.69023E-018

Std. Dev. 3.69633E-017

Variance 1.36629E-033

Phase: Cell4B

Concentration of Phenols group 3 - xlenols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of Phenols group 4 - chlorophenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 6.23019E-006

95% of values less than 3.05319E-005

99% of values less than 0.000178757

Minimum 0

Maximum 0.000527811

Mean 7.48186E-006

Std. Dev. 3.78524E-005

Variance 1.4328E-009

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0.000143139

95% of values less than 0.000270203

99% of values less than 0.000602681

Minimum 0

Maximum 0.00114232

Mean 4.3475E-005

Std. Dev. 0.000119021

Variance 1.4166E-008

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 1.47075E-009

50% of values less than 6.66906E-008

90% of values less than 5.72181E-006

95% of values less than 1.3253E-005

99% of values less than 5.53021E-005

Minimum 0

Maximum 9.38633E-005

Mean 2.61513E-006

Std. Dev. 9.30088E-006

Variance 8.65064E-011

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.16793E-011

90% of values less than 1.17652E-007

95% of values less than 4.47125E-007

99% of values less than 3.52408E-006

Minimum 0

Maximum 7.67658E-006

Mean 1.31299E-007

Std. Dev. 6.73344E-007

Variance 4.53392E-013

Phase: Cell4B

Concentration of Phenols group 4 - chlorophenols at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 2.74401E-012

Minimum 0

Maximum 4.22918E-010

Mean 7.69205E-013

Std. Dev. 1.43912E-011

Variance 2.07108E-022

Phase: Cell4B*Concentration of Phenols group 5 - nitrophenols at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.16363E-007

95% of values less than 4.37132E-006

99% of values less than 2.33802E-005

Minimum 0

Maximum 5.0795E-005

Mean 8.35047E-007

Std. Dev. 3.98713E-006

Variance 1.58972E-011

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.27702E-006

95% of values less than 1.12954E-005

99% of values less than 2.415E-005

Minimum 0

Maximum 4.21682E-005

Mean 1.8353E-006

Std. Dev. 4.95298E-006

Variance 2.4532E-011

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.25038E-009

90% of values less than 7.57845E-009

95% of values less than 1.11084E-008

99% of values less than 2.09014E-008

Minimum 0

Maximum 5.13548E-008

Mean 2.90277E-009

Std. Dev. 4.6624E-009

Variance 2.1738E-017

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 1.3162E-016

Minimum 0

Maximum 1.19877E-015

Mean 6.60435E-018

Std. Dev. 6.42445E-017

Variance 4.12736E-033

Phase: Cell4B

Concentration of Phenols group 5 - nitrophenols at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aliphatic C5-6 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.67638E-008

95% of values less than 6.04081E-007

99% of values less than 3.60581E-006

Minimum 0

Maximum 7.35982E-006

Mean 1.29994E-007

Std. Dev. 6.53148E-007

Variance 4.26603E-013

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.77778E-007

95% of values less than 1.9009E-006

99% of values less than 5.0033E-006

Minimum 0

Maximum 1.46401E-005

Mean 3.42168E-007

Std. Dev. 1.07544E-006

Variance 1.15658E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 1.39241E-010

90% of values less than 1.14297E-009

95% of values less than 1.68999E-009

99% of values less than 2.81661E-009

Minimum 0

Maximum 5.68569E-009

Mean 3.89865E-010

Std. Dev. 6.25858E-010

Variance 3.91699E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 6.95139E-016

Mean 1.30452E-018

Std. Dev. 2.34858E-017

Variance 5.51582E-034

Phase: Cell4B

Concentration of TPH Aliphatic C5-6 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aliphatic C6-8 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 9.96545E-013

95% of values less than 1.39644E-009

99% of values less than 5.97214E-008

Minimum 0

Maximum 1.58151E-007

Mean 1.83264E-009

Std. Dev. 1.20741E-008

Variance 1.45784E-016

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.26947E-008

95% of values less than 5.06591E-008

99% of values less than 1.8374E-007

Minimum 0

Maximum 4.56599E-007

Mean 8.67164E-009

Std. Dev. 3.72959E-008

Variance 1.39098E-015

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.99666E-013

90% of values less than 3.42006E-011

95% of values less than 6.4222E-011

99% of values less than 1.73232E-010

Minimum 0

Maximum 4.18854E-010

Mean 1.27401E-011

Std. Dev. 3.68427E-011

Variance 1.35739E-021

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C6-8 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aliphatic C8-10 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.49766E-015

99% of values less than 8.56394E-014

Minimum 0

Maximum 2.03001E-012

Mean 6.56933E-015

Std. Dev. 8.75596E-014

Variance 7.66668E-027

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.39978E-017

95% of values less than 3.51348E-016

99% of values less than 3.35357E-015

Minimum 0

Maximum 2.36785E-014

Mean 1.26098E-016

Std. Dev. 9.66853E-016

Variance 9.34805E-031

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C8-10 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C10-12 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C10-12 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C12-16 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C12-16 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C16-35 at Phase Monitor Well [mg/l]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Concentration of TPH Aliphatic C16-35 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C5-7 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.30514E-007

95% of values less than 9.98759E-007

99% of values less than 4.29668E-006

Minimum 0

Maximum 1.43085E-005

Mean 1.74776E-007

Std. Dev. 8.19681E-007

Variance 6.71878E-013

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.29008E-006

95% of values less than 2.39069E-006

99% of values less than 4.7612E-006

Minimum 0

Maximum 1.28573E-005

Mean 4.04573E-007

Std. Dev. 1.04316E-006

Variance 1.08819E-012

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.25945E-010

90% of values less than 1.78899E-009

95% of values less than 2.59193E-009

99% of values less than 4.68977E-009

Minimum 0

Maximum 8.94536E-009

Mean 6.69305E-010

Std. Dev. 9.96601E-010

Variance 9.93213E-019

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 7.55045E-017

Minimum 0

Maximum 5.08998E-016

Mean 2.62354E-018

Std. Dev. 2.81979E-017

Variance 7.95122E-034

Phase: Cell4B

Concentration of TPH Aromatic C5-7 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C7-8 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.03793E-009

95% of values less than 1.0783E-007

99% of values less than 5.00434E-007

Minimum 0

Maximum 2.03389E-006

Mean 2.40615E-008

Std. Dev. 1.42463E-007

Variance 2.02956E-014

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.70028E-007

95% of values less than 3.12478E-007

99% of values less than 7.15589E-007

Minimum 0

Maximum 3.42453E-006

Mean 5.49666E-008

Std. Dev. 1.889E-007

Variance 3.56831E-014

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 2.12245E-011

90% of values less than 3.0541E-010

95% of values less than 4.94902E-010

99% of values less than 1.00524E-009

Minimum 0

Maximum 1.64281E-009

Mean 1.03586E-010

Std. Dev. 2.0324E-010

Variance 4.13066E-020

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 2.29259E-017

Mean 2.2903E-020

Std. Dev. 7.24619E-019

Variance 5.25072E-037

Phase: Cell4B

Concentration of TPH Aromatic C7-8 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C8-10 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.59747E-012

95% of values less than 1.95422E-009

99% of values less than 3.8164E-008

Minimum 0

Maximum 1.426E-007

Mean 1.42589E-009

Std. Dev. 9.62567E-009

Variance 9.26536E-017

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 5.2776E-009

95% of values less than 1.75868E-008

99% of values less than 5.84381E-008

Minimum 0

Maximum 1.58592E-007

Mean 2.91442E-009

Std. Dev. 1.22131E-008

Variance 1.4916E-016

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 9.86669E-014

90% of values less than 1.2558E-011

95% of values less than 2.28547E-011

99% of values less than 7.00645E-011

Minimum 0

Maximum 2.22823E-010

Mean 4.74187E-012

Std. Dev. 1.49804E-011

Variance 2.24413E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aromatic C8-10 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C10-12 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.83713E-012

95% of values less than 1.02578E-009

99% of values less than 3.88333E-008

Minimum 0

Maximum 2.64222E-007

Mean 1.49653E-009

Std. Dev. 1.2427E-008

Variance 1.54432E-016

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 3.02086E-009

95% of values less than 1.35734E-008

99% of values less than 5.96848E-008

Minimum 0

Maximum 3.43024E-007

Mean 2.95146E-009

Std. Dev. 1.69196E-008

Variance 2.86272E-016

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 9.87647E-014

90% of values less than 1.04734E-011

95% of values less than 2.27687E-011

99% of values less than 6.2009E-011

Minimum 0

Maximum 1.06007E-010

Mean 3.93642E-012

Std. Dev. 1.11866E-011

Variance 1.25141E-022

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aromatic C10-12 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C12-C16 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.85249E-013

95% of values less than 8.02094E-011

99% of values less than 1.29017E-009

Minimum 0

Maximum 4.63448E-009

Mean 5.03767E-011

Std. Dev. 3.41643E-010

Variance 1.1672E-019

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 2.79357E-010

95% of values less than 9.96771E-010

99% of values less than 4.39021E-009

Minimum 0

Maximum 2.03165E-008

Mean 2.0347E-010

Std. Dev. 1.0474E-009

Variance 1.09705E-018

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 8.83798E-015

90% of values less than 7.76692E-013

95% of values less than 1.44769E-012

99% of values less than 6.51147E-012

Minimum 0

Maximum 2.6515E-011

Mean 3.46064E-013

Std. Dev. 1.36059E-012

Variance 1.85122E-024

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B

Concentration of TPH Aromatic C12-C16 at Phase Monitor Well [mg/l]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B*Concentration of TPH Aromatic C16-21 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 1.21572E-014

99% of values less than 2.41415E-012

Minimum 0

Maximum 8.05566E-011

Mean 1.934E-013

Std. Dev. 2.86527E-012

Variance 8.20979E-024

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 1.48313E-009

95% of values less than 5.66628E-009

99% of values less than 6.93114E-008

Minimum 0

Maximum 3.01911E-007

Mean 2.49818E-009

Std. Dev. 1.60198E-008

Variance 2.56634E-016

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 3.87263E-010

90% of values less than 5.23173E-008

95% of values less than 1.32963E-007

99% of values less than 3.79931E-007

Minimum 0

Maximum 9.25379E-007

Mean 2.34908E-008

Std. Dev. 7.7312E-008

Variance 5.97715E-015

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 5.32939E-016

50% of values less than 5.91779E-010

90% of values less than 7.53384E-008

95% of values less than 1.74333E-007

99% of values less than 4.80154E-007

Minimum 0

Maximum 1.17754E-006

Mean 3.23483E-008

Std. Dev. 1.02981E-007

Variance 1.06051E-014

Phase: Cell4B

Concentration of TPH Aromatic C16-21 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 3.32674E-012

50% of values less than 1.59164E-007

90% of values less than 4.86078E-006

95% of values less than 8.43602E-006

99% of values less than 1.99269E-005

Minimum 0

Maximum 3.39654E-005

Mean 1.60089E-006

Std. Dev. 3.71468E-006

Variance 1.37988E-011

Phase: Cell4B*Concentration of TPH Aromatic C21-35 at Phase Monitor Well [mg/l]*

At 30 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 100 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

At 300 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 9.7296E-017

99% of values less than 3.58804E-015

Minimum 0

Maximum 1.09082E-013

Mean 3.13854E-016

Std. Dev. 4.16428E-015

Variance 1.73413E-029

At 1000 years

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 8.01273E-017

95% of values less than 5.76555E-016

99% of values less than 3.53216E-014

Minimum 0

Maximum 1.91663E-013

Mean 1.13355E-015

Std. Dev. 1.05665E-014

Variance 1.11651E-028

Phase: Cell4B

Concentration of TPH Aromatic C21-35 at Phase Monitor Well [mg/l]

At infinity

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 4.38253E-017

90% of values less than 4.36135E-014

95% of values less than 1.74422E-013

99% of values less than 2.42055E-012

Minimum 0

Maximum 1.18495E-011

Mean 9.0462E-014

Std. Dev. 6.12803E-013

Variance 3.75527E-025

Phase: Cell4B*Approx. time to Peak Conc. Ammoniacal_N at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 100

50% of values less than 256

90% of values less than 464

95% of values less than 512

99% of values less than 624

Minimum 0

Maximum 840

Mean 274.174

Std. Dev. 150.49

Variance 22647.3

Approx. time to Peak Conc. Chloride at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 70

50% of values less than 156

90% of values less than 300

95% of values less than 344

99% of values less than 380

Minimum 0

Maximum 512

Mean 174.671

Std. Dev. 99.1964

Variance 9839.92

Approx. time to Peak Conc. Mercury at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 6728

50% of values less than 20000

90% of values less than 20000

95% of values less than 20000

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 16115.8

Std. Dev. 6292.96

Variance 3.96014E+007

Approx. time to Peak Conc. Phenols group 1 - phenol at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 57

50% of values less than 141

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 300

Mean 156.08

Std. Dev. 94.4418

Variance 8919.25

Phase: Cell4B*Approx. time to Peak Conc. Phenols group 2 - cresols at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 64

50% of values less than 141

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 300

Mean 156.151

Std. Dev. 94.371

Variance 8905.88

Approx. time to Peak Conc. Phenols group 3 - xylenols at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 64

50% of values less than 141

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 300

Mean 156.25

Std. Dev. 94.2591

Variance 8884.78

Approx. time to Peak Conc. Phenols group 4 - chlorophenols at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 70

50% of values less than 156

90% of values less than 300

95% of values less than 300

99% of values less than 344

Minimum 0

Maximum 420

Mean 166.025

Std. Dev. 92.7205

Variance 8597.09

Approx. time to Peak Conc. Phenols group 5 - nitrophenols at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 64

50% of values less than 141

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 300

Mean 156.157

Std. Dev. 94.3654

Variance 8904.82

Phase: Cell4B*Approx. time to Peak Conc. TPH Aliphatic C5-6 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 64

50% of values less than 141

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 312

Mean 157.037

Std. Dev. 93.7297

Variance 8785.25

Approx. time to Peak Conc. TPH Aliphatic C6-8 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 141

90% of values less than 300

95% of values less than 300

99% of values less than 312

Minimum 0

Maximum 312

Mean 153.559

Std. Dev. 93.9801

Variance 8832.26

Approx. time to Peak Conc. TPH Aliphatic C8-10 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 190

95% of values less than 256

99% of values less than 300

Minimum 0

Maximum 312

Mean 43.1489

Std. Dev. 82.7856

Variance 6853.46

Approx. time to Peak Conc. TPH Aliphatic C10-12 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Phase: Cell4B*Approx. time to Peak Conc. TPH Aliphatic C12-16 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aliphatic C16-35 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 0

90% of values less than 0

95% of values less than 0

99% of values less than 0

Minimum 0

Maximum 0

Mean 0

Std. Dev. 0

Variance 0

Approx. time to Peak Conc. TPH Aromatic C5-7 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 57

50% of values less than 141

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 300

Mean 156.107

Std. Dev. 94.4149

Variance 8914.17

Approx. time to Peak Conc. TPH Aromatic C7-8 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 57

50% of values less than 141

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 300

Mean 155.454

Std. Dev. 94.5176

Variance 8933.58

Phase: Cell4B*Approx. time to Peak Conc. TPH Aromatic C8-10 at Phase Monitor Well [years]*

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 141

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 312

Mean 148.578

Std. Dev. 95.4354

Variance 9107.91

Approx. time to Peak Conc. TPH Aromatic C10-12 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 141

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 312

Mean 149.765

Std. Dev. 94.7993

Variance 8986.9

Approx. time to Peak Conc. TPH Aromatic C12-C16 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 141

90% of values less than 300

95% of values less than 300

99% of values less than 300

Minimum 0

Maximum 312

Mean 151.018

Std. Dev. 92.7789

Variance 8607.93

Approx. time to Peak Conc. TPH Aromatic C16-21 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 9999

50% of values less than 16406

90% of values less than 20000

95% of values less than 20000

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 14943.2

Std. Dev. 5452.22

Variance 2.97267E+007

Phase: Cell4B

Approx. time to Peak Conc. TPH Aromatic C21-35 at Phase Monitor Well [years]

01% of values less than 0

05% of values less than 0

10% of values less than 0

50% of values less than 9999

90% of values less than 20000

95% of values less than 20000

99% of values less than 20000

Minimum 0

Maximum 20000

Mean 9139.19

Std. Dev. 8506.65

Variance 7.23631E+007

Phase: Cell4B

Flow to Leachate Treatment Plant [l/day]

At 30 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 100 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 300 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

At 1000 years

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0	Maximum 0	
Mean 0	Std. Dev. 0	Variance 0

Phase: Cell4B

Flow to Leachate Treatment Plant [l/day]

At infinity

- 01% of values less than 0
- 05% of values less than 0
- 10% of values less than 0
- 50% of values less than 0
- 90% of values less than 0
- 95% of values less than 0
- 99% of values less than 0

Minimum 0
Mean 0

Maximum 0
Std. Dev. 0

Variance 0

Phase: Cell4B

Head on EBS [m]

At 1000 years

- 01% of values less than 11
- 05% of values less than 11
- 10% of values less than 11
- 50% of values less than 11
- 90% of values less than 11
- 95% of values less than 11
- 99% of values less than 11

Minimum 11
Mean 11

Maximum 11
Std. Dev. 1.7712E-007
Variance -3.13717E-014

At infinity

- 01% of values less than 11
- 05% of values less than 11
- 10% of values less than 11
- 50% of values less than 11
- 90% of values less than 11
- 95% of values less than 11
- 99% of values less than 11

Minimum 11
Mean 11

Maximum 11
Std. Dev. 1.7712E-007
Variance -3.13717E-014

Phase: Cell4B

Surface Breakout [l/day]

At 300 years

01% of values less than 1220.4
05% of values less than 1542.61
10% of values less than 1894.65
50% of values less than 2852.23
90% of values less than 3871.71
95% of values less than 4214.39
99% of values less than 4738.71

Minimum 884.845	Maximum 5450.25	
Mean 2857.08	Std. Dev. 781.472	Variance 610698

At 1000 years

01% of values less than 9585.07
05% of values less than 11051.1
10% of values less than 11631.7
50% of values less than 14235.2
90% of values less than 16845.8
95% of values less than 17444.4
99% of values less than 19042.3

Minimum 8385.32	Maximum 20470.9	
Mean 14272.5	Std. Dev. 1975.01	Variance 3.90065E+006

At infinity

01% of values less than 6607.13
05% of values less than 7994.22
10% of values less than 8616.93
50% of values less than 11303.4
90% of values less than 14138
95% of values less than 15057.6
99% of values less than 16935.1

Minimum 5196.89	Maximum 19107.3	
Mean 11391.8	Std. Dev. 2157.85	Variance 4.65631E+006

Phase: Cell4B

Leakage through EBS [l/day]

At 100 years

01% of values less than 0
05% of values less than 0
10% of values less than 0
50% of values less than 12.2318
90% of values less than 125.849
95% of values less than 142.022
99% of values less than 157.222
Minimum 0
Mean 41.8256

Maximum 163.469
Std. Dev. 51.0945
Variance 2610.65

At 300 years

01% of values less than 0
05% of values less than 0
10% of values less than 11.6508
50% of values less than 78.4672
90% of values less than 154.127
95% of values less than 164.714
99% of values less than 175.413
Minimum 0
Mean 80.3846

Maximum 181.38
Std. Dev. 52.2496
Variance 2730.02

At 1000 years

01% of values less than 0
05% of values less than 0
10% of values less than 18.9268
50% of values less than 127.47
90% of values less than 250.38
95% of values less than 267.579
99% of values less than 284.959
Minimum 0
Mean 130.585

Maximum 294.653
Std. Dev. 84.8796
Variance 7204.55

At infinity

01% of values less than 0
05% of values less than 0
10% of values less than 3255.03
50% of values less than 3255.03
90% of values less than 3255.03
95% of values less than 3255.03
99% of values less than 3255.03
Minimum 0
Mean 3011.15

Maximum 3255.03
Std. Dev. 857.382
Variance 735105

Phase: Cell4B

Aquifer Flow [m³/year]

At 30 years

01% of values less than 5.64765
05% of values less than 18.0692
10% of values less than 36.4965
50% of values less than 453.199
90% of values less than 2773.94
95% of values less than 3595.39
99% of values less than 6233.48

Minimum 0	Maximum 10994.8	
Mean 991.03	Std. Dev. 1343.44	Variance 1.80482E+006

At 100 years

01% of values less than 9.68453
05% of values less than 28.2989
10% of values less than 54.6286
50% of values less than 455.388
90% of values less than 2773.94
95% of values less than 3595.39
99% of values less than 6233.48

Minimum 0	Maximum 10994.8	
Mean 996.743	Std. Dev. 1339.81	Variance 1.7951E+006

At 300 years

01% of values less than 19.3434
05% of values less than 45.8743
10% of values less than 66.2292
50% of values less than 463.567
90% of values less than 2773.94
95% of values less than 3595.39
99% of values less than 6233.48

Minimum 0	Maximum 10994.8	
Mean 1003.53	Std. Dev. 1335.77	Variance 1.78427E+006

At 1000 years

01% of values less than 22.5969
05% of values less than 60.2426
10% of values less than 86.8555
50% of values less than 496.759
90% of values less than 2773.94
95% of values less than 3595.39
99% of values less than 6233.48

Minimum 0	Maximum 10994.8	
Mean 1017.37	Std. Dev. 1328.88	Variance 1.76592E+006

Phase: Cell4B

Aquifer Flow [m³/year]

At infinity

01% of values less than 47.9192

05% of values less than 1191.35

10% of values less than 1207.04

50% of values less than 1597.43

90% of values less than 3908.98

95% of values less than 4614.14

99% of values less than 7422.38

Minimum 0

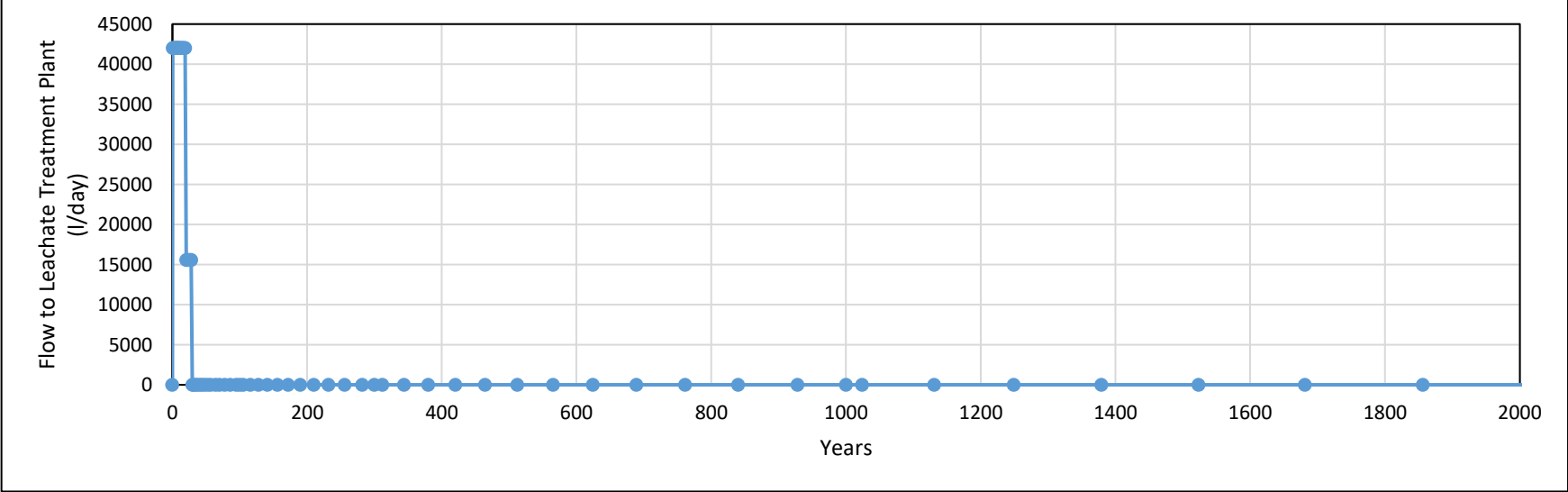
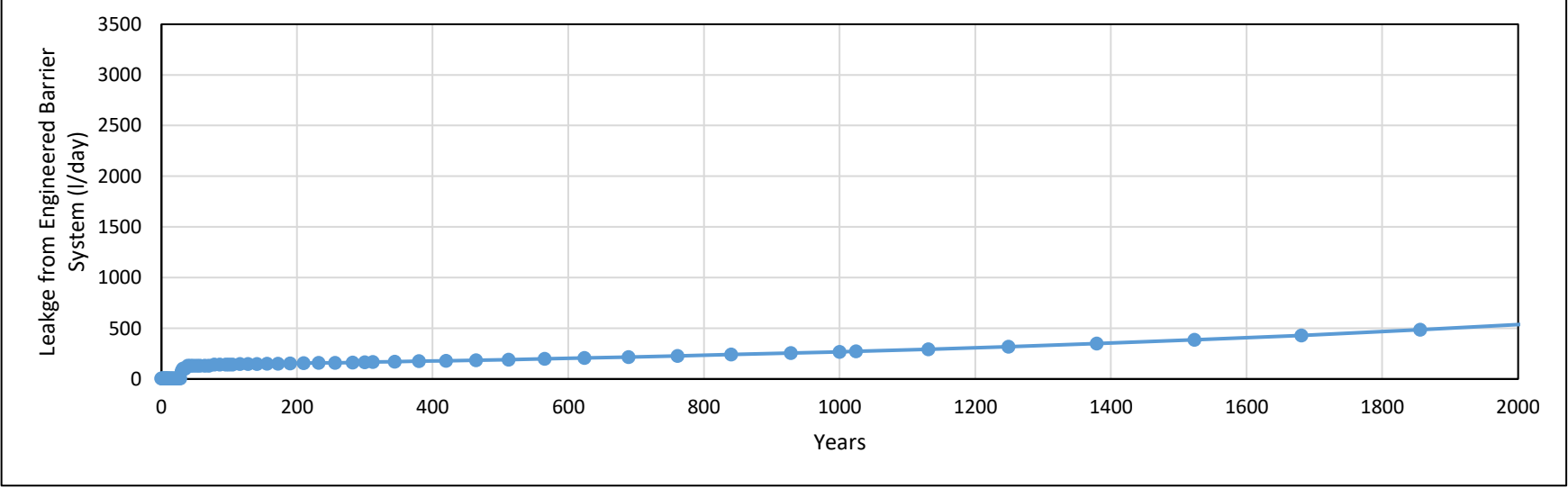
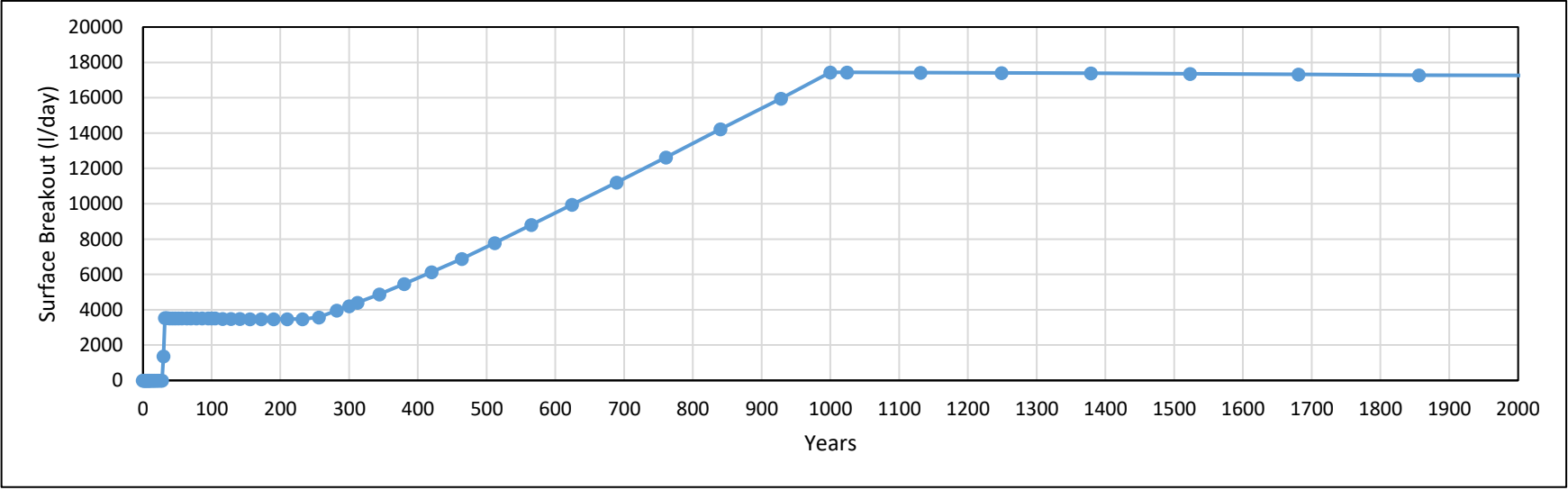
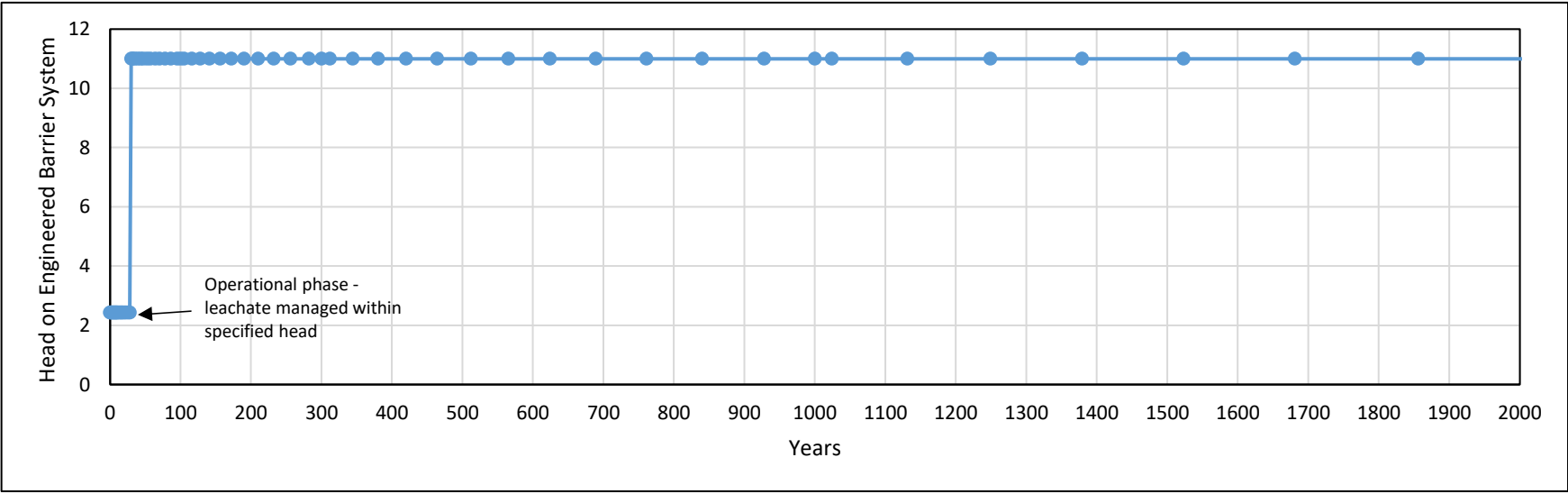
Maximum 12183.7



Mean 2088.38

Std. Dev. 1368.46

Variance 1.87267E+006

Table A10.1: Sherwood Sandstone (LandSim) Modelled Concentrations																										
		2024 HRAR EAL Sherwood Sandstone	Base of Unsaturated Zone - Cell 3A				Base of Unsaturated Zone - Cell 3B				Base of Unsaturated Zone - Cell 3C				Base of Unsaturated Zone - Cell 4A				Base of Unsaturated Zone - Cell 4B				Compliance Point			
			50th Percentile		95th Percentile		50th Percentile		95th Percentile		50th Percentile		95th Percentile		50th Percentile		95th Percentile		50th Percentile		95th Percentile		50th Percentile		95th Percentile	
			Peak Concentration	Year	Peak Concentration	Year	Peak Concentration	Year	Peak Concentration	Year	Peak Concentration	Year	Peak Concentration	Year	Peak Concentration	Year	Peak Concentration	Year	Peak Concentration	Year	Peak Concentration	Year	Peak Concentration	Year	Peak Concentration	Year
Mercury	mg/l	0.00001	1.06E-05	18114	6.58E-05	4527	5.76E-07	20000	3.13E-05	20000	0	0	1.27E-05	20000	5.44E-08	20000	1.08E-05	20000	1.05E-06	20000	6.11E-05	20000	n/a	n/a	n/a	n/a
Phenols group 1 - phenol	mg/l	-	2.41E+00	19	5.81E+00	9	6.77E-03	78	6.52E-01	30	0	0	5.51E-03	128	3.62E-04	78	3.23E-02	28	5.82E-04	128	1.82E+00	13	n/a	n/a	n/a	n/a
Phenols group 2 - cresols	mg/l	-	3.85E-03	21	4.65E-02	16	1.96E-03	86	7.05E-01	30	0	0	6.17E-05	128	1.02E-04	78	4.68E-02	32	3.76E-05	128	1.17E-01	14	n/a	n/a	n/a	n/a
Phenols group 3 - xlenols	mg/l	-	9.57E-03	23	8.75E-02	9	1.61E-06	128	2.67E-03	30	0	0	3.38E-06	128	8.18E-07	78	5.76E-04	32	5.73E-06	128	8.68E-03	14	n/a	n/a	n/a	n/a
Phenols group 4 - chlorophenols	mg/l	-	8.90E-03	32	8.26E-02	16	2.63E-04	128	4.66E-02	47	0	0	2.56E-05	128	2.93E-05	100	1.20E-03	47	5.84E-05	128	1.90E-02	23	n/a	n/a	n/a	n/a
Phenols group 5 - nitrophenols	mg/l	-	1.88E-04	21	6.36E-04	8	2.06E-07	128	9.42E-05	30	0	0	1.28E-06	128	1.55E-07	78	4.75E-05	26	1.15E-05	128	9.77E-03	13	n/a	n/a	n/a	n/a
Total Phenols	mg/l	0.1	2.43E+00	-	6.03E+00	-	8.99E-03	-	1.41E+00	-	0	0	5.60E-03	-	4.94E-04	-	8.09E-02	-	6.96E-04	-	1.98E+00	-	n/a	n/a	n/a	n/a
TPH Aliphatic C5-6	mg/l	-	2.92E-02	26	1.65E-01	10	1.49E-05	128	1.26E-02	39	0	0	1.82E-05	128	1.13E-05	128	8.92E-03	39	3.71E-07	210	1.55E-03	17	n/a	n/a	n/a	n/a
TPH Aliphatic C6-8	mg/l	-	1.68E-04	39	1.81E-02	16	1.76E-09	128	5.21E-05	47	0	0	1.91E-08	210	3.60E-10	141	3.33E-06	95	5.60E-09	210	5.60E-05	30	n/a	n/a	n/a	n/a
TPH Aliphatic C8-10	mg/l	-	1.49E-11	95	1.16E-04	39	0	0	7.43E-12	156	0	0	0.00E+00	0	0	0	1.73E-14	190	0	0	2.16E-10	116	n/a	n/a	n/a	n/a
TPH Aliphatic C10-12	mg/l	-	0	0	1.11E-11	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n/a	n/a	n/a	n/a
TPH Aliphatic C12-16	mg/l	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n/a	n/a	n/a	n/a
TPH Aliphatic C16-35	mg/l	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n/a	n/a	n/a	n/a
TPH Aromatic C5-7	mg/l	-	1.88E-03	19	5.66E-03	9	3.71E-06	128	1.48E-03	30	0	0	3.71E-06	128	2.55E-06	78	6.00E-04	28	2.55E-06	128	2.35E-03	13	n/a	n/a	n/a	n/a
TPH Aromatic C7-8	mg/l	-	3.84E-04	21	3.48E-03	9	8.65E-08	128	1.72E-04	32	0	0	8.95E-08	128	3.89E-08	128	8.82E-05	32	1.40E-07	210	7.98E-04	14	n/a	n/a	n/a	n/a
TPH Aromatic C8-10	mg/l	-	7.29E-05	26	1.14E-02	11	4.70E-10	128	4.02E-05	35	0	0	8.86E-09	210	1.52E-10	128	6.17E-06	39	3.16E-09	210	4.54E-05	19	n/a	n/a	n/a	n/a
TPH Aromatic C10-12	mg/l	-	7.04E-05	32	1.12E-02	16	2.70E-10	128	1.34E-05	47	0	0	2.38E-09	210	8.05E-11	128	2.70E-06	47	2.87E-09	210	3.02E-05	23	n/a	n/a	n/a	n/a
TPH Aromatic C12-16	mg/l	-	1.35E-05	35	7.18E-03	16	3.98E-11	128	1.14E-06	47	0	0	1.10E-10	282	1.53E-12	141	1.95E-08	47	4.38E-10	210	2.40E-06	30	n/a	n/a	n/a	n/a
TPH Aromatic C16-21	mg/l	-	1.16E-05	190	8.38E-03	64	8.22E-09	5519	1.43E-05	9056	0	0	9.92E-06	12189	3.48E-10	5519	1.63E-06	8202	2.26E-06	9056	8.79E-05	5519	n/a	n/a	n/a	n/a
TPH Aromatic C21-35	mg/l	-	4.39E-13	420	5.78E-05	156	0	0	1.48E-14	6094	0	0	4.92E-16	8202	0	0	0	0	1.15E-14	5519	3.91E-11	9056	n/a	n/a	n/a	n/a
Total TPH	mg/l	1	3.19E-02	-	2.30E-01	-	1.87E-05	-	1.44E-02	-	0	-	3.20E-05	-	1.39E-05	-	9.62E-03	-	5.33E-06	-	4.92E-03	-	n/a	n/a	n/a	n/a
Ammoniacal Nitrogen	mg/l	9	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	96.0	761	2851	761
Chloride	mg/l	250	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	20.6	312	568	156
Notes:																										
Bold indicates exceedance of EAL.																										



<div> wardell armstrong</div> <div><div>PART OF</div> SLR</div>			
CLIENT	QUERCIA LIMITED		
PROJECT	Hydrogeological Risk Assessment Review		
FIGURE TITLE	LandSim Hydraulic Results		
FIGURE NO	DRAWN BY	APPROVED BY	Date
A10.1	EB	AS	Dec-24

APPENDIX 11

Hydraulic Containment Model Results

**Table 11.1 – Cell 4B (Phase 4) Glaciofluvial Deposits (Hydraulic Containment Models)
Modelled Concentrations**

Table A11.1 Cell 4B (Phase 4) Glaciofluvial Deposits (Hydraulic Containment Models) Modelled Concentrations			
Parameter	Unit	2024 HRAR EAL Glaciofluvial Deposits	Modelled Maximum Concentration
Mercury	mg/l	0.00001	7.70E-25
Phenols group 1 - phenol	mg/l	-	1.63E-17
Phenols group 2 - cresols	mg/l	-	3.16E-18
Phenols group 3 - xylenols	mg/l	-	4.49E-19
Phenols group 4 - chlorophenols	mg/l	-	8.16E-20
Phenols group 5 - nitrophenols	mg/l	-	8.16E-20
Total Phenols	mg/l	0.1	2.01E-17
TPH Aliphatic C5-6	mg/l	-	8.16E-21
TPH Aliphatic C6-8	mg/l	-	8.16E-21
TPH Aliphatic C8-10	mg/l	-	8.16E-21
TPH Aliphatic C10-12	mg/l	-	8.16E-21
TPH Aliphatic C12-16	mg/l	-	8.16E-21
TPH Aliphatic C16-35	mg/l	-	8.15E-21
TPH Aromatic C5-7	mg/l	-	8.16E-21
TPH Aromatic C7-8	mg/l	-	8.16E-21
TPH Aromatic C8-10	mg/l	-	8.16E-21
TPH Aromatic C10-12	mg/l	-	8.16E-21
TPH Aromatic C12-16	mg/l	-	9.79E-21
TPH Aromatic C16-21	mg/l	-	1.06E-20
TPH Aromatic C21-35	mg/l	-	1.06E-20
Total TPH	mg/l	0.01	1.13E-19
Ammoniacal Nitrogen	mg/l	9	1.86E-09
Chloride	mg/l	250	1.13E-08

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CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	Mercury	-
Contaminant type	Cont_Type	Inorganic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.00173	mg/l
Free water diffusion coefficient	Dw_cl	8.47E-10	m2/s
Partition coefficient in clay	Kd_cl	3835	l/kg
Retardation factor in clay	R_cl	1.00004557	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

Mercury

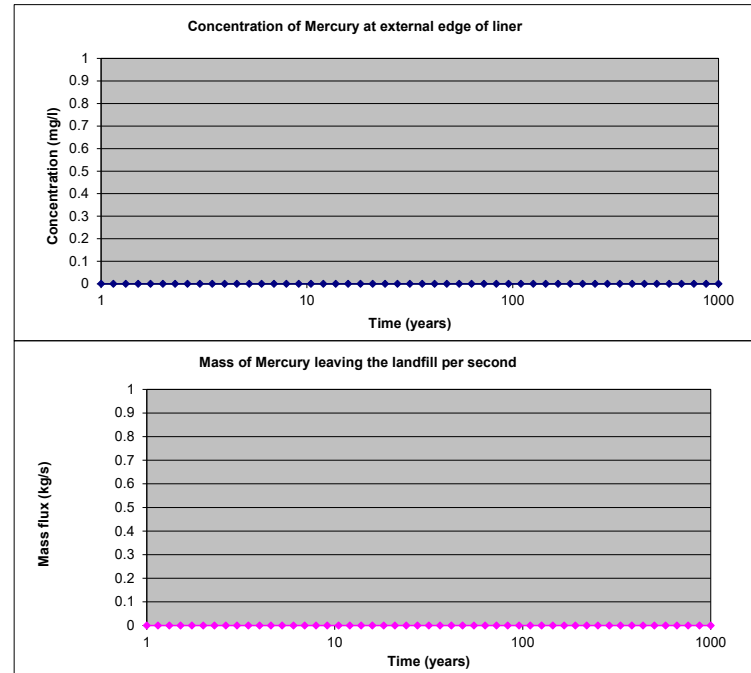
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



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CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	enols group 1 - phe	-
Contaminant type	Cont_Type	Inorganic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	20	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	117	l/kg
Retardation factor in clay	R_cl	1.00000139	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

Phenols group 1 - phenol

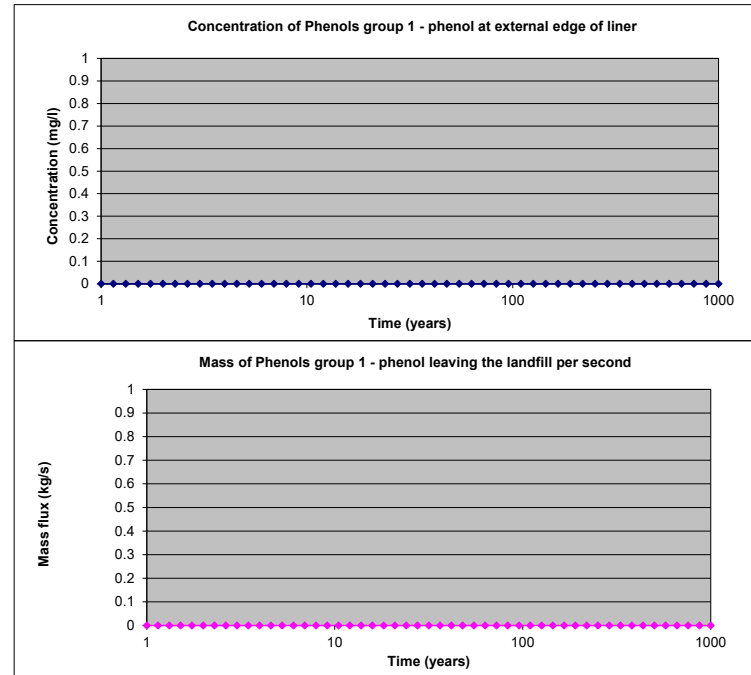
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



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CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	enols group 2 - cres	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	3.87	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	316	l/kg
Retardation factor in clay	R_cl	1.000003755	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

Phenols group 2 - cresols

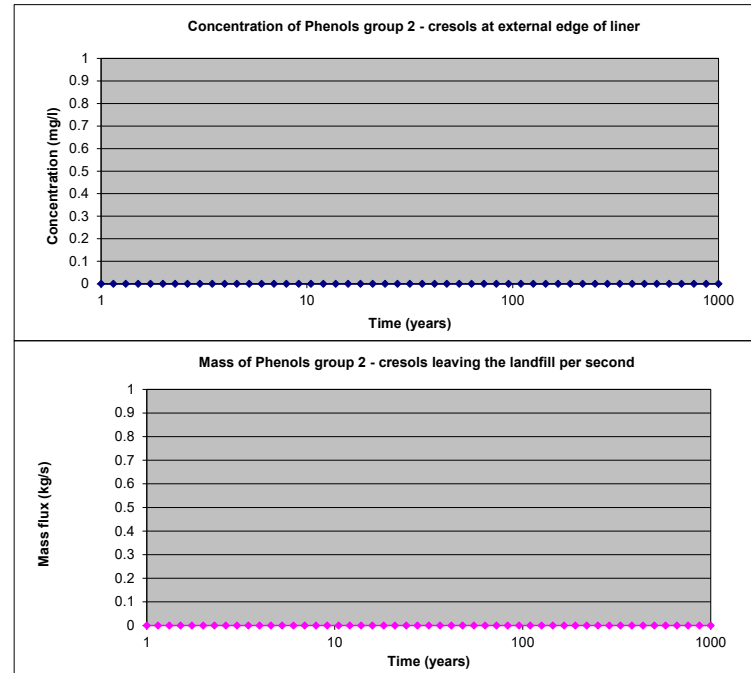
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



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CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	bnols group 3 - xylen	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.55	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	800	l/kg
Retardation factor in clay	R_cl	1.000009506	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

Phenols group 3 - xylenols

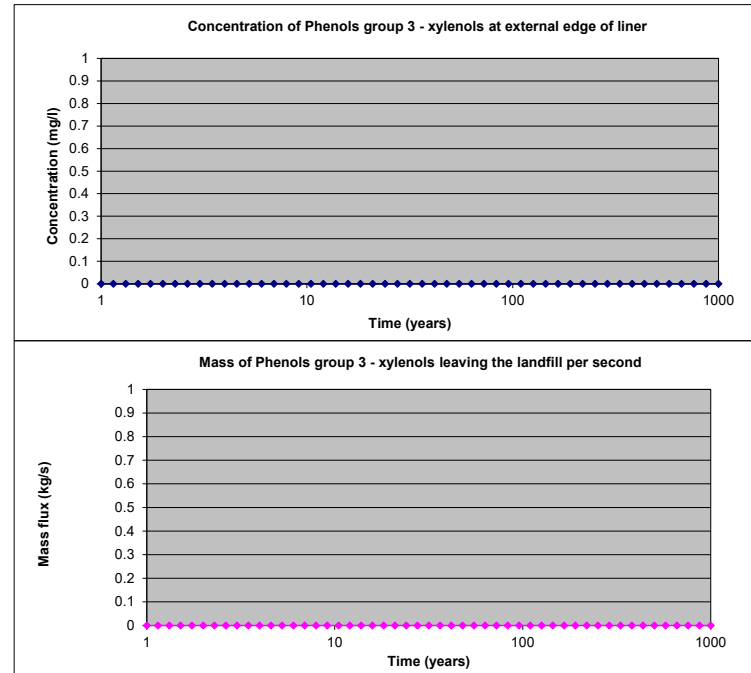
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



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CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	bls group 4- Chloro	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.1	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	3000	l/kg
Retardation factor in clay	R_cl	1.000035648	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

Phenols group 4- Chlorophenol

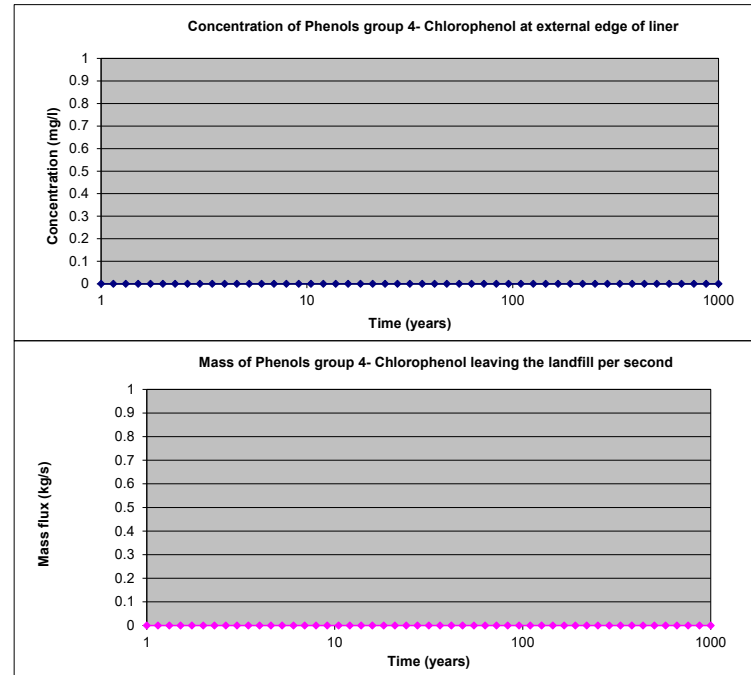
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



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CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	pls group 5- Nitroph	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.1	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	500	l/kg
Retardation factor in clay	R_cl	1.000005941	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

Phenols group 5- Nitrophenols

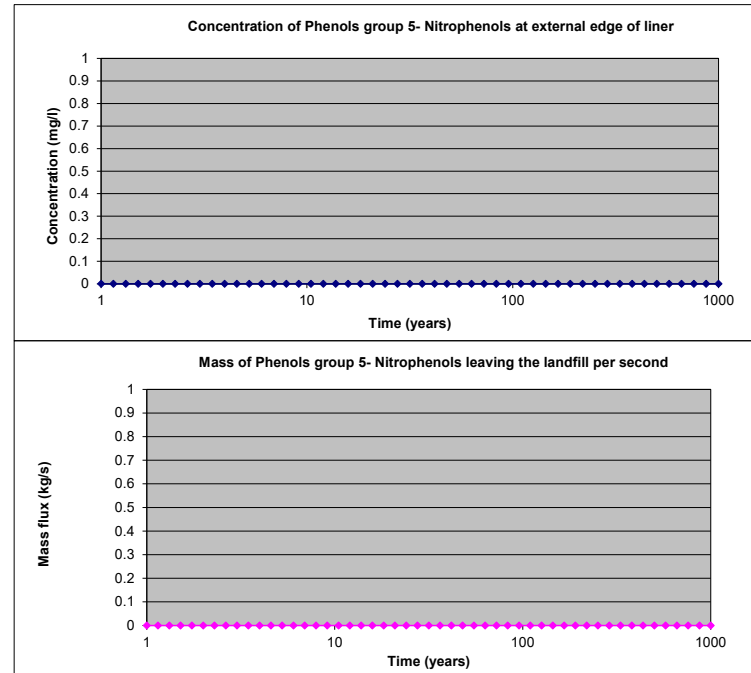
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



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CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	TPH Aliphatic C5-6	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.01	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	812	l/kg
Retardation factor in clay	R_cl	1.00009649	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aliphatic C5-6

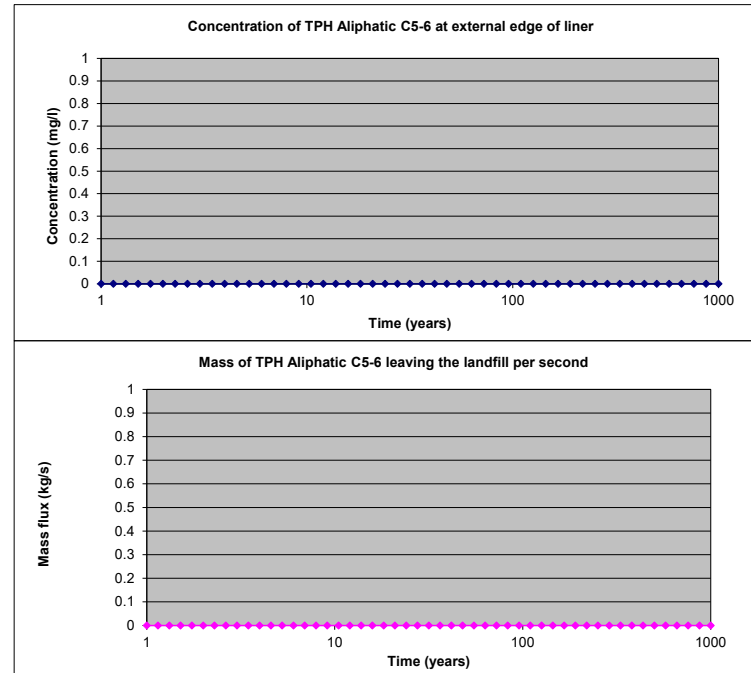
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



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CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3278	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	TPH Aliphatic C6-8	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.01	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	3802	l/kg
Retardation factor in clay	R_cl	1.000045178	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aliphatic C6-8

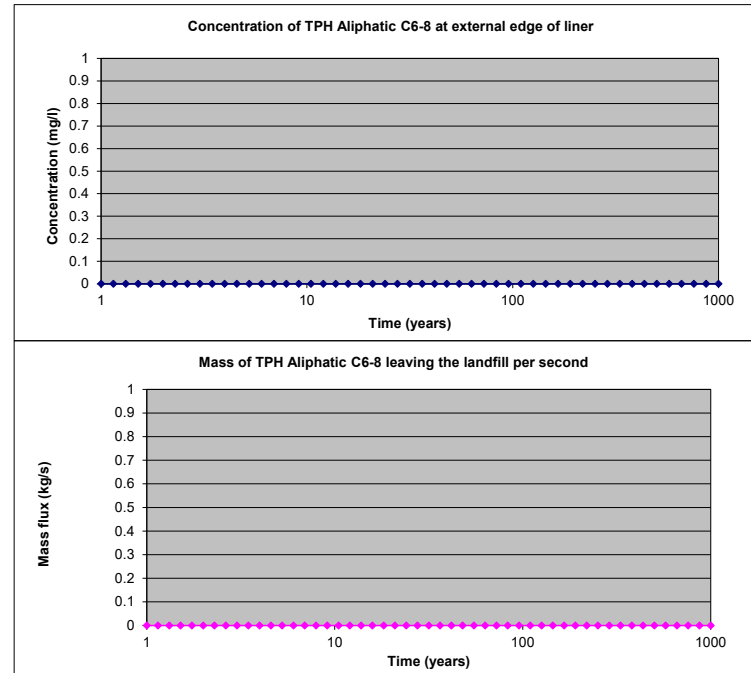
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



Clayton Hall #####

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	TPH Aliphatic C8-10	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.01	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	30200	l/kg
Retardation factor in clay	R_cl	1.000358858	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aliphatic C8-10

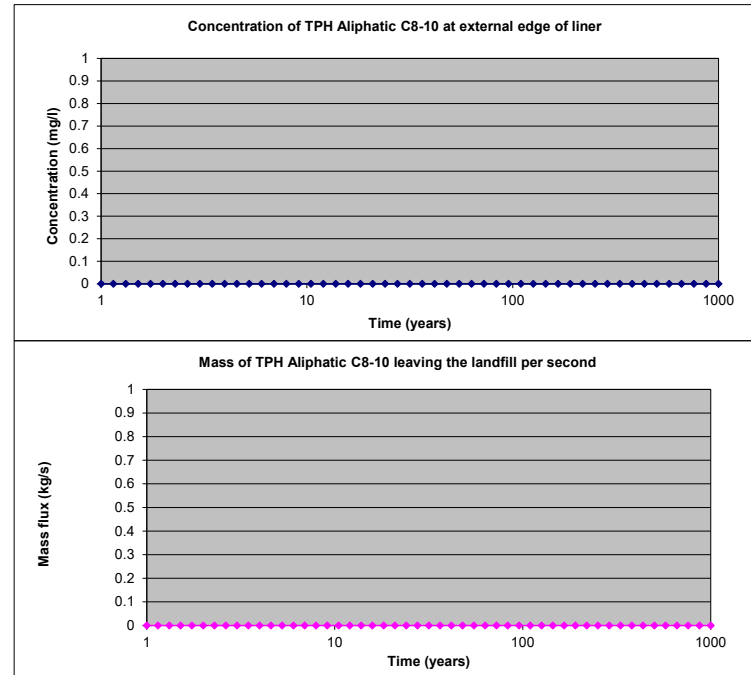
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



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CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	PH Aliphatic C10-1	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.01	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	239883	l/kg
Retardation factor in clay	R_cl	1.002850462	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aliphatic C10-12

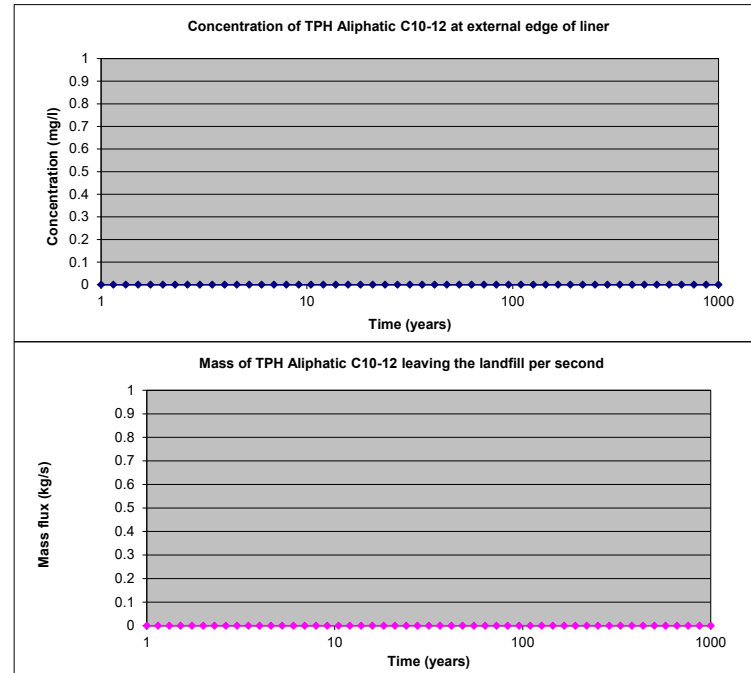
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



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#####

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD

Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	TPH Aliphatic C12-1	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.01	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s

Partition coefficient in clay	Kd_cl	5370318	l/kg
Retardation factor in clay	R_cl	1.063813964	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

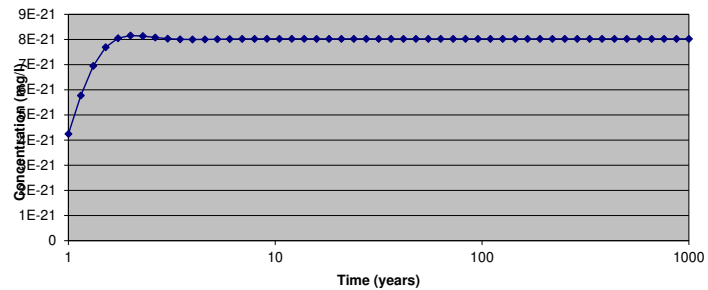
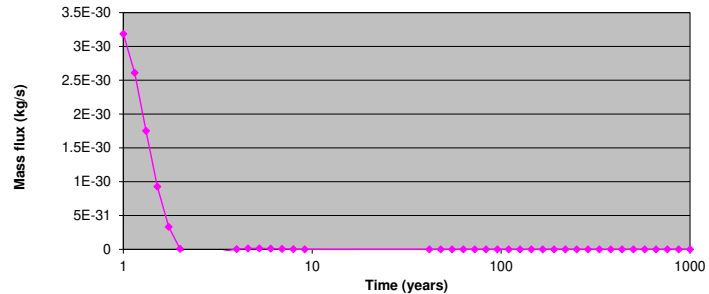
Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aliphatic C12-16**CONTAMINANT AND WATER FLUXES**

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	8.15674E-21	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

Concentration of TPH Aliphatic C12-16 at external edge of liner**Mass of TPH Aliphatic C12-16 leaving the landfill per second**

Clayton Hall #####

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	PH Aliphatic C16-3	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.01	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	575000000	l/kg
Retardation factor in clay	R_cl	7.832561728	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aliphatic C16-35

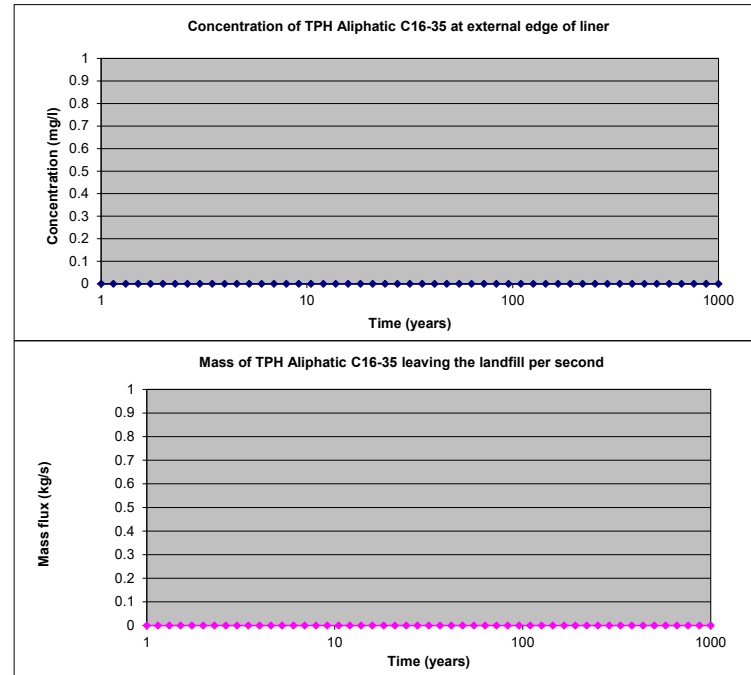
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



Clayton Hall #####

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	TPH Aromatic C5-7	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.01	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	67.6	l/kg
Retardation factor in clay	R_cl	1.00000803	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aromatic C5-7

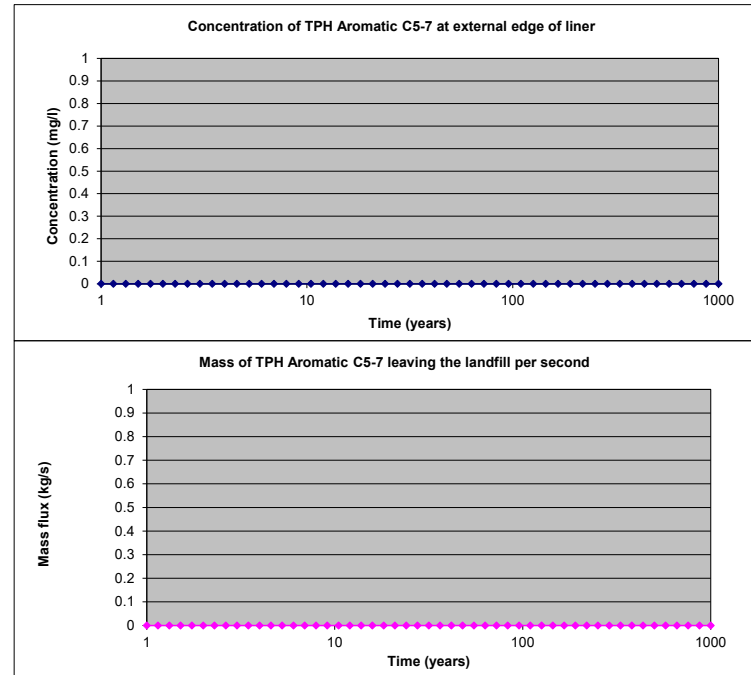
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



Clayton Hall #####

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	TPH Aromatic C7-8	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.01	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	204	l/kg
Retardation factor in clay	R_cl	1.000002424	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aromatic C7-8

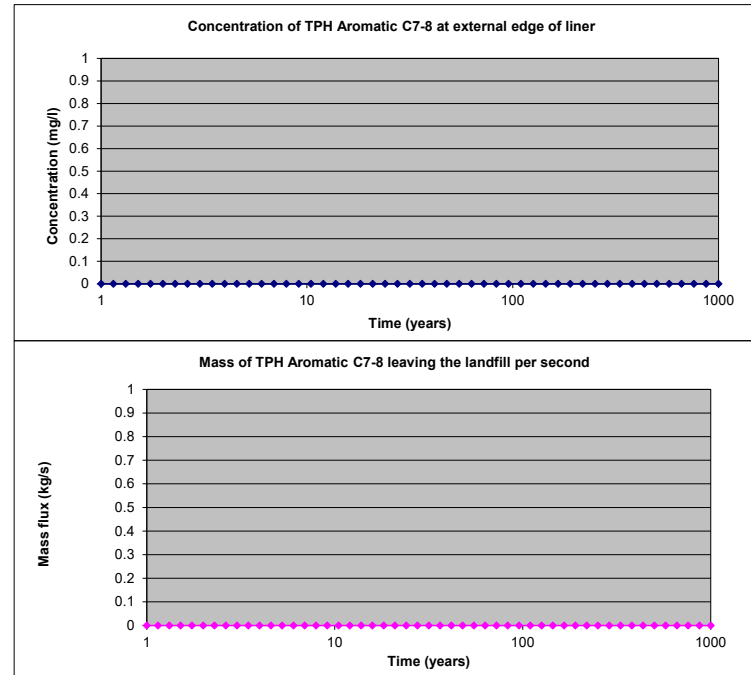
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



Clayton Hall #####

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	TPH Aromatic C8-10	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.01	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	1585	l/kg
Retardation factor in clay	R_cl	1.000018834	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aromatic C8-10

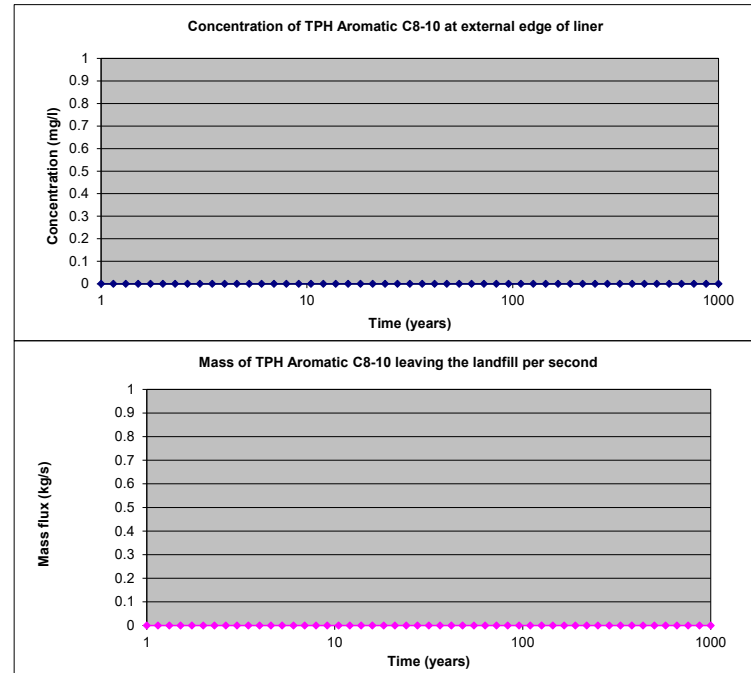
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



Clayton Hall #####

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	PH Aromatic C10-12	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.01	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	2512	l/kg
Retardation factor in clay	R_cl	1.000029849	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aromatic C10-12

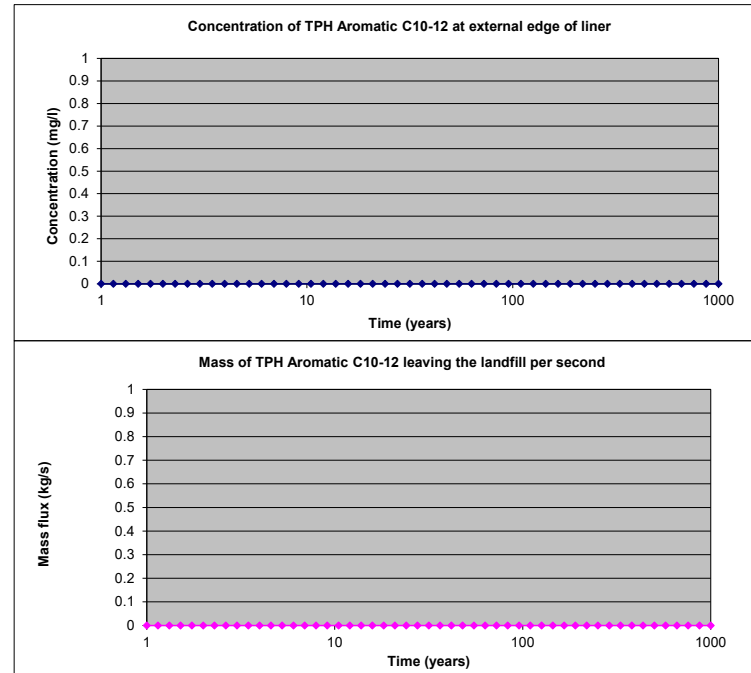
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



Clayton Hall #####

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	PH Aromatic C12-1	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.012	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	5012	l/kg
Retardation factor in clay	R_cl	1.000059556	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aromatic C12-16

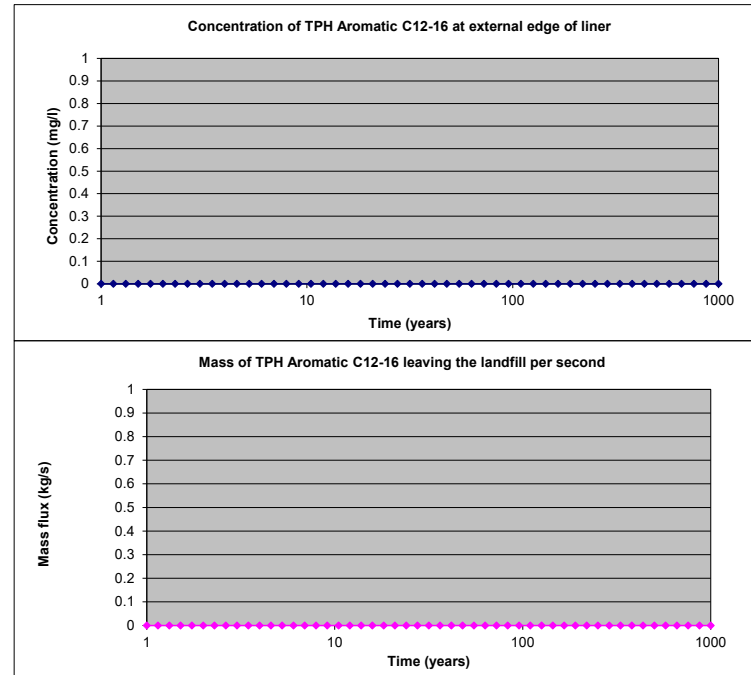
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



Clayton Hall #####

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	PH Aromatic C16-2	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.013	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	14125	l/kg
Retardation factor in clay	R_cl	1.000167843	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aromatic C16-21

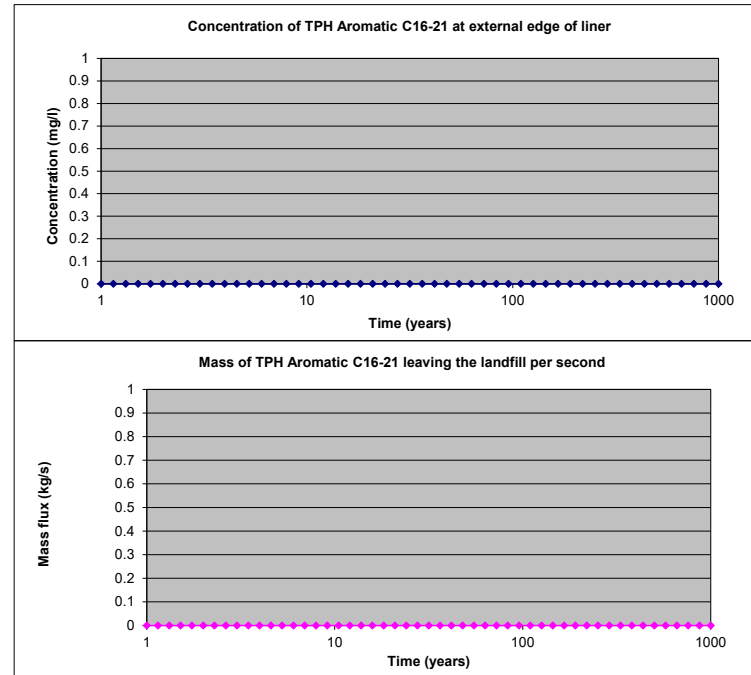
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



Clayton Hall #####

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	PH Aromatic C21-3	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List I	-
Concentration in landfill leachate	Conc_LF	0.013	mg/l
Free water diffusion coefficient	Dw_cl	1.00E-09	m2/s
Partition coefficient in clay	Kd_cl	125892	l/kg
Retardation factor in clay	R_cl	1.001495939	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

TPH Aromatic C21-35

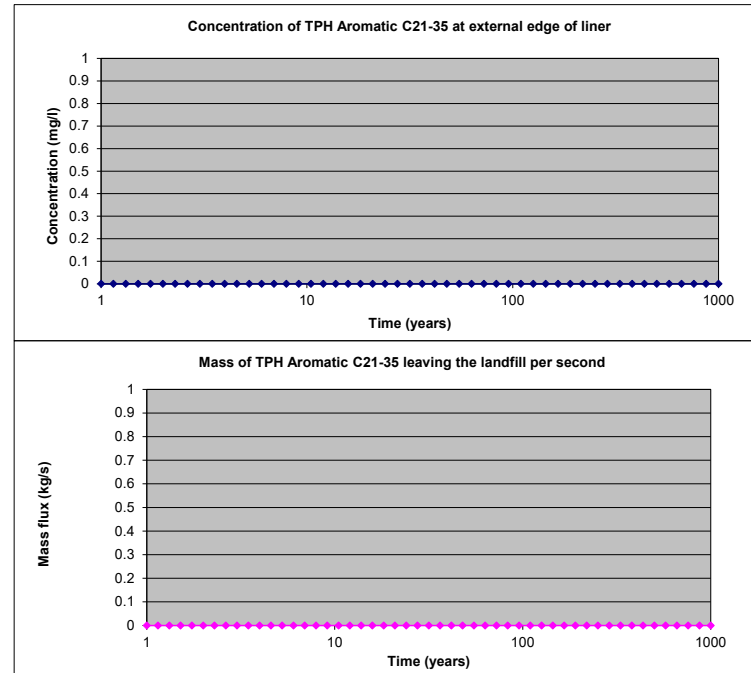
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



Clayton Hall

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	Ammoniacal Nitrogen	-
Contaminant type	Cont_Type	Organic	-
Contaminant classification	Cont_Class	List II	-
Concentration in landfill leachate	Conc_LF	1790	mg/l
Free water diffusion coefficient	Dw_cl	1.95E-09	m2/s
Partition coefficient in clay	Kd_cl	2	l/kg
Retardation factor in clay	R_cl	1.000000024	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

Ammoniacal Nitrogen

STEADY STATE DILUTION

Hydraulic gradient in the aquifer	aq_I	0.19	-
Hydraulic conductivity of the aquifer	k_aq	5.00E-05	m/s
Downgradient distance of compliance point from landfill	dist_cp	30	m
Mixing width	Mix_W	78	m
Mixing depth	Mix_D	7.619047619	m
Dilution flow in aquifer directly under the landfill	aq_Q	0.005645714	m3/s

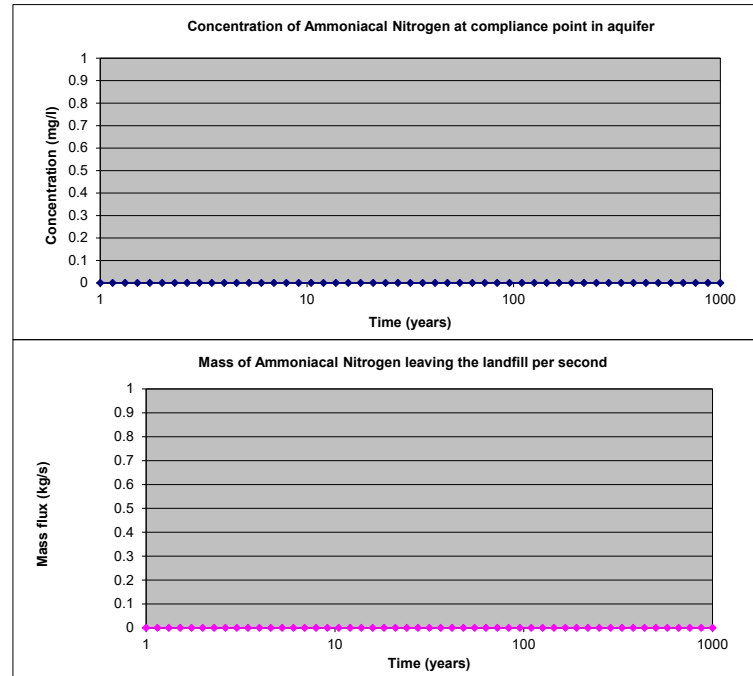
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

#NAME?



Clayton Hall #####

CONCEPTUAL MODEL AND LANDFILL CONSTRUCTION

Conceptual model of landfill construction	CM	2	-
Is a geomembrane present?	GM_opt	No	-
Basal width perpendicular to groundwater flow	Width_LF	78	m
Basal length parallel to groundwater flow	Length_LF	42	m
Basal area	Base_Area	3276	m2
Elevation of base of landfill	LFbase_elev	52	maOD
Elevation of base of aquifer	Aqbound_elev	26.5	maOD
Leachate head inside landfill	Head_inLF	55.5	maOD
Groundwater head outside landfill	Head_outLF	58.2	maOD
Area of liner below the water table	Area_contact	4116	m2

CONTAMINANT PARAMETERS

Contaminant name	Cont_Nme	Chloride	-
Contaminant type	Cont_Type	Inorganic	-
Contaminant classification	Cont_Class	List II	-
Concentration in landfill leachate	Conc_LF	4670	mg/l
Free water diffusion coefficient	Dw_cl	2.03E-09	m2/s
Partition coefficient in clay	Kd_cl	0	l/kg
Retardation factor in clay	R_cl	1	-
Half life in clay (0 for no decay)	thalf_cl	0	days
Decay in sorbed phase?	Decay_sorb	No	-
Decay constant in clay	Decay_cl	0	1/s

MINERAL BARRIER / LINER

Thickness of mineral liner	thick_clbr	0.5	m
Hydraulic conductivity	k_cl	5.00E-10	m/s
Average pore radius	pore_radius	1.00E-05	m
Effective porosity	n	0.162	-
Dry bulk density	rho	0.000001925	kg/m3
Tortuosity	tau_cl	5	-

Chloride

STEADY STATE DILUTION

Hydraulic gradient in the aquifer	aq_I	0.19	-
Hydraulic conductivity of the aquifer	k_aq	5.00E-05	m/s
Downgradient distance of compliance point from landfill	dist_cp	30	m
Mixing width	Mix_W	78	m
Mixing depth	Mix_D	7.619047619	m
Dilution flow in aquifer directly under the landfill	aq_Q	0.005645714	m3/s

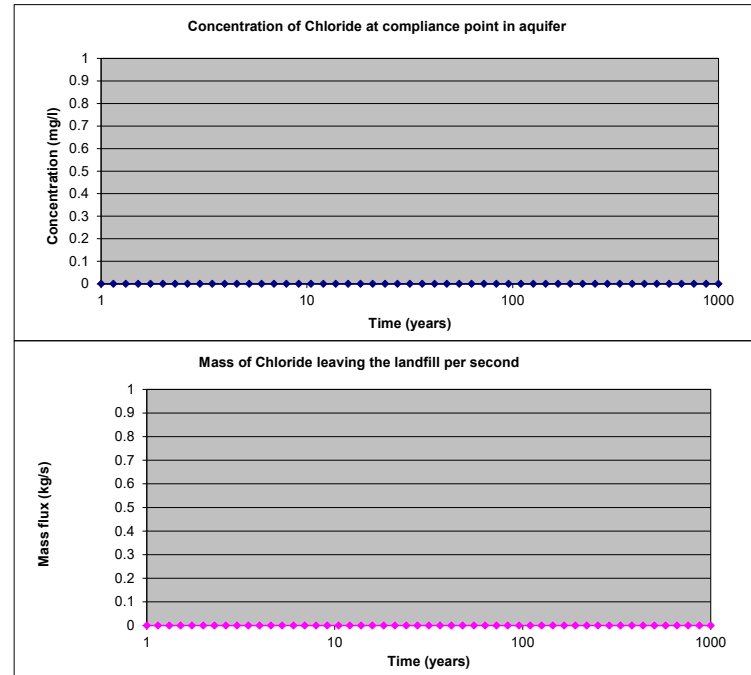
CONTAMINANT AND WATER FLUXES

Groundwater flux into landfill		1.11132E-05	m3/s
Maximum contaminant concentration at compliance point at tmax	C_comp	0	mg/l

CHART PARAMETERS

Minimum axis display	tmin	1	years
Maximum axis display	tmax	1.00E+03	years

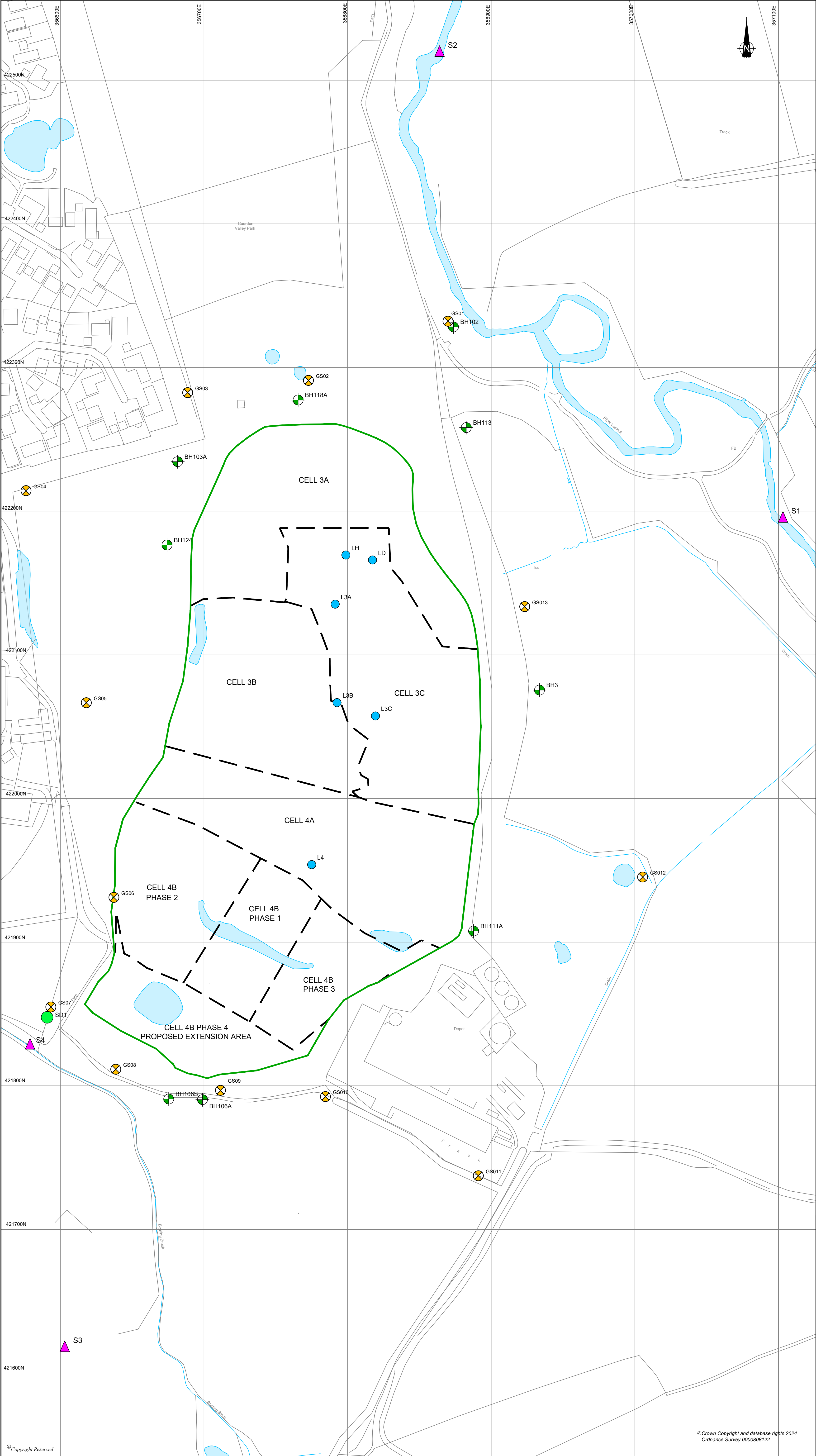
#NAME?



APPENDIX 12

Hydraulic Containment Model Files (Electronic Appendix)

DRAWINGS



DO NOT SCALE FROM THIS DRAWING

KEY :

PROPOSED PERMIT BOUNDARY

CELL BOUNDARIES

WATER FEATURES

LD

LEACHATE WELLS

BH118A

GROUND WATER MONITORING BOREHOLE

SD1

SURFACE WATER DISCHARGE LOCATION

S4

SURFACE WATER SAMPLE LOCATION

GS01

GAS MONITORING BOREHOLE

A

APPROVED ISSUE

201204

00

EB

AS

REVISION

DETAILS

DATE

ISSUED

CHG

APPR

CLIENT

NEALES WASTE MANAGEMENT

PROJECT

CLAYTON HALL LANDFILL SITE

DRAWING TITLE

MONITORING & EXTRACTION POINT PLAN

DRG No.

ST18115-502

REV

SUIT. CODE

DRG SIZE

A1

SCALE

1:1250

DATE

06/12/24

DRAWN BY

SJB

CHECKED BY

EB

APPROVED BY

AS

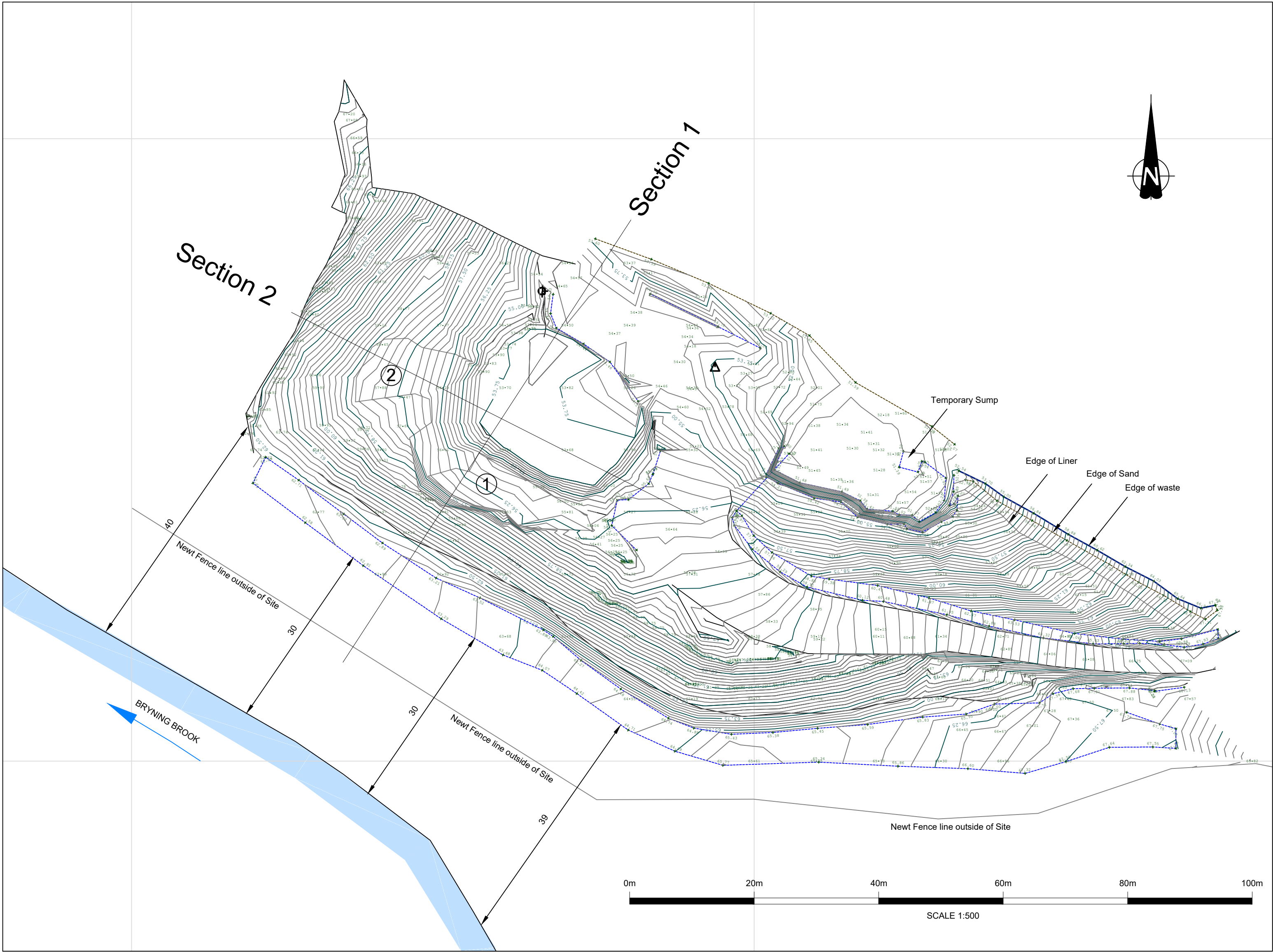
wardell
armstrong

PART OF SLR

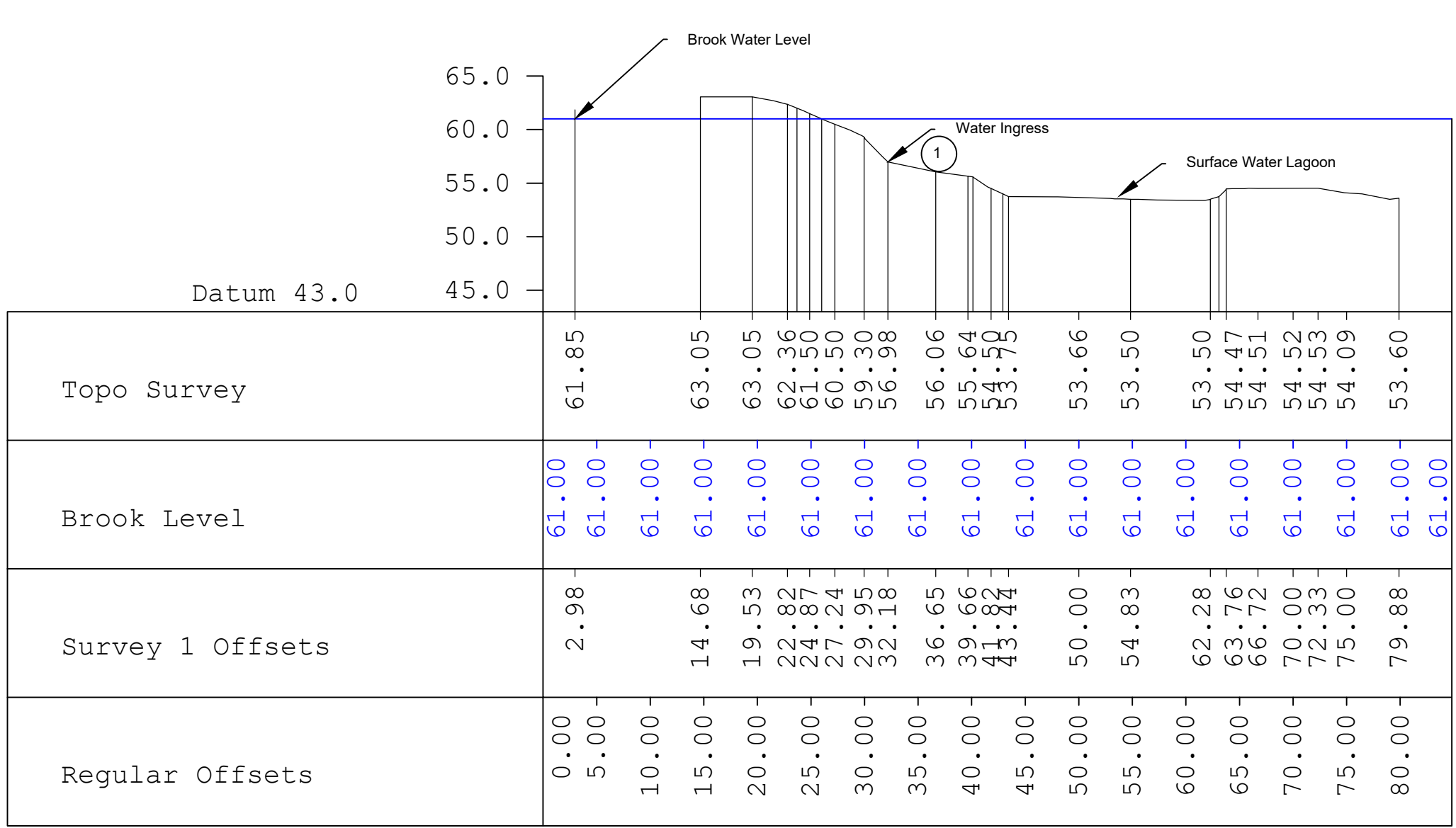
DO NOT SCALE FROM THIS DRAWING

NOTES

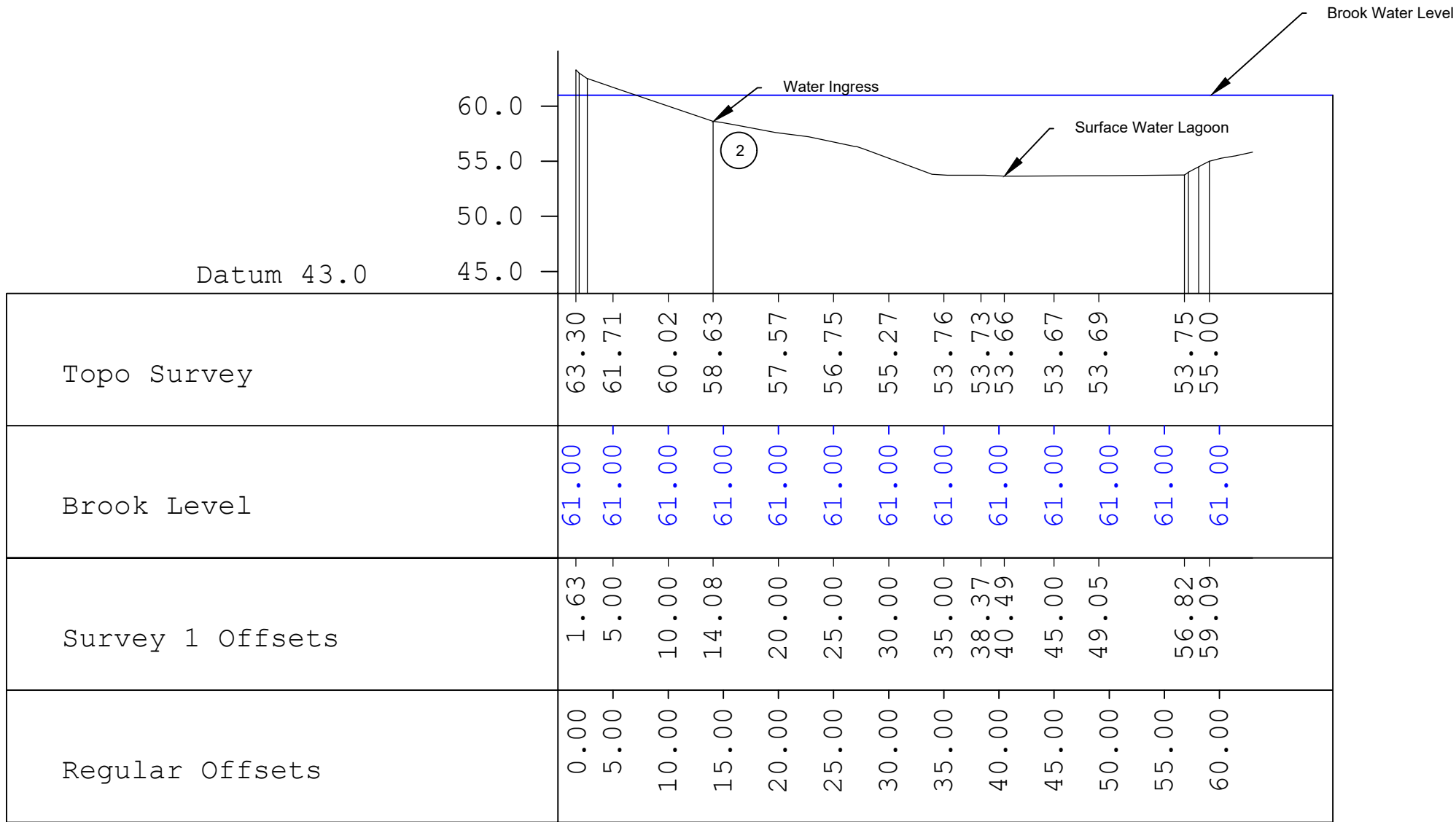
- DO NOT SCALE FROM THIS DRAWING. ALL DIMENSIONS MUST BE CHECKED/VERIFIED ON SITE
- ALL DIMENSIONS AND ARE IN METERS UNLESS OTHERWISE STATED
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM
- TOPO SURVEY (45064MCLS) FROM SURVEY SOLUTIONS ISSUE DATE 2022-10-12.





PLAN



SECTION 1



SECTION 2

A		FIRST ISSUE		2012/24	S.B.	EB	AS
REVISION		DETAILS		DATE	DRAWN	CHECKED	APPRO
CLIENT		QUERCIA WASTE					
PROJECT		CLAYTON HALL LANDFILL					
DRAWING TITLE		CELL 4B PHASE 4 SECTION LINE LOCATION PLAN & WATER INGRESS CROSS SECTIONS					
DRG No.		ST18115-504		REV	A		
DRG SIZE		A1	SCALE	1:500	DATE	18/12/24	
DRAWN BY		IH	CHECKED BY	EB	APPROVED BY	AS	
							

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