
4.0 SUPPLEMENTARY INVESTIGATION WORKS

4.1 Objectives

In order to provide additional data to inform the DQRA, further investigation works were undertaken to supplement the information obtained during the 2021 investigation. The primary objective was to target the deeper groundwater within the Chester Formation to allow this to be sampled and analysed, as the previous investigation had only been able to sample shallow groundwater within the Made Ground and superficial deposits. The further works also allowed up to date information on the quality of the shallow (perched) groundwater to be collected, as well as limited additional chemical analysis of Made Ground samples.

4.2 Works Undertaken

Siteworks were undertaken between 18 – 20 February 2025, with return visits to monitor groundwater levels and take samples of the groundwater undertaken in March 2025.

The works comprised the following key elements:

- Drilling of 6 boreholes using rotary open-hole techniques to depths of 12mbgl in order to allow the installation of standpipes with response zones within the underlying Chester Formation;
- Drilling of 8 shallow boreholes using a window sample rig to maximum depths of 3mbgl to allow the installation of standpipes with response zones within the Made Ground / Superficial Deposits;
- Logging of the soils encountered in each borehole;
- Surveying of each location to National Grid and Ordnance Datum;
- Collection of samples of Made Ground from each of the window sample boreholes;
- Return visits to collect groundwater samples from the new standpipes and 3 surviving standpipes from the previous investigation;
- Chemical laboratory analysis of soil and groundwater samples for a full suite reflecting the contaminants of concern.

Rotary boreholes were cased through the Made Ground and superficial deposits to prevent the potential for cross contamination. The response zones were sealed within the Chester Formation using bentonite.

The locations of the new standpipes, and the existing standpipes used during the supplementary works, are shown in Appendix B and Figure 4.1, below.

Figure 4.1. Supplementary Works – Standpipe Locations



The rotary holes were logged by the drillers, although the drilling technique (open hole) meant detailed logs were not possible. The soils encountered in the shallow (window sample) boreholes were described by an experienced geo-environmental engineer. Borehole logs are included in Appendix B.

The deep boreholes were located to allow an overall characterisation of the groundwater within the Chester Formation sandstone beneath the site, and particularly the potential for any contamination to migrate off-site. The shallow boreholes were generally located based on the results of the previous investigation works, and to provide a good overall characterisation of the shallow groundwater within the Made Ground and superficial deposits.

Monitoring standpipes within the deep boreholes had response zones that were sealed within the sandstone, while the response zones within the shallow boreholes were sealed within the Made Ground / superficial deposits.

A return visit was undertaken on 6th March 2025 to measure the groundwater levels and take samples from the 6 deeper standpipes using disposable balers. The shallow standpipes were all sampled using balers on 18th March 2024, with groundwater levels in all deep and shallow standpipes measured at the same time. A final visit was undertaken on 24th March 2025 to take a second round of samples from the deep standpipes. Samples were taken using submersible pumps lowered to approximately 8mbgl in each standpipe. Indicative permeability testing was also undertaken at this time.

4.2.1 Chemical Laboratory Testing

Soil samples were taken from Made Ground or superficial deposits encountered in the eight window samples boreholes, while groundwater samples were taken from fourteen new and three pre-existing standpipes. The samples were sent to an accredited environmental laboratory to be analysed for suites of contaminants that are based primarily on the results of the previous investigation and the those considered to be of greatest concern, particularly with reference to groundwater:

Soil samples were tested for the following contaminant suite:

- total cyanide; VOCs; SVOCs

Samples of groundwater taken from the six deep boreholes with response zones in the Chester Formation sandstone were initially tested for the following suite:

- pH; total cyanide; ammoniacal nitrogen; bromide; aluminium; copper; mercury; phosphorus; zinc; potassium; sodium; total phenols; TPHCWG; BTEX; VOCs; SVOCs.

A second round of samples taken from the deep boreholes were tested for the following suite, based on the results of the initial analysis:

- total cyanide; bromide; VOCs; total chlorine.

Samples of groundwater taken from the eleven shallow boreholes with response zones within the Made Ground / superficial deposits, were tested for the following suite, which was based on the results of testing on the deeper groundwater and that from the previous investigation:

- total cyanide; bromide; TPHCWG; BTEX; VOCs;

4.3 Findings

4.3.1 Ground Conditions

The encountered ground conditions were consistent with the findings of the previous investigation works. The deeper boreholes encountered predominantly cohesive Made Ground and / or superficial deposits to approximate depths of between 2.6 – 4.0mbgl, beneath which was a weak, red-brown, fine-grained sandstone to the base of each hole at 12mbgl.

The shallow boreholes encountered Made Ground to depths of between 0.5 – 1.4mbgl, that was generally described as a sandy, gravelly clay. This generally overlay superficial deposits of sandy, gravelly clay, considered to represent Glacial Till. The exception was GJWS203, where Made Ground was found to overlie directly sandstone at 1.4mbgl. Sandstone also encountered at 2.5mbgl in GJWS207, beneath the Glacial Till.

Some black staining was noted in the Made Ground in GJWS205, while black staining and a hydrocarbon odour was noted in Made Ground in GJWS203.

4.3.2 Groundwater

Groundwater monitoring was undertaken in the six deep standpipes on the 6th and 18th March 2025, and in the shallow standpipes on 18th March only. Groundwater levels are summarised in Table 4.1, below.

Table 4.1 Groundwater Levels

Location	Ground Level (mAOD)	Groundwater Levels			
		6/3/2025		18/3/2025	
		mbgl	mAOD	mbgl	mAOD
GJR01	30.43	1.77	28.66	1.85	28.58
GJR02	31.00	3.85	27.15	3.85	27.15
GJR03	29.87	0.95	28.92	1.03	28.84
GJR04	29.51	2.13*	27.38	3.71	25.80
GJR05	30.55	3.24	27.31	3.28	27.27
GJR06	28.22	5.28	22.94	5.43	22.79
GJWS201		-	-	1.70	27.95
GJWS202		-	-	1.04	29.06
GJWS203		-	-	0.82	29.28
GJWS204		-	-	1.12	28.22

Location	Ground Level (mAOD)	Groundwater Levels			
		6/3/2025		18/3/2025	
		mbgl	mAOD	mbgl	mAOD
GJWS205		-	-	0.84	27.58
GJWS206		-	-	1.87	27.00
GJWS207		-	-	1.90	27.58
GJWS208		-	-	1.61	28.11
BH103		-	-	1.22	28.37
BH104		-	-	0.43	28.68
WS109		-	-	1.29	28.78

*likely to be an error based on subsequent measurements

The groundwater levels recorded within the deeper standpipes (GJR01 to GJR06), indicate that the groundwater in the Chester Formation is distinct from the shallow groundwater. The groundwater levels recorded in GJR02, 04 and 06 were below the base of the Made Ground / cohesive deposits, and while those in GJR01, 03 and 05 were above the base of these deposits, it is most likely that the groundwater is essentially confined under pressure beneath the lower permeability clays in these locations.

Groundwater levels measured in the shallow standpipes (GJWS201 to 208, BH103, BH104 and WS109) were generally inconsistent with the levels of the deeper groundwater, usually being significantly higher than those measured in nearby deeper standpipes. Only GJWS201, GJWS204, BH103 and WS109 recorded groundwater levels that were similar to the nearby deep standpipes, but this is likely to be co-incidence rather than be representative of the same water body. The groundwater in the shallow boreholes is likely to be a result of minor ingress from more permeable horizons that have collected within the standpipe. Such horizons have potential to provide pathways between the shallow and deeper groundwater.

Figure 4.2 shows groundwater contours based on the levels recorded within the 6 deep boreholes targeting the Chester Formation.

Figure 4.2 Chester Formation Groundwater Contours



Based on the measured groundwater level information as presented in Figure 4.2, the highest levels are recorded close to the centre of the site, from where groundwater flow appears to be strongly towards the south-west, and to a lesser degree to the north. Regional groundwater flow is expected to be towards the west, but locally this may be affected by the potable groundwater abstraction to the east of the site.

4.3.3 Permeability Testing

Indicative falling head tests were undertaken in GJR01 and GJR05. In GJR01, the standpipe was filled to the top, and the water level fell to 1.5m after approximately 1 minute, and to 1.75m (essentially the initial groundwater level) after approximately 2 minutes. In GJR05, the water essentially drained away as quickly as it could be added.

In GJR03, it was noted that as the standpipe was purged at a rate of approximately 6l per minute, the water level fell from 1mbgl to approximately 3mbgl, a level which was essentially maintained throughout purging.

The above information indicates a high level of permeability, although is insufficient to accurately calculate a co-efficient of permeability. However, a range of values from 10^{-4} to 10^{-6} m/s appears to be a reasonable estimate and would be consistent with typical values for the encountered strata.

4.3.4 Soil Contamination

Table 4.2 presents a summary of the results of chemical analyses undertaken on the eight soil samples taken during the supplementary investigation works. The table presents the highest, 2nd highest and lowest concentrations for each contaminant (where appropriate), as an indication of the spread of results. Substances not recorded above laboratory detection limits are not included in the table. Full soil chemical analytical results are presented in Appendix C.

Table 4.2 Summary of Soil Analytical Results

Substance	No of samples	units	Highest	2 nd Highest	Lowest
Cyanide	8	mg/kg	<1	<1	<1
Chloroform	8	ug/kg	9	<5	<5
Toluene	8	ug/kg	6	<5	<5
Ethylbenzene	8	ug/kg	4	<2	<2
p & m-xylene	8	ug/kg	39	13	<2
o-xylene	8	ug/kg	10	4	<2
Isopropylbenzene	8	ug/kg	31	9	<5
n-propylbenzene	8	ug/kg	561	160	<5
1,2,4-trimethylbenzene	8	ug/kg	5749	1434	<5
1,3,5-trimethylbenzene	8	ug/kg	1333	222	<5
1,2-dichlorobenzene	8	ug/kg	81	68	<5
Carbazole	8	mg/kg	0.2	<0.1	<0.1
Bis(2-ethylhexyl)phthalate	8	mg/kg	1.94	1.11	<0.15

The results are generally consistent with those of the previous investigation, which found concentrations of various organic compounds, but not above the generic assessment criteria (GAC) for a commercial land use. Most notable in the above table are the concentrations of trimethylbenzene, the highest of which are significantly above the highest previously recorded concentrations, although these are still below the commercial GAC. The highest concentrations were recorded in GJWS205 in the south-west of the site, with notably elevated concentrations also in GJWS206 and GJWS207 in the west.

4.3.5 Groundwater Contamination

While sampling the deeper boreholes, odours were noted associated with GJR03 and GJR04, both of which displayed a moderate sweet chemical odour. No evidence of any free phase contamination was noted, nor any 'sheen' or discolouration on the surface of the water from any location. Each sample was essentially an orange-brown colour, reflecting the colour of the sediment in the extracted water.

Table 4.3 presents a summary of the results of chemical analyses undertaken on the seventeen groundwater samples taken during the supplementary investigation works. The table presents the highest, 2nd highest and lowest concentrations for each contaminant recorded in the deep boreholes and the shallow boreholes, as an indication of the spread of results. Substances not recorded above laboratory detection limits (or with only rare trace concentrations) are not included in the table. The table also includes the relevant Drinking Water Standards (DWS) for each contaminant. DWSs have been used as the most sensitive nearby receptors are considered to be potable water abstraction boreholes. UK DWSs have been used in the first instance, but where these are not available, World Health Organisation (WHO) Guideline Values for drinking water have been used.

Full groundwater chemical analytical results are presented in Appendix D.

Table 4.3 Summary of Groundwater Analytical Results

Substance	units	Deep Boreholes (GJR01 to GJR06)			Shallow Boreholes			UK DWS (*WHO DWS)
		Highest	2 nd Highest	Lowest	Highest	2 nd Highest	Lowest	
pH	pH Units	8.8	7.6	6.5	-	-	-	6 - 9
Total Cyanide	ug/l	170	15	<5	49	21	<5	50
Ammoniacal Nitrogen	ug/l	23700	1150	82	-	-	-	NA
Bromide	mg/l	500	110	0.7	250	210	2.4	NA
Chlorine	mg/l	0.34	0.19	<0.02	-	-	-	5*
Aluminium	ug/l	2860	1010	53	-	-	-	200
Copper	ug/l	7.8	2.0	0.4	-	-	-	2000
Mercury	ug/l	0.17	0.07	<0.04	-	-	-	1
Phosphorus	ug/l	3750	893	301	-	-	-	NA
Zinc	ug/l	10	6	3	-	-	-	NA
Potassium	mg/l	1	0.7	0.4	-	-	-	NA
Sodium	mg/l	52.3	51.6	3	-	-	-	50*
Total Phenols	ug/l	85	24	<10	-	-	-	NA
Total Hydrocarbons#	ug/l	31742	1009	<140	2755	1016	<10	NA
Benzene	ug/l	9	<1	<1	20	7	<1	1
Toluene	ug/l	1522	1143	<5	318	48	<5	700*

Substance	units	Deep Boreholes (GJR01 to GJR06)			Shallow Boreholes			UK DWS (*WHO DWS)
		Highest	2 nd Highest	Lowest	Highest	2 nd Highest	Lowest	
Ethylbenzene	ug/l	363	6	<5	31	6	<5	300 *
p & m-xylene	ug/l	1207	13	<10	107	16	<10	500 *
o-xylene	ug/l	450	7	<5	63	6	<5	500 *
Chloroform	ug/l	371	163	<5	10	6	<5	300 *
Trichloroethene	ug/l	70	<5	<5	<5	<5	<5	10
Chlorobenzene	ug/l	9583	555	<5	1371	465	<5	NA
1,2-dichlorobenzene	ug/l	62490	219	<5	8018	4777	<5	1000 *

#For full TPHCWG hydrocarbon banding see results in Appendix D
Bold indicates DWS exceedance

The results are generally consistent with the results of the previous SI, with a number of contaminants recorded at concentrations above DWSs, and the most notable of these being 1,2-dichlorobenzene, although other organic compounds, cyanide and bromide were also recorded at significantly elevated concentrations.

The two rounds of sampling from the deeper boreholes gave overall very similar results, the exception being a chlorobenzene concentration of 9583ug/l in GJR04 that was recorded during the second round of sampling, having not been detected previously.

4.3.5.1 1,2-dichlorobenzene (and other organic contaminants)

The highest concentration of 1,2-dichlorobenzene was recorded in GJR03, the deep borehole close to the centre of the site, which was also the location of the highest concentrations of most of the other organic contaminants (BTEX, chloroform and trichloroethene), as well as cyanide, ammoniacal nitrogen and aluminium.

However, the other deep boreholes generally recorded much lower contaminant concentrations, that were commonly below the drinking water standards. 1,2-dichlorobenzene was recorded at 62490ug/l in GJR03, but at only 149ug/l in GJR04, 219ug/l in GJR06, 23ug/l in GJR05 and was not detected in GJR01 and GJR02, all well below the DWS of 1000ug/l. However, it should be noted the DWS (a WHO guideline value) is health based, while odour and taste thresholds may be as low as 2ug/l and 1ug/l, respectively, so these concentrations may not be appropriate for drinking water.

Within the shallow boreholes, 1,2-dichlorobenzene was detected in 9 of the 11 standpipes at concentrations ranging from 5 to 8018ug/l. The highest concentrations were recorded in the BH104 (8018ug/l) and BH103 (4777ug/l), which were installed during the previous investigation works and these concentrations are consistent in magnitude with those previously recorded. The next highest

concentration was 1468ug/l in WS201. In general, 1,2-dichlorobenzene appeared more widespread within the shallow boreholes, despite the highest concentration being recorded in the deeper groundwater. The impact on the deeper groundwater appeared to be primarily in the centre of the site, while the shallow groundwater was impacted in the centre and west of the site (and possibly locally in the north-east based on results from the previous investigation).

All other organic contaminants appear either very localised or present at only very low concentrations, and are most commonly associated with the dichlorobenzene contamination. As such, they are considered unlikely to present a significant risk to the wider water environment on their own.

The exception is chlorobenzene which was recorded at a significant concentration in GJR04 where the concentration of 1,2-dichlorobenzene was much lower.

4.3.5.1 Cyanide

In the deep boreholes, cyanide was only recorded at a significant concentration (i.e. above the DWS of 50ug/l) in GJR03 (170ug/l), located in the centre of the site. The highest recorded concentration in the shallow boreholes was 49ug/l in GJWS203 in the north-east of the site, but was only detected in 2 of the other shallow standpipes.

During the previous investigation work, cyanide was recorded at significant concentrations in 2 locations in the north-east of the site, these being BH105 and WS110 (as shown on the plan in Appendix A), which both recorded a concentration of 215ug/l. BH104, in the west of the site recorded a cyanide concentration of 169ug/l, but in all other locations cyanide was not detected. BH104 was re-sampled as part of the current works and the concentration of cyanide had reduced to 21ug/l.

Cyanide is therefore considered to be present as localised hotspots in the groundwater, these being in the shallow groundwater in the north-east, and the deeper groundwater in the centre of the site.

4.3.5.1 Bromide

Bromide was recorded at significant concentrations in the deeper groundwater from GJR04 (500mg/l) and GJR03 (110mg/l), while concentrations over 50mg/l were recorded in the shallow groundwater from GJWS206 (90mg/l), GJWS207 (210mg/l), BH103 (52mg/l) and BH104 (250mg/l).

Bromide was not tested for during the original investigation works and was added to the testing suite (along with other substances) based on odours detected in GJR04 and GJR03 during sampling and information on the chemicals previously used on the site (taken from the inventory included in the desk study report).

Bromide does not necessarily present a human health risk by itself, but there is potential for it to react during water treatment by ozonation to produce bromate, which has a UK DWS of 10ug/l, and by chlorination to produce trihalomethanes such as bromoform (WHO guideline value 100ug/l).

The concentrations of bromide indicate a locally affected area in the central and western part of the site, in both the deep and shallow groundwater.

5.0 CONCEPTUAL SITE MODEL

5.1 Sources

Potentially significant contamination has been recorded in both soil and groundwater.

5.1.1 Soil

While contamination has been identified within the soil from a number of organic compounds, none of the recorded concentrations were above the human health GAC for a commercial land use. Therefore, the risks from soil contamination are considered only in terms of the potential impact on the groundwater (although there remains potential for concentrations above the GAC to be encountered during future works).

As such, at this stage, the only contaminant of concern identified in the soil is considered to be 1,2-dichlorobenzene, as this has been recorded at significant concentrations in both the soil and groundwater. While other contaminants have been recorded at significant concentrations in the soil (e.g. 1,2,4-trimethylbenzene), they have not been recorded in the groundwater.

1,2-dichlorobenzene has been found to be widespread in the soil, having been detected in 25 out of 30 samples tested over the course of both phases of investigation, although primarily at low concentrations.

5.1.2 Groundwater Contamination

Contamination has been identified in both the shallow groundwater within the Made Ground and cohesive superficial deposits, and in the deeper groundwater within the Chester Formation. Although the groundwater may be considered a receptor (or pathway) rather than a source of contamination, the aim is to ensure that the contamination plumes are not expanding and do not present an ongoing risk to the wider water environment, such as the Chester Formation Principal Aquifer and the nearby potable water abstractions.

Again, the most notable contaminant is 1,2-dichlorobenzene which was recorded at its highest concentration in the deep groundwater from the centre of the site but was generally more widespread in the shallow groundwater.

While other organic contaminants have been identified, they are generally either at low concentrations and / or very localised, or are otherwise only associated with the elevated concentrations of 1,2-

dichlorobenzene. The only possible exception is chlorobenzene, which was recorded at its highest concentration in a locations (GJR04) where the concentration of 1,2-dichlorobenzene was much lower.

Cyanide and bromide have both been identified at significant concentrations in both the shallow and deep groundwater, but generally as fairly localised 'hotspots'.

At this stage, no contaminants other than 1,2-dichlorobenzene, chlorobenzene, cyanide and bromide are considered to present a potential risk to the water environment.

5.1.3 Contaminants of Concern

Based on the findings of the initial ground investigation and the supplementary investigation works described above, the following table details what are considered to be the primary contaminants of concern, and whether they are considered to represent a potential risk to human health and / or the water environment.

Table 5.1 Contaminants of Concern

Substance	Potential Risk to Human Health?	Potential Risk to Controlled Waters?
1,2-dichlorobenzene	No*	Yes
chlorobenzene	No*	Yes
Cyanide	No	Yes
Bromide	No	Yes

*based on a commercial land use

Table 5.2 presents a high-level summary of the distribution of the above contaminants in soil (where relevant) and groundwater, in terms of maximum and average concentrations over both phases of investigation. With regards groundwater contamination, the summary is based on results from all the boreholes (both shallow and deep), again over both phases of investigation.

Table 5.2 Summary Distribution of Contaminants of Concern

Substance	Summary of soil concentrations (mg/kg)				Summary of Groundwater Concentrations (ug/l)			
	Max	Mean*	Median	No of locations detected (out of /X)	Max	Mean*	Median	No of locations detected (out of /X)
1,2-dichlorobenzene	512	19	0.051	25/30	62490	3729	25	20/27
Chlorobenzene	0.1	N/A	<0.005	8/30	9583	485	<5	11/27
Cyanide	ND	ND	ND	0/30	250	N/A	<5	8/27
Bromide	No tests			-	500	80	28	17/17

*Where results are below the LoD, a figure of 0.5 x LoD is used in the calculation of the mean
ND-Not Detected. N/A-Insufficient data

Table 5.2 gives a high-level overview of the distribution of the contaminants of concern and their overall concentrations. 1,2-dichlorobenzene is shown to be commonly present throughout the soil and groundwater, although in the majority of locations this is at low concentrations. Chlorobenzene is present in only very low concentrations in soil and generally in only in localised significant concentrations in groundwater.

Cyanide has not been detected at all in the soil, but has been recorded in approximately one-third of the groundwater samples, while bromide is present in all groundwater samples (although low concentrations may be naturally expected).

The plans in Appendix E show the distribution within the groundwater of 1,2-dichlorobenzene, chlorobenzene and bromide based on the results from the groundwater sampling and analysis in 2025.

5.2 Receptors

5.2.1 Human Health

In terms of human health, the receptors will be the users of the remediated site. It is proposed to redevelop the site for commercial / industrial use, so the receptors will be employees and visitors to the site.

Those involved in any remediation, earthworks and / or construction would also be potential receptors for the identified contamination. However, such risks would usually be managed in accordance with appropriate health and safety risk assessments and the use of suitable work procedures and personal protective equipment (PPE).

5.2.2 Controlled Waters

There are considered to be two controlled waters receptors that are relevant in terms of potential impact from contamination originating on the site. Firstly, there is the underlying groundwater, represented by the Secondary Aquifer(s) of the superficial Shirdley Hill Sand Formation and the Devensian Till, and more significantly by the Principal Aquifer of the Chester Formation. Secondly, there is Knowsley Brook, which is understood to flow within a culvert beneath the site.

The most sensitive controlled waters receptor is considered to be the groundwater within the Chester Formation, which is present at depths of around 3mbgl beneath the site. There are specific receptors in the form of potable groundwater abstractions, which take water from the Chester Formation approximately 1km to the east and 2km to the west. Knowsley Brook is likely to be largely isolated

from the groundwater by the culvert in which it flows, and it may be located above the water table (although the depth of the culvert is not currently known).

The shallow groundwater which has been identified within the Made Ground and superficial deposits may be considered to be a contaminant pathway rather than a receptor in its own right, given that it has no resource potential.

The groundwater table associated with the Chester Formation aquifer has been monitored at a level between approximately 1 – 5.5mbgl, although is considered to be confined beneath the overlying cohesive deposits in some areas. These deposits will provide some protection, but the presence of contaminants within the Chester Formation aquifer suggests it is not completely hydraulically isolated from the shallow groundwater.

5.3 Contaminant Pathways

Contamination has been identified within both the soil (primarily the Made Ground) and the groundwater. As such, the pathways described below could potentially link the contamination sources with the receptors.

5.3.1 Site Users (Human Health)

The active pathways for the exposure of site users will likely comprise the following, based on the proposed site use;

- Direct contact with contaminated soils, followed by ingestion and / or dermal absorption;
- Inhalation of soil derived dusts and particulates;
- Inhalation of gases and vapours originating from contaminated soil or groundwater;
- Consumption of water supplied through pipes laid in contaminated soil.

5.3.2 Controlled Waters

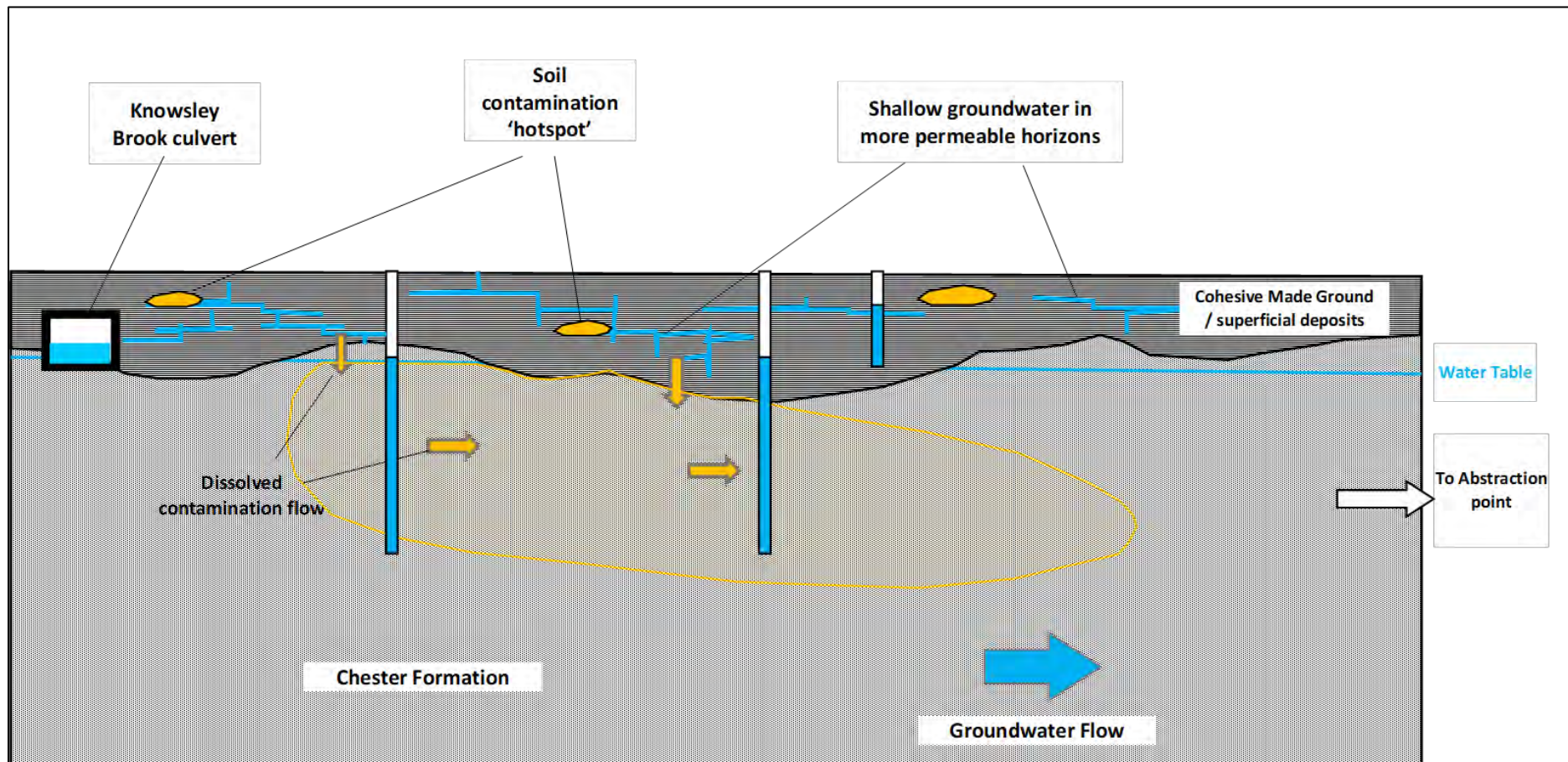
- Leaching of contaminants within the Made Ground and superficial deposits, followed by migration through the unsaturated and saturated zones to the Principal Aquifer within the Chester Formation. This will likely occur via more permeable horizons in the generally cohesive Made Ground and superficial deposits;
- Migration of contamination in any shallow groundwater to the culverted Knowsley Brook and seeping through any cracks or other penetrations in the culvert;

-
- Migration of dissolved contamination (resulting from the above) within the Chester Formation,

5.4 Conceptual Site Model

Figure 5.1 presents a schematic of the site ground conditions, contaminant sources, receptors and pathways based on the site as it currently exists and the information collected during the ground investigation.

Figure 5.1 Conceptual Site Model



6.0 RISK ASSESSMENT

The following sections address the relevant pollutant linkages based on the sources, receptors and pathways described above.

6.1 Impact on Human Health from Soil Contamination

The impact on human health from soil contamination is likely to be minimal based on the proposed use and the currently available information. At present, no contamination has been recorded at concentrations that are in excess of the generic assessment criteria (GAC) for a commercial land use. However, there remains potential for localised contamination to be present at concentrations above the GAC. Asbestos has been recorded in only 1 out of 33 samples analysed, but again there remains the potential localised areas to be affected by more significant asbestos contamination.

The GACs are considered to provide reasonable target concentrations for future verification and / or remediation works in order to be protective of human health. Should any more significant / widespread contamination from asbestos be encountered, this would likely be managed by source removal and / or by breaking exposure pathways (e.g. by locating under hard surfaces or placing cover layers in landscaped areas)

No further detailed assessment of the risks to human health from soil contamination is considered necessary.

6.2 Impact on Human Health from Groundwater Contamination

There is a potential risk to human health from volatile contaminants in groundwater, through the inhalation of contaminant vapours.

As a benchmark for the risks to human health from volatile contamination in groundwater, the risks have been assessed against GACs developed by SoBRA (the Society of Brownfield Risk Assessment, 2017) for assessing vapour risks to human health from volatile contaminants in groundwater. None of the recorded concentrations of volatile contaminants in groundwater are close to the SoBRA GACS for a commercial land use, and the risks are not considered further.

6.3 Impact on the Groundwater from Soil Contamination

The impact of contaminated soil on the groundwater (taken as the Principal Aquifer within the Chester Formation) has been estimated using the ConSim v2.5 probabilistic model. ConSim is a fate and transport model that predicts the concentrations of contaminants at defined receptors based on

measured (or estimated) source and pathway characteristics. It can therefore be used to inform an assessment of the potential for contamination sources to represent a threat to controlled waters with reference to Water Quality Standards.

The model input parameters are based on site-specific values where these are available, and on literature values or estimates where no site-specific data exists. Inputs are based on the probability distributions of measured or estimated parameters, rather than single values. For example, a source area will have a range of contaminant concentrations within it, while values for parameters such as hydraulic conductivity and bulk density will vary across a site.

The model has been run for 1,2-dichlorobenzene, as this is the only contaminant that has been recorded at significant concentrations in both soil and groundwater. Other contaminants have been recorded at significant concentrations in soil only (e.g. 1,2,4-trimethylbenzene) or in groundwater only (e.g. cyanide, bromide, aliphatic hydrocarbons C10-12 and chlorobenzene). 1,2-dichlorobenzene has also been recorded at significantly higher concentrations than any other contaminant, which are often associated with highest concentrations of other contaminants.

The model has been run for two scenarios. The first assumes the whole of the former process area footprint is the source area, with dichlorobenzene concentrations based on the full recorded range. The other scenario models two smaller (10 x 10m) hotspots of contamination located in the areas characterised by the highest recorded concentrations of dichlorobenzene in soil.

Receptor locations are taken as the potable water abstractions, locations down-gradient of the sources close to the site boundary, which are also located on the assumed route of Knowsley Brook (Receptors A & C), and two locations 100m downgradient of the sources (receptors B and D). The co-ordinates (of the corners of the hotspot areas or point locations of the receptors) of the modelled source areas and receptor locations are detailed in Table 6.1 and shown in Figure 6.1.

Table 6.1 Soil Source and receptor co-ordinates

Source / Receptor	Co-ordinates (x,y)			
	1	2	3	4
Process Area Source	342890,396781	342896,396709	343046,396718	343040,396793
Hotspot Source 1	343023,396788	343023,396778	343033,396778	343033,396778
Hotspot Source 2	342891,396741	342891,396731	342901,396731	342901,396741
Receptor A	343036,396810	-	-	-
Receptor B	343042,396880	-	-	-
Receptor C	342871,396711	-	-	-

Source / Receptor	Co-ordinates (x,y)			
	1	2	3	4
Receptor D	342821,396661	-	-	-
Abstraction A	343994,397091	-	-	-
Abstraction B	340973,396607	-	-	-

Figure 6.1 Modelled Soil Source Areas and Receptors



The main model input parameters are presented in the table below.

Table 6.2 Model Input Parameters

Parameter	Value	Distribution Type	Source
Chemical specific physico-chemical parameters	See Appendix F	Single	See Appendix F
Bulk density of source / unsaturated soils (g/cm ³)	2.02 (min) – 2.15 (likely) – 2.28 (max)	Triangular	Based on SI data from Made Ground and Glacial Till samples
Moisture Content of source soils (%)	8 – 14 – 19	Triangular	Based on SI data from Made Ground and Glacial Till samples

Parameter	Value	Distribution Type	Source
Particle density of source soils (g/cm ³)	2.65 – 2.70 – 2.75	Triangular	Based on SI data from Made Ground and Glacial Till samples
Water filled soil porosity of source soils (fraction)	0.33 – 0.51	Uniform (negatively correlated with air-filled soil porosity)*	Range of values from EA Report SC050021/SR3 corresponding to range of soil types in Made Ground and superficial deposits
Air filled soil porosity of source soils (fraction)	0.12 – 0.2	Uniform (negatively correlated with water-filled soil porosity)*	Range of values from EA Report SC050021/SR3 corresponding to range of soil types in Made Ground and superficial deposits
Water filled soil porosity of unsaturated soils (fraction)	0.33 – 0.51	Uniform	Range of values from EA Report SC050021/SR3 corresponding to range of encountered soils
Thickness of source (m)	1.0 – 1.6 – 2.6	Triangular	Made Ground thicknesses
Fraction of organic carbon in source soil (%)	0.2 – 1.1 – 2.6	Triangular	Based on concentrations in Made Ground
Fraction of organic carbon in unsaturated pathway (%)	0.4	Single	Based on two results from the Glacial Till
Fraction of organic carbon in Aquifer (%)	0.1 – 0.3 – 0.6	Triangular	Estimated for Chester Formation
Infiltration (mm/yr)	330	Single	30% of 1095mm annual average rainfall for Knowsley
Overall unsaturated zone thickness (m)	1.0 – 3.0 – 4.0	Triangular	Range of depths to the Chester Formation
Unsaturated pathway thickness (m)	0.0 – 2.8	Uniform	Range of depths from base of MG to water table
Hydraulic conductivity of unsaturated zone (m/s)	5E-08 – 5E-05	Uniform	Estimated range of values for the cohesive Made Ground and natural deposits
Vertical dispersivity (m)	0.0 – 0.13	Uniform (positively correlated with unsaturated pathway length)*	0.1 x pathway length
Aquifer thickness (m)	100	Single	Assumed minimum thickness of Chester Formation

Parameter	Value	Distribution Type	Source
Hydraulic conductivity of aquifer (m/s)	1.0E-07 – 1.0E-05 – 1.0E-04	Triangular	Based on indicative published values for sand / sandstone and indicative tests in GJR01, 03 and 05
Effective porosity of aquifer (fraction)	0.12 – 0.46	Uniform	Typical range of values for medium sand / sandstone
Hydraulic gradient (fraction)	0.019 0.053	Single	Towards the north Towards the south-west
Groundwater flow direction (degrees)	5 225	Single	Towards the north Towards the south-west
Longitudinal dispersivity (m)	3 – 10 - 100	Uniform	Approximately 0.1 x flow path length to various receptors
Lateral dispersivity (m)	0.3 – 1 – 10	Uniform	Approximately 0.1 x longitudinal dispersivity
Contaminant degradation half-life for 1,2-dichlorobenzene (days)	420	Single	See below

*parameters can be positively or negatively correlated in ConSim, meaning they either increase and decrease together (positive) or as one increases the other decreases (negative). The degree of correlation ranges from 0 (no correlation) to 1 (perfect correlation).

6.3.1 Active Processes

Consim allows retardation and degradation to be modelled in the unsaturated zone and within the aquifer. For conservatism, retardation and degradation have only been modelled in the aquifer and have not been considered for the unsaturated zone. The main reasons for this are the uncertainty associated with the unsaturated zone and omitting retardation and degradation results in model outputs for the groundwater beneath the source zones being more consistent with contaminant concentrations measured in the groundwater.

6.3.2 Contaminant Half-Lives

There is limited published data regarding degradation half-lives of contaminants in groundwater. For 1,2-dichlorobenzene, the contaminant half-life has been taken from USGS Report 2006-1338, *'Description, Properties, and Degradation of Selected Volatile Organic Compounds Detected in Ground Water — A Review of Selected Literature'*. The value used is the mid-point of the reported anaerobic degradation rate (range 119 – 722 days). The reported half-lives were based on field studies or lab microcosm studies, so the ConSim model has been run based on degradation occurring in all phases.

6.3.3 Soil Source Concentrations and Distribution

ConSim requires the contaminant concentration distribution within the source area to be entered into the model. Given the source representing the footprint of the former process area is large, the measured concentrations of the contaminants of concern vary significantly across the area. Rather than entering a single value for the contaminant concentrations, it is necessary to represent the variation across the source area as accurately as possible by using appropriate probability distributions. For the process area source, 1,2-dichlorobenzene concentration distributions are considered to be approximately exponential in form, in that there is a high frequency of low concentrations, with frequency decreasing rapidly as concentrations increase.

For the small 'hotspot' source areas, dichlorobenzene is assumed to be present in the highest recorded concentration and concentrations have therefore been entered as a single value. The model inputs for the contaminant distributions in soil are summarised in Table 6.3.

Table 6.3 1,2-dichlorobenzene Distribution Inputs

Source Area	Distribution Type	Concentration (mg/kg)
Process Area	Exponential	18 (mean)
Hotspot Source 1	Single	512
Hotspot Source 2	Single	41

6.3.4 Model Outputs

The model is probabilistic, performing repeated calculations with different randomly generated values for each input parameter, based on the defined ranges detailed in Tables 6.2 and 6.3. For the purposes of this assessment, the model performed 1001 iterations (i.e. it ran the same calculation 1001 times with different input values).

The model output is a range of predicted contaminant concentrations at a defined receptor and at a defined time, and the probability of a particular concentration being exceeded. For example, if the 95% probability concentration of a contaminant is 0.01mg/l, it means that 95% of the values predicted by the model are below 0.01mg/l. The output allows an assessment of the probability of a benchmark concentration, such as a water quality standard, being exceeded.

The model has been run to predict concentrations in the groundwater at the receptor locations shown in Figures 5.1 and 5.2 and in 10, 100 and 1000 years time.

The model has been run twice with different groundwater flow directions, to reflect the site information which suggests groundwater flows away from the centre of the site towards the south-west and north.

Tables 6.4 and 6.5 summarise the predicted 90% probability concentrations of 1,2-dichlorobenzene (i.e. a 90% likelihood that predicted concentrations are below these values) at the receptors for the different source scenarios. The ConSim model input and output sheets are presented in Appendices G1 and G2.

Table 6.4 Predicted concentrations at Receptors – Process Area Soil Source

90 % probability concentration (ug/l) at Receptor						
GW at the Base of the Unsaturated Zone	A	B	C	D	Abstraction A	Abstraction B
214	28	8.0	11	5.0	0.0	0.0

Table 6.5 Predicted concentrations at Receptors – Hotspot Sources

90 % probability concentration (ug/l) at Receptor						
GW at the Base of the Unsaturated Zone	A	B	C	D	Abstraction A	Abstraction B
7,153 (HS1)	498	70	18	4.0	0.0	0.0
147 (HS2)						

The results in Table 6.5 are based the impact of Hotspot Source 1 for receptors A, B and Abstraction A, and Hotspot Source 2 for receptors C, D and Abstraction 2. This is because groundwater flow from Hotspot Source 1 is towards the north, and from Hotspot Source 2 is towards the south-west.

The model outputs appear to be a reasonable reflection of the concentrations measured in the groundwater during the site investigation (see the plan in Appendix D).

The concentrations predicted in the groundwater at the base of the unsaturated zone are generally comparable to those measured in the groundwater beneath the source areas. The full range of predicted 1,2-dichlorobenzene concentrations for the process area source is between 0.2ug/l to 2,109ug/l, with 90% of all modelled values below 214ug/l. Under the hotspot source scenarios, the predicted concentrations in the groundwater at the base of the unsaturated zone were between 317ug/l

and 24,994ug/l (with 90% of predicted values being <7,153ug/l) for Hotspot Source 1, and between 5.3ug/l and 1,186ug/l (with 90% of predicted values being <147ug/l) for Hotspot Source 2. Measured concentrations in the groundwater (from both deep and shallow standpipes) beneath the process area footprint were between <5 and 62,490ug/l, with most being <150ug/l.

Outside the source areas, concentrations of 1,2-dichlorobenzene are predicted to quickly reduce to low levels, which again is reasonably consistent with the measured concentrations. For example, under the process area source scenario, concentrations are predicted to reduce to be between 0.0 – 320ug/l (with 90% of predicted values being <28ug/l) at Receptor A, and between 0.0 and 82ug/l (90% of predicted values being <8.0ug/l) at Receptor B, located approximately 20m and 90m north of the source area, respectively. The concentration recorded GJR02, located very close to Receptor A, was below the detection limit of 5ug/l (the model predicts 50% of values at Receptor A to be <3.3ug/l).

For Hotspot Source 1, the predicted concentrations at Receptor A (which is approximately 30m down gradient) are between 4.9ug/l and 1,343ug/l (with 90% of predicted values being <498ug/l), while at Receptor B (approximately 100m down gradient) predicted concentrations are between 0 and 278ug/l (with 90% of predicted values being <70ug/l).

For Hotspot Source 2, the predicted concentrations at Receptor C (which is approximately 30m down gradient) are between 1.1 and 63ug/l (with 90% of predicted values being <18ug/l), while at Receptor D (approximately 100m down gradient) predicted concentrations are between 0.0001 and 18ug/l (with 90% of predicted values being <4.0ug/l).

Overall, none of the predicted concentrations at the receptors are close to the WHO guideline value of 1000ug/l. However, as previously stated, this is a health-based criteria and the WHO note that odour thresholds between 2 – 10ug/l, and a taste threshold of 1ug/l have been reported. As such, a concentration of 1000ug/l is not considered appropriate for drinking water or as a benchmark for this assessment. The modelled concentrations will therefore be benchmarked against a concentration of 5ug/l, which is at the midpoint of the range of odour thresholds and is also the laboratory limit of detection for 1,2-dichlorobenzene.

For the process area source scenario, the 90% probability concentrations of 1,2-dichlorobenzene at Receptors A to D (as shown in Table 6.4) are between 5 - 28ug/l, while there is essentially no impact predicted at the abstractions. The predicted concentrations generally reduce below 5ug/l at 75% probability, except at Receptor A (11ug/l). These marginal exceedances may be slight over-estimates based on site data from GJR02. Overall, it is considered that the model does not indicate a significant risk based on the process area source scenario.

For Hotspot 1, significantly elevated 90% probability concentrations are predicted at Receptor A (498ug/l) and Receptor B (70ug/l), but no impact is predicted at Abstraction A. For Hotspot 2, a concentration of 18ug/l is predicted at Receptor C (just inside the site boundary) but reduces to below 5ug/l at Receptor D.

Both Hotspot1 and Hotspot 2 were based on affected areas of 10m x 10m characterized by 1,2-dichlorobenzene concentrations of 512mg/kg in Hotspot 1 and 41mg/kg in Hotspot 2. Although the Hotspot 1 scenario is not predicted to impact the Abstraction A receptor, off-site concentrations could potentially be well in excess of odour thresholds (although this is not currently supported by site data and the model is likely to overestimate the impact). Hotspot 2 is not predicted to have a significant off-site impact.

Given the above, it is considered that the concentration used for the Hotspot 2 model of 41mg/kg is an appropriate soil remedial target for 1,2-dichlorobenzene that is protective of the water environment.

In terms of other organic contaminants, it is considered that the maximum concentrations recorded in soil during the G&J ground investigations represent concentrations that do not present a risk to the water environment. These concentrations are not remedial targets, but should they be significantly exceeded during future verification sampling and analysis, then a re-evaluation of the risks may be necessary to determine if action is required.

In addition to the above, remediation works should be validated against an absence of obvious visual or olfactory evidence of contamination (i.e. free product, strong odours, staining).

6.4 Impact on the Water Environment from Existing Groundwater Contamination

Contamination within the groundwater contained within the Chester Formation is likely to be a result of past and ongoing leaching from soil sources, including those described in the previous sections, particularly with regards 1,2-dichlorobenzene, as modelled in Section 6.3.

The impact of contaminated groundwater on the wider water environment has also been estimated using the ConSim v2.5 probabilistic model.

The required input parameters are the same as those in Table 5.1, although not all these inputs are relevant to a groundwater source. However, the model has been run for three contaminants (1,2-dichlorobenzene, chlorobenzene and cyanide) rather than just for 1,2-dichlorobenzene, and therefore information on the physio-chemical properties (see Appendix F) and degradation half-lives for

chlorobenzene and cyanide are required. The model also requires groundwater contaminant source concentrations and distributions.

Contamination from bromide has not been modelled due to significant uncertainties regarding physio-chemical properties and the form of bromide contamination. A more qualitative assessment has been undertaken and is described in Section 6.5.

6.4.1 Contaminant Half-Lives

The degradation half-life for 1,2-dichlorobenzene is the same as that described previously in Section 6.3.2. The contaminant half-life for chlorobenzene has been taken from the same source (USGS Report 2006-1338, '*Description, Properties, and Degradation of Selected Volatile Organic Compounds Detected in Ground Water — A Review of Selected Literature*'). The value used is the mid-point of the reported anaerobic degradation rate range (280 – 580 days), this being 430 days.

The half-life for cyanide is based on the highest reported value of 28 days, taken from Environment Agency 2002 (The Effects of Contaminant Concentration on the Potential for Natural Attenuation), with an order of magnitude factor of safety applied given uncertainty with respect to the form of cyanide present on the site. A value of 1 year (280 days rounded up to the nearest year) has been used in the model.

6.4.2 Groundwater Source Concentrations and Distribution

Two sources of existing contamination in the deeper groundwater have been considered. These are centered on GJR03, which recorded the highest concentrations of 1,2-dichlorobenzene and cyanide, and GJR04, which recorded the highest concentrations of chlorobenzene and bromide.

Receptor locations are again taken as the potable water abstractions, and locations directly down gradient of the sources. For GJR03, these are Receptors E, F and G. Receptor E is close to the site boundary (and Knowsley Brook), with Receptor F being approximately 50m beyond the site boundary. Both Receptor E and F are directly down-gradient assuming groundwater flow to the north. Receptor G is located close to the site boundary, directly down-gradient of GJR03 assuming groundwater flow to the south-west.

For GJR04, Receptors H and I are approximately 50m and 100m down-gradient to the south-west of the source. The co-ordinates (of the corners of the source areas or point locations of the receptors) of the modelled source areas and receptor locations are detailed in Table 6.6 and shown in Figure 6.2.

Table 6.6 Groundwater Source and receptor co-ordinates

Source / Receptor	Co-ordinates (x,y)			
	1	2	3	4
GJR03 Source	342960,396740	344960,396730	342970,396730	342970,396740
GJR04 Source	342870,396750	342870,396740	342880,396740	342880,396750
Receptor E	342975,396810	-	-	-
Receptor F	342981,396880	-	-	-
Receptor G	342878,396647	-	-	-
Receptor H	342840,396710	-	-	-
Receptor I	342805,396674	-	-	-
Abstraction A	343994,397091	-	-	-
Abstraction B	340973,396607	-	-	-

Figure 6.2 Modelled Groundwater Source Areas and Receptors



The groundwater concentrations and distributions are presented in the table below, based only on the results from groundwater analysis undertaken as part of the recent supplementary investigation works.

Table 6.7 Groundwater Contamination Distribution Inputs

Source Area	Contaminant	Distribution Type	Concentration (ug/l)
GJR03 Source	1,2-dichlorobenzene	Single	62,490
	Cyanide	Single	170
GJR04 Source	Chlorobenzene	Single	9,583

6.4.3 Model Outputs

Again, the model has been run twice with different groundwater flow directions, to reflect the site information indicating groundwater flows away from the centre of the site (around GJR03) towards the south-west and north. The results are summarised in Tables 6.8 and 6.9.

Table 6.8 Predicted concentrations at Receptors – GJR03 groundwater source

Contaminant	90% probability concentration (ug/l) at Receptor					WQS / Benchmark concentration	WQS / Benchmark concentration source
	E	F	G	H	Abstraction A		
1,2-dichlorobenzene	62,400	130	1,883	447	0.0	5	WHO Odour threshold
Cyanide	170	0.02	1.0	0.3	0.0	50	UK DWS

Table 6.9 Predicted concentrations at Receptors – GJR04 groundwater source

Contaminant	90% probability concentration (ug/l) at Receptor				WQS / Benchmark concentration	WQS / Benchmark concentration source
	G	H	I	Abstraction B		
Chlorobenzene	9,600	9,600	9,600	0.0	80	WHO Odour threshold

The ConSim model input and output sheets are presented in Appendices G3 and G4.

6.4.3.1 Source GJR03

With groundwater flow direction to the north, the 90% probability concentrations of 1,2-dichlorobenzene and cyanide at Receptor E are 62,400ug/l and 170ug/l respectively (i.e. the same as

the source area at GJR03). At Receptor F, concentrations have reduced significantly to 130ug/l and 0.02ug/l. No impact is predicted from either contaminant at Abstraction A.

With groundwater flow towards the south-west, the 90% probability concentrations of 1,2-dichlorobenzene and cyanide at Receptor G are 1,883 and 1ug/l respectively, and at Receptor H are 447ug/l and 0.3ug/l.

For cyanide, the concentrations at Receptors F, G and H are all well below the DWS of 50ug/l. At 90% probability, the model appears to generally over-estimate the concentrations of cyanide outside the source area, as cyanide was not detected in GJR01, GJR02, GJR05 or GJR06 (which is very close to Receptor G). However, even based on the 90% probability concentrations, there is not considered to be a significant risk from cyanide contamination in groundwater.

For 1,2-dichlorobenzene, the concentrations at F, G and H are all above the odour threshold of 5ug/l, but only the predicted concentration at Receptor G is above the WHO health-based guideline. Again, at 90% probability the model appears to over-estimate concentrations outside the source. For example, 1,2-dichlorobenzene was not detected in GJR02, which is only 45m east of Receptor E, while the concentration in GJR06, which is approximately 30m east of Receptor G, was only 129ug/l.

The model has therefore been run to predict concentrations at each of the standpipes, so that these predicted concentrations can be compared with measured values. Table 6.10, below, presents the concentrations of 1,2-dichlorobenzene predicted by ConSim at each standpipe at different probability levels, together with actual measured concentrations. The modelled results for GJR02 and GJR05 are based on groundwater flow to the north, and for GJR04 and GJR06 on groundwater flow to the south-west.

Table 6.10 Predicted and actual 1,2-dichlorobenzene concentrations at each standpipe

Probability	Predicted concentration (ug/l) at Standpipe				
	GJR01	GJR02	GJR04	GJR05	GJR06
90 % values less than	-	62,400	62,400	62,400	2,125
75 % values less than	-	62,400	62,400	62,400	1,035
50 % values less than	-	35	62,400	7.7	408
25 % values less than	-	1.1	1.3	0.004	82.6
Measured Concentration	<5	<5	149	23	219

Based on the results above, there is strong evidence that using 90% probability concentrations predicted by the model over-estimates the actual 1,2-dichlorobenzene concentrations at the site (as might be expected, as these are essentially high confidence maximum concentrations). The measured concentrations are generally between the 25 – 50% probability concentrations (GJR02, GJR04 and GJR06) or the 50 – 75% probability concentrations (GJR05).

Table 6.11, below, presents the concentrations of 1,2-dichlorobenzene predicted by ConSim at each relevant receptor at different probability levels.

Table 6.11 Predicted 1,2-dichlorobenzene concentrations at different probability levels

Probability	Predicted concentration (ug/l) at Receptor			
	E	F	G	H
90 % values less than	62,400	130	1,883	447
75 % values less than	62,400	40.0	1,106	194
50 % values less than	447	6.0	404	44
25 % values less than	64.7	0.2	77.4	1.6

Taking the 50% probability values in Table 6.11, the predicted concentrations at the receptors within the site boundary (E and G) are both around 400ug/l (which is still in excess of what may be expected based on measured concentrations). This is well below the WHO health based guideline, but above the odour threshold. At off-site receptors (F and H), the concentrations are significantly lower (6 and 44ug/l) and are approaching the odour threshold. Given these receptor locations are only just off the site within an industrial area, they are not considered to present a significant risk, and again these concentrations are likely to be an over-estimate based on recorded concentrations at the standpipes around the edges of the site.

Overall, based on a combination of the results of the ConSim modelling and recorded on site concentrations, a significant risk from 1,2-dichlorobenzene contamination in groundwater is not currently considered to be present. It is not therefore considered necessary to derive remedial targets for groundwater within the site.

However, the aim of future works should be to demonstrate no increase in concentrations or expansion of the plume in the short term, and an overall decline (as a result of the remediation of soil sources and natural attenuation) in the medium and long term.

6.4.3.1 Source GJR04

The 90% probability concentrations of chlorobenzene (monochlorobenzene) at Receptors G, H and I are 9,600ug/l (i.e. the same as the source concentration at GJR04), although no impact is predicted at Abstraction B. Again, the model appears to significantly over-estimate concentrations outside the source, as concentrations at GJR06 (approximately 30m east of Receptor G), were below the limit of detection.

Table 6.12, below, presents the concentrations of chlorobenzene predicted by ConSim at each relevant receptor at different probability levels.

Table 6.12 Predicted chlorobenzene concentrations at different probability levels

Probability	Predicted concentration (ug/l) at Receptor		
	G	H	I
90 % values less than	9,600	9,600	9,600
75 % values less than	9,600	9,600	9,600
50 % values less than	9,600	9,600	590
25 % values less than	1.6	9,600	229
10 % values less than	0.0003	845	62.3

The high predicted concentrations for chlorobenzene appear to be a function of the model predicting very fast (near zero) retarded travel times (i.e. the time it takes the contaminant to reach the receptor) in a large proportion of the model iterations, particularly for Receptor H and Receptor G. This is considered to be inaccurate, as evidenced by the absence of chlorobenzene from GJR06.

The predicted concentrations at 25% / 10% probability appear to be more realistic for Receptor G. At Receptor I, the predicted 25% concentration of 229ug/l is still considered likely to be a significant over-estimate, but even this concentration is not considered to represent a significant risk in this setting. No health-based criteria is available for chlorobenzene, while the odour threshold taken from the WHO guidance is 80ug/l, and unlikely to be an issue in groundwater beneath the industrial estate. Again, no impact is predicted at Abstraction B.

Overall, a significant risk from chlorobenzene contamination in groundwater is not currently considered to be present and no remedial targets for groundwater within the site are considered necessary.

6.4.4 Summary

Based on the currently available information, this being the results of chemical analysis on samples of the deeper groundwater beneath the site, combined with the results of modelling using ConSim, no significant risks are currently considered to be present to the wider water environment. No impact is predicted at either potable water abstraction, while predicted concentrations outside the site boundary are low, and maybe an over-estimate based on measured concentrations in standpipes around the edges of the site.

1,2-dichlorobenzene is considered to be the primary groundwater contaminant of concern and has been recorded at high concentrations at a location close to the centre of the site, but at much lower concentrations (or absent) at other locations. However, no remedial targets are considered to be necessary at this stage.

It is therefore considered that an appropriate benchmark for groundwater contamination is no observed increase in concentrations or expansion of the plume, with the ultimate aim of betterment (i.e. reduced concentrations and a declining plume) as a result of future remedial works and natural attenuation processes.

6.4.5 Bromide

Bromide was recorded in the deep groundwater at concentrations up to 500mg/l (in GJR04) and up to 250mg/l in the shallow groundwater (BH104). The highest concentrations (>200mg/l) in both shallow and deep groundwater were located in the west of the site, with the only other concentration above 100mg/l being recorded in the deep groundwater in GJR03 (110mg/l). The distribution of bromide concentrations is shown in the plan in Appendix E.

Bromide does not present a significant human health risk by itself (concentrations in seawater are typically 65mg/l, but only up to around 0.06mg/l in groundwater) and there is no WQS, but as mentioned previously there is potential for it to react during water treatment by ozonation to produce bromate, which has a UK DWS of 10ug/l, and by chlorination to produce trihalomethanes such as bromoform (WHO guideline value 100ug/l). Bromate and bromoform were not detected in the groundwater at the site.

As such, bromide would only present a risk if it was present at significant concentrations at the potable abstraction points. Bromide is commonly used as a tracer in groundwater studies, due to having high solubility and low sorption, making it highly mobile.

Concentrations of bromide in the groundwater down-gradient of the source area (assumed to the area between GJR03 and GJR04), show a significant decrease. From concentrations of between 110 –

500mg/l in the deep groundwater in GJR03 and GJR04, there is a reduction to 2.7mg/l in GJR06 over a distance of approximately 100m towards the south-west, likely as a result of degradation, dilution and dispersion. Similarly, from a concentration of 110mg/l in GJR03, there is reduction to 0.7mg/l in GJR02 approximately 80m towards the north-west.

Given the above, it is considered that observed bromide contamination within the groundwater at the site is very unlikely to present a significant risk to the abstraction receptors.

7.0 REMEDIAL ACTIONS AND OBJECTIVES

7.1 Soil Contamination

Based on the risk assessment described in Sections 6.1 and 6.3, it is considered that there is soil contamination present on the site that will require some sort of remedial work to ensure the site is suitable for redevelopment and does not present any ongoing significant risks to human health or the water environment. This contamination is primarily in the form of 1,2-dichlorobenzene.

A remediation strategy will be produced which will describe how contaminated soils will be identified and remediated, and what measures may be required to manage any residual contamination.

In order to demonstrate the effectiveness of the remedial measures with respect to human health and controlled waters, it is necessary to develop appropriate remedial targets, which are benchmark contaminant concentrations that are considered protective of the identified receptors (these primarily being future site users, the underlying groundwater and Knowsley Brook) and used to verify that remediation has been successful.

As described in Section 6.1, the remedial targets for soil that are considered to be protective of human health are based on Generic Assessment Criteria (GAC), although at this stage no contaminants have been recorded at concentrations above the GAC appropriate for the proposed commercial / industrial development.

The remedial target(s) that are protective of controlled waters are based on the assessment described in Section 6.3. Soil remedial targets have been derived for 1,2-dichlorobenzene using the ConSim model. Benchmark concentrations are also presented for a selection of other organic contaminants that have been noted to be present during the previous investigations and have the potential to be present locally at higher concentrations than previously recorded. These concentrations are not remedial targets, being based on the maximum concentrations recorded in soil during the G&J ground investigations (and which therefore do not represent a risk to the water environment), but should they be significantly exceeded during future verification sampling and analysis, then a re-evaluation of the risks may be necessary to determine if action is required.

In addition, remediation works should aim to ensure there is no significant visual or olfactory evidence of contamination (odours, free-phase contamination, staining) which can present even when concentrations are below other target values, such as the commercial GACs.

Soil remedial targets / benchmarks are summarised in Table 7.1, below. The GACs assume an organic matter content of 1%, which is generally consistent with values recorded in the Made Ground during the previous site investigation.

Table 7.1 Soil Remedial Targets and Benchmark Concentrations

Substance	Human Health Targets - Commercial GAC (mg/kg)	Controlled Waters Targets (mg/kg)	
		Remedial Target Derived Using Consim	Maximum Recorded Concentration*
1,2-dichlorobenzene	2000	41	-
chlorobenzene	56	-	0.1
1,2,4-trimethylbenzene	42	-	5.7
1,3,5-trimethylbenzene	-	-	1.3
n-propylbenzene	4100	-	0.6
Toluene	56000	-	0.11
Ethylbenzene	5700	-	0.25
p-&m-xylene	5900	-	0.49
o-xylene	6600	-	0.30
Bromoform	760	-	0.9
Organic Contamination	Absence of evidence of significant organic contamination, such as free phase contamination, heavy staining or strong odours		

*to be used as a benchmark to determine if further assessment of the risks to the water environment is required
Bold are anticipated targets for remediation works based on the current information

7.2 Groundwater Contamination

Based on the risk assessment described in Section 5.4, it is not considered necessary to set site-specific remedial targets for groundwater that are protective of the wider water environment. The model, when considered alongside measured site concentrations, predicts that the identified contaminants in groundwater will not present a significant risk to the wider groundwater environment, with no impacts predicted for the nearby abstraction points.

Remediation of soil sources and natural attenuation processes, such as dilution, dispersion and degradation should result in improvement in groundwater over time. As such, the following is considered to be an appropriate target for groundwater contamination;

- As a minimum, no observed increase in concentrations or expansion of the plume, but with an overall aim for betterment (i.e. reduced concentrations and a declining plume).

8.0 REFERENCES

1. BS 5930: (2015): Code of Practice for Site Investigation. British Standards Institution
2. BS 10175: (2011): Code of Practice for the Investigation of Potentially Contaminated Sites. British Standards Institution
3. LCRM (2020): Land Contamination Risk Management. Environment Agency
4. CL:AIRE (2014): SP1010 – Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination
5. Land Quality Press (2015): The LQM/CIEH S4ULs for Human Health Risk Assessment (S4UL3312)
6. Environment Agency (2002): The Effects of Contaminant Concentration on the Potential for Natural Attenuation
7. Environment Agency (2008): Science report SC050021/SR7 Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values
8. USEPA (1999): Partition Co-efficients for Metals in Surface Water, Soil and Waste
9. TPHCWG (1999): Volume 3 - Selection of Representative TPH Fractions Based on Fate and Transport Considerations
10. CL:AIRE/AGS/EIC (2010) - Soil Generic Assessment Criteria for Human Health Risk Assessment
11. Howard and Aronson (1997): Anaerobic Biodegradation of Organic Chemicals in Groundwater: A Summary of Field and Laboratory Studies
12. SoBRA (2017): Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater

APPENDICES

A – 2021 Site Investigation Plan



NOTES:

CLIENT:	KNwsley Redevelopments Ltd
PROJECT:	Contract Chemicals, Knowsley
TITLE:	Exploratory Hole Location Plan

PROJECT No:	GJ224	DATE:	January 2021	DESIGN/DRAWN:	TDSR
DRAWING NUMBER:	01	ISSUE:	Final		



G&J Geoenvironmental Consultants Ltd

B – 2025 Investigation Plan and Borehole Logs



DO NOT SCALE

NOTES:

- Deep borehole
- Shallow borehole
- Shallow borehole from 2021 SI



G&J Geoenvironmental Consultants Ltd
35-37 High Street,
Barrow upon Soar, Loughborough, LE12 8PY
Tel: 01509 410372
info@gjgeoenvironmental.com

CLIENT:

Knowsley Redvelopments Ltd

PROJECT:

**Former Contract Chemicals,
Penrhyn Road**

TITLE:

**2025 Exploratory Hole Location
Plan**

SCALE@SIZE :

NTS

ISSUE:

FINAL

DESIGN/DRAWN by :

CMH

DATE:

April 2025

PROJECT No:

GJ224

DRAWING No:

Photos01

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Borehole Log

Borehole No.

GJR01

Sheet 1 of 2

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 343057E - 396736N

Hole Type
RO

Location: Penrhyn Road, Knowsley, Merseyside

Level: 30.20 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 18/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
						30.20		Tarmac Over; Reddish brown sandy CLAY. With fragmented brick (Made Ground).	1
									2
									3
					3.50	26.70		Weak, reddish brown fine grained SANDSTONE (Chester Formation).	4
									5
									6
									7
									8
									9
									10
								Continued on Next Sheet	

Remarks

(1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.





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Borehole Log

Borehole No.

GJR01

Sheet 2 of 2

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 343057E - 396736N

Hole Type
RO

Location: Penrhyn Road, Knowsley, Merseyside

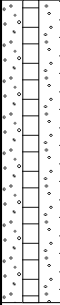
Level: 30.20 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 18/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					12.00			Weak, reddish brown fine grained SANDSTONE (Chester Formation).	11
								End of Borehole at 12.00m	12
									13
									14
									15
									16
									17
									18
									19
									20

Remarks
(1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.





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Borehole Log

Borehole No.

GJR02

Sheet 1 of 2

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 343023E - 396804N

Hole Type
RO

Location: Penrhyn Road, Knowsley, Merseyside

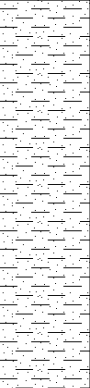
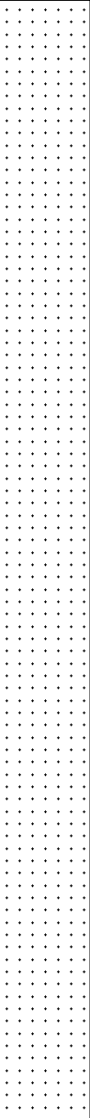
Level: 30.80 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 18/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
						30.80		Reddish brown very sandy CLAY. Sand is fine to medium (Glacial Till).	1
					2.60	28.20		Weak, reddish brown fine grained SANDSTONE (Chester Formation).	2
									3
									4
									5
									6
									7
									8
									9
									10
Continued on Next Sheet									

Remarks
(1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.





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Borehole Log

Borehole No.

GJR02

Sheet 2 of 2

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 343023E - 396804N

Hole Type
RO

Location: Penrhyn Road, Knowsley, Merseyside

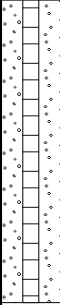
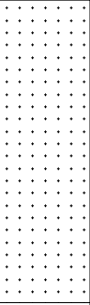
Level: 30.80 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 18/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					12.00			Weak, reddish brown fine grained SANDSTONE (Chester Formation).	11
								End of Borehole at 12.00m	12
									13
									14
									15
									16
									17
									18
									19
									20

Remarks
(1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.





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Borehole Log

Borehole No.

GJR03

Sheet 1 of 2

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 342965E - 396734N

Hole Type
RO

Location: Penrhyn Road, Knowsley, Merseyside

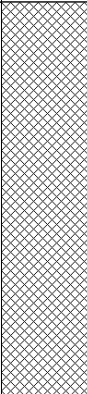
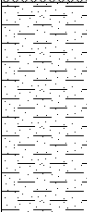
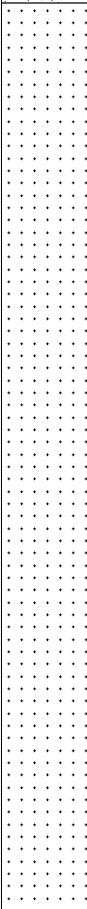
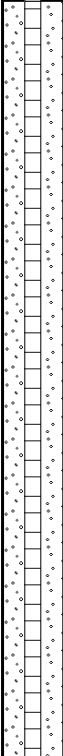
Level: 29.60 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 19/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					2.60	29.60		Reddish brown sandy CLAY. With fragmented brick (Made Ground).	1
						27.00		Reddish brown very sandy CLAY. Sand is fine to medium (Glacial Till).	3
						25.60		Weak, reddish brown fine grained SANDSTONE (Chester Formation).	4
						Continued on Next Sheet			
									

Remarks

(1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.





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Borehole Log

Borehole No.

GJR03

Sheet 2 of 2

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 342965E - 396734N

Hole Type
RO

Location: Penrhyn Road, Knowsley, Merseyside

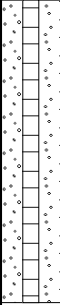
Level: 29.60 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 19/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					12.00			Weak, reddish brown fine grained SANDSTONE (Chester Formation).	11
								End of Borehole at 12.00m	12
									13
									14
									15
									16
									17
									18
									19
									20

Remarks
(1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.





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Borehole Log

Borehole No.

GJR04

Sheet 1 of 2

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 342875E - 396744N

Hole Type
RO

Location: Penrhyn Road, Knowsley, Merseyside

Level: 29.30 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 19/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
						29.30		Reddish brown sandy CLAY. With fragmented brick (Made Ground).	1
									2
									3
					3.50	25.80		Weak, reddish brown fine grained SANDSTONE (Chester Formation).	4
									5
									6
									7
									8
									9
									10
								Continued on Next Sheet	

Remarks

(1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.





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Borehole Log

Borehole No.

GJR04

Sheet 2 of 2

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 342875E - 396744N

Hole Type
RO

Location: Penrhyn Road, Knowsley, Merseyside

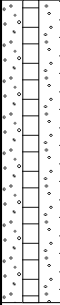
Level: 29.30 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 19/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					12.00			Weak, reddish brown fine grained SANDSTONE (Chester Formation).	11
								End of Borehole at 12.00m	12
									13
									14
									15
									16
									17
									18
									19
									20

Remarks
(1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.





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Borehole Log

Borehole No.

GJR05

Sheet 1 of 2

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 342892E - 396796N

Hole Type
RO

Location: Penrhyn Road, Knowsley, Merseyside

Level: 30.40 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 19/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
						30.40		Reddish brown sandy CLAY. With fragmented brick (Made Ground).	1
									2
									3
					4.00	26.40		Weak, reddish brown fine grained SANDSTONE (Chester Formation).	4
									5
									6
									7
									8
									9
									10
								Continued on Next Sheet	

Remarks
(1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.





G&J Geoenvironmental
35-37 High Street,
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Loughborough, LE12 8PY

Borehole Log

Borehole No.

GJR05

Sheet 2 of 2

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 342892E - 396796N

Hole Type
RO

Location: Penrhyn Road, Knowsley, Merseyside

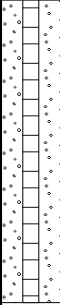
Level: 30.40 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 19/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					12.00			Weak, reddish brown fine grained SANDSTONE (Chester Formation).	11
								End of Borehole at 12.00m	12
									13
									14
									15
									16
									17
									18
									19
									20

Remarks
(1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.





G&J Geoenvironmental
35-37 High Street,
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Loughborough, LE12 8PY

Borehole Log

Borehole No.

GJR06

Sheet 1 of 2

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 342909E - 396641N

Hole Type
RO

Location: Penrhyn Road, Knowsley, Merseyside

Level: 28.10 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

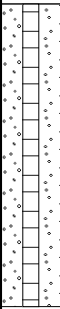
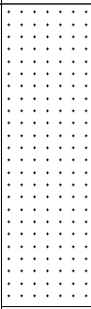
Dates: 20/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
						28.10		Reddish brown sandy CLAY. With fragmented brick (Made Ground).	1
									2
									3
					3.80	24.30		Weak, reddish brown fine grained SANDSTONE (Chester Formation).	4
									5
									6
									7
									8
									9
									10
								Continued on Next Sheet	

Remarks
(1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.



 G&J Geoenvironmental 35-37 High Street, Barrow upon Soar, Loughborough, LE12 8PY		Borehole Log				Borehole No. GJR06 Sheet 2 of 2			
Project Name: Contract Chemicals, Knowlsey		Project No. GJ224-02		Co-ords: 342909E - 396641N		Hole Type RO			
Location: Penrhyn Road, Knowsley, Merseyside				Level: 28.10 m AOD		Scale 1:50			
Client: Knowsley Redevelopments Ltd				Dates: 20/02/2025		Logged By Andrew Bedford			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					12.00			Weak, reddish brown fine grained SANDSTONE (Chester Formation).	11
								End of Borehole at 12.00m	12
									13
									14
									15
									16
									17
									18
									19
									20
Remarks (1) Exploratory Location Service Cleared (2) Drilled with a Massenza Mi3 Rotary Drilling Rig. (3) Target depth reached. (4) Gas/ Groundwater well installed.									



G&J Geoenvironmental
35-37 High Street,
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Loughborough, LE12 8PY

Borehole Log

Borehole No.

GJWS202

Sheet 1 of 1

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 342968E - 396775N

Hole Type
WS

Location: Penrhyn Road, Knowsley, Merseyside

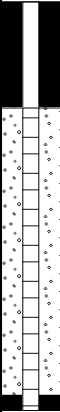
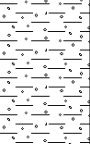
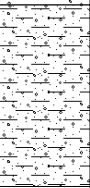
Level: 30.10 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 19/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 0.50	ES			30.10		Soft reddish brown streaked black gravelly CLAY. Gravel is fine to medium occasionally coarse to very coarse, sub rounded to sub angular of sandstone and flint. With fragmented brick (Made Ground).	
					0.50	29.60		Soft to firm, reddish brown to dark grey slightly gravelly CLAY. Gravel is fine to medium, sub angular of sandstone and some quartzite. With carbonaceous material (Glacial Till).	1
					1.50	28.60		Firm, reddish brown very sandy, gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of sandstone (Glacial Till).	2
					2.70			End of Borehole at 2.70m	3
									4
									5
									6
									7
									8
									9
									10

Remarks

(1) Exploratory Location Service Cleared (2) Drilled with a DART Window Sampling rig. (3) Refusal on sandstone. (4) Gas/ Groundwater well installed.





G&J Geoenvironmental
35-37 High Street,
Barrow upon Soar,
Loughborough, LE12 8PY

Borehole Log

Borehole No.

GJWS203

Sheet 1 of 1

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 343034E - 396784N

Hole Type
WS

Location: Penrhyn Road, Knowsley, Merseyside

Level: 30.10 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 19/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 0.50	ES			30.10		Firm, reddish brown very sandy, gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of sandstone. With fine brick, rootlets and some fragmented concrete (Made Ground).	
					1.00	29.10		Light grey to grey gravel of crushed concrete and tarmac. With fine brick (Made Ground).	1
					1.40	28.70		<i>Some black staining and hydrocarbon odour</i> Weak, reddish brown fine grained thinly bedded SANDSTONE (Chester Formation).	2
					3.00			End of Borehole at 3.00m	3
									4
									5
									6
									7
									8
									9
									10

Remarks

(1) Exploratory Location Service Cleared (2) Drilled with a DART Window Sampling rig. (3) Target Depth Reached. (4) Gas/ Groundwater well installed.



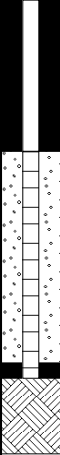
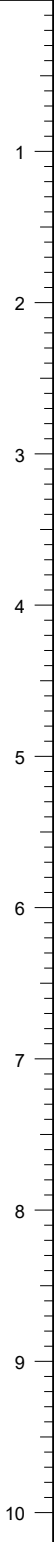
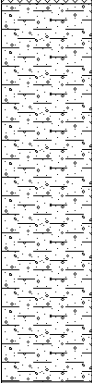


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Loughborough, LE12 8PY

Borehole Log

Borehole No.
GJWS204
Sheet 1 of 1

Project Name:	Contract Chemicals, Knowlsey	Project No.	GJ224-02	Co-ords:	343012E - 396709N	Hole Type	WS
Location:	Penrhyn Road, Knowsley, Merseyside			Level:	29.40 m AOD	Scale	1:50
Client:	Knowsley Redevelopments Ltd			Dates:	19/02/2025	Logged By	Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50 - 1.00	ES		0.50	29.40		Light grey to grey gravel of crushed concrete and tarmac. With fine brick (Made Ground).	
						28.90		Firm, reddish brown very sandy, gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of sandstone (Glacial Till).	
					3.00			End of Borehole at 3.00m	

Remarks
(1) Exploratory Location Service Cleared (2) Drilled with a DART Window Sampling rig. (3) Target Depth Reached. (4) Gas/ Groundwater well installed.





G&J Geoenvironmental
35-37 High Street,
Barrow upon Soar,
Loughborough, LE12 8PY

Borehole Log

Borehole No.

GJWS205

Sheet 1 of 1

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 342939E - 396681N

Hole Type
WS

Location: Penrhyn Road, Knowsley, Merseyside

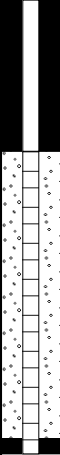
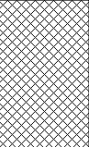
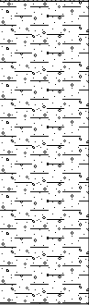
Level: 28.40 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 19/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 0.50	ES			28.40		Soft to firm streaked black very sandy gravelly CLAY. Gravel is fine to medium, sub angular to angular of a type 1 gravel (Made Ground). <u>Some black staining</u>	
					1.00	27.40		Firm, reddish brown very sandy, gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of sandstone (Glacial Till).	1
					3.00			End of Borehole at 3.00m	3
									4
									5
									6
									7
									8
									9
									10

Remarks

(1) Exploratory Location Service Cleared (2) Drilled with a DART Window Sampling rig. (3) Target Depth Reached. (4) Gas/ Groundwater well installed.





G&J Geoenvironmental
35-37 High Street,
Barrow upon Soar,
Loughborough, LE12 8PY

Borehole Log

Borehole No.

GJWS206

Sheet 1 of 1

Project Name: Contract Chemicals, Knowlsey

Project No.
GJ224-02

Co-ords: 342897E - 396716N

Hole Type
WS

Location: Penrhyn Road, Knowsley, Merseyside

Level: 28.80 m AOD

Scale
1:50

Client: Knowsley Redevelopments Ltd

Dates: 19/02/2025

Logged By
Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 0.60	ES			28.80		Firm, reddish brown very sandy, gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of sandstone. With fine brick, rootlets and some fragmented concrete (Made Ground).	
					0.60	28.20		Light grey to grey gravel of crushed concrete and tarmac. With fine brick (Made Ground).	
					1.00	27.80		Firm, reddish brown very sandy, gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of sandstone (Glacial Till).	1
					3.00			End of Borehole at 3.00m	3
									4
									5
									6
									7
									8
									9
									10

Remarks

(1) Exploratory Location Service Cleared (2) Drilled with a DART Window Sampling rig. (3) Target Depth Reached. (4) Gas/ Groundwater well installed.





G&J Geoenvironmental
35-37 High Street,
Barrow upon Soar,
Loughborough, LE12 8PY

Borehole Log

Borehole No.

GJWS207

Sheet 1 of 1

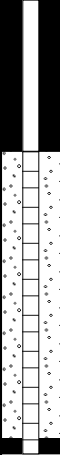
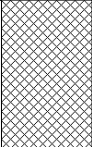
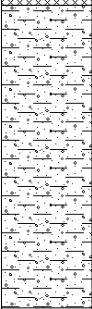
Project Name:	Contract Chemicals, Knowlsey	Project No.	GJ224-02	Co-ords:	342896E - 396745N	Hole Type	WS
Location:	Penrhyn Road, Knowsley, Merseyside			Level:	29.10 m AOD	Scale	1:50
Client:	Knowsley Redevelopments Ltd			Dates:	19/02/2025	Logged By	Andrew Bedford

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 1.00	ES			29.10		Firm, reddish brown very sandy, gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of sandstone. With fine brick & rootlets (Made Ground).	1
					1.20	27.90		Firm, reddish brown very sandy, gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of sandstone (Glacial Till).	2
					2.50	26.60		Weak, reddish brown fine grained thinly bedded SANDSTONE (Chester Formation).	3
					3.00			End of Borehole at 3.00m	3
									4
									5
									6
									7
									8
									9
									10

Remarks

(1) Exploratory Location Service Cleared (2) Drilled with a DART Window Sampling rig. (3) Target Depth Reached. (4) Gas/ Groundwater well installed.



 G&J Geoenvironmental 35-37 High Street, Barrow upon Soar, Loughborough, LE12 8PY		Borehole Log				Borehole No. GJWS208 Sheet 1 of 1			
Project Name: Contract Chemicals, Knowlsey		Project No. GJ224-02		Co-ords: 342885E - 396768N		Hole Type WS			
Location: Penrhyn Road, Knowsley, Merseyside				Level: 29.70 m AOD		Scale 1:50			
Client: Knowsley Redevelopments Ltd				Dates: 19/02/2025		Logged By Andrew Bedford			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 1.00	ES			29.70		Firm, reddish brown very sandy, gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of sandstone. With fine brick & rootlets (Made Ground).	
					1.00	28.70		Firm, reddish brown very sandy, gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of sandstone (Glacial Till).	1
					3.00			End of Borehole at 3.00m	3
									4
									5
									6
									7
									8
									9
									10
Remarks (1) Exploratory Location Service Cleared (2) Drilled with a DART Window Sampling rig. (3) Target Depth Reached. (4) Gas/ Groundwater well installed.									

C – Soil Chemical Laboratory Certificates

Chris Hepworth
G & J Geoenvironmental Consultants Ltd
35-37 High Street
Barrow-upon-Soar
Loughborough
Leicestershire
LE12 8PY

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 25-01893

Site Reference: Penrhyn Road, Knowley

Project / Job Ref: GJ224

Order No: None Supplied

Sample Receipt Date: 24/02/2025

Sample Scheduled Date: 24/02/2025

Report Issue Number: 1

Reporting Date: 04/03/2025

Authorised by:



Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Soil Analysis Certificate						
DETS Report No: 25-01893	~Date Sampled	19/02/25	19/02/25	19/02/25	19/02/25	19/02/25
G & J Geoenvironmental Consultants Ltd	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Penrhyn Road, Knowley	~TP / BH No	GJWS201	GJWS202	GJWS203	GJWS204	GJWS205
~Project / Job Ref: GJ224	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: None Supplied	~Depth (m)	0.50 - 1.00	0.10 - 0.50	0.10 - 0.50	0.50 - 1.00	0.10 - 0.50
Reporting Date: 04/03/2025	DETS Sample No	765744	765745	765746	765747	765748

Determinand	Unit	RL	Accreditation	(n)		
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1

Soil Analysis Certificate						
DETS Report No: 25-01893	~Date Sampled	19/02/25	19/02/25	19/02/25		
G & J Geoenvironmental Consultants Ltd	~Time Sampled	None Supplied	None Supplied	None Supplied		
~Site Reference: Penrhyn Road, Knowley	~TP / BH No	GJWS206	GJWS207	GJWS208		
~Project / Job Ref: GJ224	~Additional Refs	None Supplied	None Supplied	None Supplied		
~Order No: None Supplied	~Depth (m)	0.10 - 0.60	0.10 - 1.00	0.10 - 1.00		
Reporting Date: 04/03/2025	DETS Sample No	765749	765750	765751		

Determinand	Unit	RL	Accreditation				
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	

Soil Analysis Certificate - Volatile Organic Compounds (VOC)						
DETS Report No: 25-01893	~ Date Sampled	19/02/25	19/02/25	19/02/25	19/02/25	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS201	GJWS202	GJWS203	GJWS204	GJWS205
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.50 - 1.00	0.10 - 0.50	0.10 - 0.50	0.50 - 1.00	0.10 - 0.50
Reporting Date: 04/03/2025	DETS Sample No	765744	765745	765746	765747	765748

Determinand	Unit	RL	Accreditation	(n)					
Dichlorodifluoromethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Chloromethane	µg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10	< 10
Chloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10	< 10
Trichlorofluoromethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
MTBE	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
2,2-Dichloropropane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Chloroform	µg/kg	< 5	MCERTS	< 5	< 5	9	< 5	< 5	< 5
Bromochloromethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloropropene	µg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10	< 10
Carbon Tetrachloride	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Benzene	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2	< 2
1,2-Dichloropropane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Trichloroethene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Dibromomethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
TAME	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Toluene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	µg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10	< 10
1,3-Dichloropropane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dibromoethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,1,1,2-Tetrachloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Ethyl Benzene	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2	< 2
m,p-Xylene	µg/kg	< 2	MCERTS	2	< 2	4	< 2	< 2	39
o-Xylene	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2	< 2
Styrene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform	µg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10	< 10
Isopropylbenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,2,3-Trichloropropane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	µg/kg	< 5	MCERTS	16	< 5	< 5	< 5	< 5	561
Bromobenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
2-Chlorotoluene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	µg/kg	< 5	MCERTS	44	< 5	16	< 5	< 5	1333
4-Chlorotoluene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	µg/kg	< 5	MCERTS	140	< 5	63	13	< 5	5749
sec-Butylbenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
p-Isopropyltoluene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	µg/kg	< 5	MCERTS	< 5	< 5	68	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	µg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5	< 5

Soil Analysis Certificate - Volatile Organic Compounds (VOC)						
DETS Report No: 25-01893	~ Date Sampled	19/02/25	19/02/25	19/02/25		
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied		
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS206	GJWS207	GJWS208		
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied		
~ Order No: None Supplied	~ Depth (m)	0.10 - 0.60	0.10 - 1.00	0.10 - 1.00		
Reporting Date: 04/03/2025	DETS Sample No	765749	765750	765751		

Determinand	Unit	RL	Accreditation				
Dichlorodifluoromethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Vinyl Chloride	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Chloromethane	µg/kg	< 10	MCERTS	< 10	< 10	< 10	
Chloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Bromomethane	µg/kg	< 10	MCERTS	< 10	< 10	< 10	
Trichlorofluoromethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,1-Dichloroethene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
MTBE	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
trans-1,2-Dichloroethene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,1-Dichloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
cis-1,2-Dichloroethene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
2,2-Dichloropropane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Chloroform	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Bromochloromethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,1,1-Trichloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,1-Dichloropropene	µg/kg	< 10	MCERTS	< 10	< 10	< 10	
Carbon Tetrachloride	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,2-Dichloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Benzene	µg/kg	< 2	MCERTS	< 2	< 2	< 2	
1,2-Dichloropropane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Trichloroethene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Bromodichloromethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Dibromomethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
TAME	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
cis-1,3-Dichloropropene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Toluene	µg/kg	< 5	MCERTS	6	< 5	< 5	
trans-1,3-Dichloropropene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,1,2-Trichloroethane	µg/kg	< 10	MCERTS	< 10	< 10	< 10	
1,3-Dichloropropane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Tetrachloroethene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Dibromochloromethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,2-Dibromoethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Chlorobenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,1,1,2-Tetrachloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Ethyl Benzene	µg/kg	< 2	MCERTS	4	< 2	< 2	
m,p-Xylene	µg/kg	< 2	MCERTS	13	6	4	
o-Xylene	µg/kg	< 2	MCERTS	10	4	4	
Styrene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
Bromoform	µg/kg	< 10	MCERTS	< 10	< 10	< 10	
Isopropylbenzene	µg/kg	< 5	MCERTS	31	6	9	
1,1,2,2-Tetrachloroethane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,2,3-Trichloropropane	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
n-Propylbenzene	µg/kg	< 5	MCERTS	160	37	60	
Bromobenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
2-Chlorotoluene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,3,5-Trimethylbenzene	µg/kg	< 5	MCERTS	222	201	107	
4-Chlorotoluene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
tert-Butylbenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,2,4-Trimethylbenzene	µg/kg	< 5	MCERTS	697	1434	294	
sec-Butylbenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
p-Isopropyltoluene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,3-Dichlorobenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,4-Dichlorobenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
n-Butylbenzene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	
1,2-Dichlorobenzene	µg/kg	< 5	MCERTS	81	10	6	
1,2-Dibromo-3-chloropropane	µg/kg	< 10	MCERTS	< 10	< 10	< 10	
Hexachlorobutadiene	µg/kg	< 5	MCERTS	< 5	< 5	< 5	



Normec
DETS

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 25-01893	~Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~Time Sampled	None Supplied
~Site Reference: Penrhyn Road, Knowley	~TP / BH No	GJWS201
~Project / Job Ref: GJ224	~Additional Refs	None Supplied
~Order No: None Supplied	~Depth (m)	0.50 - 1.00
Reporting Date: 04/03/2025	DETS Sample No	765744

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	0	µg/kg	< 10	< 10
2	N/A	0	µg/kg	< 10	< 10
3	N/A	0	µg/kg	< 10	< 10
4	N/A	0	µg/kg	< 10	< 10
5	N/A	0	µg/kg	< 10	< 10

There were no / other compounds identified with a match of >90%



Normec
DETS

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 25-01893	~Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~Time Sampled	None Supplied
~Site Reference: Penrhyn Road, Knowley	~TP / BH No	GJWS202
~Project / Job Ref: GJ224	~Additional Refs	None Supplied
~Order No: None Supplied	~Depth (m)	0.10 - 0.50
Reporting Date: 04/03/2025	DETS Sample No	765745

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	0	µg/kg	< 10	< 10
2	N/A	0	µg/kg	< 10	< 10
3	N/A	0	µg/kg	< 10	< 10
4	N/A	0	µg/kg	< 10	< 10
5	N/A	0	µg/kg	< 10	< 10

There were no / other compounds identified with a match of >90%



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Soil Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 25-01893	~ Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS203
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.10 - 0.50
Reporting Date: 04/03/2025	DETS Sample No	765746

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	0	µg/kg	< 10	< 10
2	N/A	0	µg/kg	< 10	< 10
3	N/A	0	µg/kg	< 10	< 10
4	N/A	0	µg/kg	< 10	< 10
5	N/A	0	µg/kg	< 10	< 10

There were no / other compounds identified with a match of >90%



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Soil Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 25-01893	~Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~Time Sampled	None Supplied
~Site Reference: Penrhyn Road, Knowley	~TP / BH No	GJWS204
~Project / Job Ref: GJ224	~Additional Refs	None Supplied
~Order No: None Supplied	~Depth (m)	0.50 - 1.00
Reporting Date: 04/03/2025	DETS Sample No	765747

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	0	µg/kg	< 10	< 10
2	N/A	0	µg/kg	< 10	< 10
3	N/A	0	µg/kg	< 10	< 10
4	N/A	0	µg/kg	< 10	< 10
5	N/A	0	µg/kg	< 10	< 10

There were no / other compounds identified with a match of >90%



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Soil Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 25-01893	~Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~Time Sampled	None Supplied
~Site Reference: Penrhyn Road, Knowley	~TP / BH No	GJWS205
~Project / Job Ref: GJ224	~Additional Refs	None Supplied
~Order No: None Supplied	~Depth (m)	0.10 - 0.50
Reporting Date: 04/03/2025	DETS Sample No	765748

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	0	µg/kg	< 10	< 10
2	N/A	0	µg/kg	< 10	< 10
3	N/A	0	µg/kg	< 10	< 10
4	N/A	0	µg/kg	< 10	< 10
5	N/A	0	µg/kg	< 10	< 10

There were no / other compounds identified with a match of >90%



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Soil Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 25-01893	~Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~Time Sampled	None Supplied
~Site Reference: Penrhyn Road, Knowley	~TP / BH No	GJWS206
~Project / Job Ref: GJ224	~Additional Refs	None Supplied
~Order No: None Supplied	~Depth (m)	0.10 - 0.60
Reporting Date: 04/03/2025	DETS Sample No	765749

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	0	µg/kg	< 10	< 10
2	N/A	0	µg/kg	< 10	< 10
3	N/A	0	µg/kg	< 10	< 10
4	N/A	0	µg/kg	< 10	< 10
5	N/A	0	µg/kg	< 10	< 10

There were no / other compounds identified with a match of >90%



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Soil Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 25-01893	~ Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS207
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.10 - 1.00
Reporting Date: 04/03/2025	DETS Sample No	765750

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	0	µg/kg	< 10	< 10
2	N/A	0	µg/kg	< 10	< 10
3	N/A	0	µg/kg	< 10	< 10
4	N/A	0	µg/kg	< 10	< 10
5	N/A	0	µg/kg	< 10	< 10

There were no / other compounds identified with a match of >90%



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Soil Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 25-01893	~ Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS208
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.10 - 1.00
Reporting Date: 04/03/2025	DETS Sample No	765751

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/A	0	µg/kg	< 10	< 10
2	N/A	0	µg/kg	< 10	< 10
3	N/A	0	µg/kg	< 10	< 10
4	N/A	0	µg/kg	< 10	< 10
5	N/A	0	µg/kg	< 10	< 10

There were no / other compounds identified with a match of >90%

Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
DETS Report No: 25-01893	~ Date Sampled	19/02/25	19/02/25	19/02/25	19/02/25	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS201	GJWS202	GJWS203	GJWS204	GJWS205
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.50 - 1.00	0.10 - 0.50	0.10 - 0.50	0.50 - 1.00	0.10 - 0.50
Reporting Date: 04/03/2025	DETS Sample No	765744	765745	765746	765747	765748

Determinand	Unit	RL	Accreditation	(n)				
Phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2,4-Trichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
0-Cresol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-chloroethoxy)methane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-chloroethyl)ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chlorophenol	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dimethylphenol	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Isophorone	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachloroethane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
p-Cresol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
2,4,6-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylnaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloroaniline	mg/kg	< 0.15	NONE	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Bromophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Diethyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzofuran	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Azobenzene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibutyl phthalate	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Carbazole	mg/kg	< 0.1	ISO17025	0.2	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-ethylhexyl)phthalate	mg/kg	< 0.15	ISO17025	1.11	0.27	0.43	1.94	< 0.15
Benzyl butyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Di-n-octyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
DETS Report No: 25-01893	~ Date Sampled	19/02/25	19/02/25	19/02/25		
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied		
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS206	GJWS207	GJWS208		
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied		
~ Order No: None Supplied	~ Depth (m)	0.10 - 0.60	0.10 - 1.00	0.10 - 1.00		
Reporting Date: 04/03/2025	DETS Sample No	765749	765750	765751		

Determinand	Unit	RL	Accreditation				
Phenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
1,2,4-Trichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
Nitrobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
O-Cresol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
bis(2-chloroethoxy)methane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
bis(2-chloroethyl)ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
2,4-Dichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
2-Chlorophenol	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	
1,3-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	
1,4-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	
1,2-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	
2,4-Dimethylphenol	mg/kg	< 0.15	ISO17025	< 0.15	< 0.15	< 0.15	
Isophorone	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
Hexachloroethane	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
p-Cresol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15	< 0.15	
2,4,6-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
2,4,5-Trichlorophenol	mg/kg	< 0.15	MCERTS	< 0.15	< 0.15	< 0.15	
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
2-Methylnaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
Hexachlorobutadiene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	
2,6-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
2-Chloronaphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
4-Chloroaniline	mg/kg	< 0.15	NONE	< 0.15	< 0.15	< 0.15	
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
4-Bromophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Hexachlorobenzene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
2,4-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Diethyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Dibenzofuran	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Azobenzene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1	
Dibutyl phthalate	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	
Carbazole	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	
bis(2-ethylhexyl)phthalate	mg/kg	< 0.15	ISO17025	0.57	0.77	< 0.15	
Benzyl butyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Di-n-octyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	



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Soil Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-01893	~ Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS201
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.50 - 1.00
Reporting Date: 04/03/2025	DETS Sample No	765744

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	mg/kg	< 0.1	< 0.1
2	N/a	N/a	mg/kg	< 0.1	< 0.1
3	N/a	N/a	mg/kg	< 0.1	< 0.1
4	N/a	N/a	mg/kg	< 0.1	< 0.1
5	N/a	N/a	mg/kg	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%



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Soil Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-01893	~ Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS202
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.10 - 0.50
Reporting Date: 04/03/2025	DETS Sample No	765745

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	mg/kg	< 0.1	< 0.1
2	N/a	N/a	mg/kg	< 0.1	< 0.1
3	N/a	N/a	mg/kg	< 0.1	< 0.1
4	N/a	N/a	mg/kg	< 0.1	< 0.1
5	N/a	N/a	mg/kg	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%



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Soil Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-01893	~ Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS203
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.10 - 0.50
Reporting Date: 04/03/2025	DETS Sample No	765746

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	mg/kg	< 0.1	< 0.1
2	N/a	N/a	mg/kg	< 0.1	< 0.1
3	N/a	N/a	mg/kg	< 0.1	< 0.1
4	N/a	N/a	mg/kg	< 0.1	< 0.1
5	N/a	N/a	mg/kg	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%



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Soil Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-01893	~ Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS204
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.50 - 1.00
Reporting Date: 04/03/2025	DETS Sample No	765747

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	mg/kg	< 0.1	< 0.1
2	N/a	N/a	mg/kg	< 0.1	< 0.1
3	N/a	N/a	mg/kg	< 0.1	< 0.1
4	N/a	N/a	mg/kg	< 0.1	< 0.1
5	N/a	N/a	mg/kg	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%



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Soil Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-01893	~ Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS205
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.10 - 0.50
Reporting Date: 04/03/2025	DETS Sample No	765748

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	mg/kg	< 0.1	< 0.1
2	N/a	N/a	mg/kg	< 0.1	< 0.1
3	N/a	N/a	mg/kg	< 0.1	< 0.1
4	N/a	N/a	mg/kg	< 0.1	< 0.1
5	N/a	N/a	mg/kg	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%



Normec
DETS

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-01893	~ Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS206
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.10 - 0.60
Reporting Date: 04/03/2025	DETS Sample No	765749

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	mg/kg	< 0.1	< 0.1
2	N/a	N/a	mg/kg	< 0.1	< 0.1
3	N/a	N/a	mg/kg	< 0.1	< 0.1
4	N/a	N/a	mg/kg	< 0.1	< 0.1
5	N/a	N/a	mg/kg	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%



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Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-01893	~ Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS207
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.10 - 1.00
Reporting Date: 04/03/2025	DETS Sample No	765750

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	mg/kg	< 0.1	< 0.1
2	N/a	N/a	mg/kg	< 0.1	< 0.1
3	N/a	N/a	mg/kg	< 0.1	< 0.1
4	N/a	N/a	mg/kg	< 0.1	< 0.1
5	N/a	N/a	mg/kg	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%



Normec
DETS

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-01893	~ Date Sampled	19/02/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowley	~ TP / BH No	GJWS208
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	0.10 - 1.00
Reporting Date: 04/03/2025	DETS Sample No	765751

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	mg/kg	< 0.1	< 0.1
2	N/a	N/a	mg/kg	< 0.1	< 0.1
3	N/a	N/a	mg/kg	< 0.1	< 0.1
4	N/a	N/a	mg/kg	< 0.1	< 0.1
5	N/a	N/a	mg/kg	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%

Soil Analysis Certificate - Sample Descriptions

DETS Report No: 25-01893	
G & J Geoenvironmental Consultants Ltd	
~Site Reference: Penrhyn Road, Knowley	
~Project / Job Ref: GJ224	
~Order No: None Supplied	
Reporting Date: 04/03/2025	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
765744	GJWS201	None Supplied	0.50 - 1.00	10.2	Light brown sandy clay
765745	GJWS202	None Supplied	0.10 - 0.50	12.7	Light brown clay with stones
765746	GJWS203	None Supplied	0.10 - 0.50	10.2	Light brown sandy clay with stones
765747	GJWS204	None Supplied	0.50 - 1.00	12.1	Light brown sandy clay
765748	GJWS205	None Supplied	0.10 - 0.50	26.2	Black loamy sand
765749	GJWS206	None Supplied	0.10 - 0.60	11	Brown sandy clay with stones
765750	GJWS207	None Supplied	0.10 - 1.00	9.4	Brown sandy clay with stones
765751	GJWS208	None Supplied	0.10 - 1.00	5.7	Brown sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test

Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 25-01893

G & J Geoenvironmental Consultants Ltd

~Site Reference: Penrhyn Road, Knowley

~Project / Job Ref: GJ224

~Order No: None Supplied

Reporting Date: 04/03/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

Certificate Key

<u>Symbol</u>	<u>Description</u>
F	Filtered sample
UF	Unfiltered sample
D	Dried sample
AR	As received sample
RL	Reporting limit
~	Sample details provided by customer and can affect the validity of results
M/S	Missing Sample
n	Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation
M	MCERTS accredited test
U	UKAS accredited test

D – Groundwater Chemical Laboratory Certificates

Chris Hepworth
G & J Geoenvironmental Consultants Ltd
35-37 High Street
Barrow-upon-Soar
Loughborough
Leicestershire
LE12 8PY

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 25-02589

Site Reference: Penrhyn Road, Knowsley

Project / Job Ref: GJ224

Order No: None Supplied

Sample Receipt Date: 07/03/2025

Sample Scheduled Date: 07/03/2025

Report Issue Number: 1

Reporting Date: 17/03/2025

Authorised by:



Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Water Analysis Certificate						
DETS Report No: 25-02589	~ Date Sampled	06/03/25	06/03/25	06/03/25	06/03/25	06/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR01	GJR02	GJR03	GJR04	GJR05
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 17/03/2025	DETS Sample No	767718	767719	767720	767721	767722

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	ISO17025	7.2	7.3	8.8	7.1	7.6
Total Cyanide	µg/l	< 5	ISO17025	< 5	< 5	170	15	< 5
Ammoniacal Nitrogen as N	µg/l	< 50	ISO17025	100	82	23700	1150	88
Bromide ^(S)	mg/l	< 0.1	NONE	2.8	0.7	110.0	500.0	2.7
Aluminium (dissolved)	µg/l	< 1	ISO17025	1010	113	2860	87	80
Copper (dissolved)	µg/l	< 0.2	ISO17025	7.8	1.9	1.4	0.4	2.0
Mercury (dissolved)	µg/l	< 0.04	ISO17025	< 0.04	< 0.04	0.17	< 0.04	0.07
Phosphorus (dissolved)	µg/l	< 100	NONE	893	621	3750	376	473
Zinc (dissolved)	µg/l	< 1	ISO17025	5	6	10	3	3
Potassium (dissolved)	mg/l	< 0.1	ISO17025	0.4	0.4	0.7	1	0.5
Sodium (dissolved)	mg/l	< 0.1	ISO17025	4.8	5.4	52.3	51.6	6.8
Total Phenols (monohydric)	µg/l	< 10	ISO17025	< 10	< 10	85	24	< 10

Water Analysis Certificate						
DETS Report No: 25-02589	~ Date Sampled	06/03/25				
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied				
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR06				
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied				
~ Order No: None Supplied	~ Depth (m)	None Supplied				
Reporting Date: 17/03/2025	DETS Sample No	767723				

Determinand	Unit	RL	Accreditation				
pH	pH Units	N/a	ISO17025	6.5			
Total Cyanide	µg/l	< 5	ISO17025	< 5			
Ammoniacal Nitrogen as N	µg/l	< 50	ISO17025	1000			
Bromide ^(S)	mg/l	< 0.1	NONE	7.7			
Aluminium (dissolved)	µg/l	< 1	ISO17025	53			
Copper (dissolved)	µg/l	< 0.2	ISO17025	0.5			
Mercury (dissolved)	µg/l	< 0.04	ISO17025	< 0.04			
Phosphorus (dissolved)	µg/l	< 100	NONE	301			
Zinc (dissolved)	µg/l	< 1	ISO17025	3			
Potassium (dissolved)	mg/l	< 0.1	ISO17025	0.4			
Sodium (dissolved)	mg/l	< 0.1	ISO17025	3			
Total Phenols (monohydric)	µg/l	< 10	ISO17025	< 10			

Water Analysis Certificate - TPH CWG Banded

DETS Report No: 25-02589	~ Date Sampled	06/03/25	06/03/25	06/03/25	06/03/25	06/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR01	GJR02	GJR03	GJR04	GJR05
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 17/03/2025	DETS Sample No	767718	767719	767720	767721	767722

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C6 - C8	µg/l	< 10	NONE	< 10	< 10	423	163	< 10
Aliphatic >C8 - C10	µg/l	< 10	NONE	< 10	< 10	571	39	< 10
Aliphatic >C10 - C12	µg/l	< 10	NONE	57	< 10	21715	471	< 10
Aliphatic >C12 - C16	µg/l	< 10	NONE	23	< 10	17	< 10	10
Aliphatic >C16 - C21	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	14
Aliphatic >C21 - C34	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	µg/l	< 70	NONE	80	< 70	22726	673	< 70
Aromatic >C5 - C7	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic >C7 - C8	µg/l	< 10	NONE	< 10	< 10	1522	50	< 10
Aromatic >C8 - C10	µg/l	< 10	NONE	< 10	< 10	5032	57	< 10
Aromatic >C10 - C12	µg/l	< 10	NONE	< 10	< 10	2399	213	< 10
Aromatic >C12 - C16	µg/l	< 10	NONE	< 10	< 10	63	16	< 10
Aromatic >C16 - C21	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic >C21 - C35	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic (C5 - C35)	µg/l	< 70	NONE	< 70	< 70	9016	336	< 70
Total >C5 - C35	µg/l	< 140	NONE	< 140	< 140	31742	1009	< 140

Water Analysis Certificate - TPH CWG Banded

DETS Report No: 25-02589	~ Date Sampled	06/03/25				
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied				
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR06				
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied				
~ Order No: None Supplied	~ Depth (m)	None Supplied				
Reporting Date: 17/03/2025	DETS Sample No	767723				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	µg/l	< 10	NONE	< 10			
Aliphatic >C6 - C8	µg/l	< 10	NONE	< 10			
Aliphatic >C8 - C10	µg/l	< 10	NONE	< 10			
Aliphatic >C10 - C12	µg/l	< 10	NONE	< 10			
Aliphatic >C12 - C16	µg/l	< 10	NONE	< 10			
Aliphatic >C16 - C21	µg/l	< 10	NONE	< 10			
Aliphatic >C21 - C34	µg/l	< 10	NONE	< 10			
Aliphatic (C5 - C34)	µg/l	< 70	NONE	< 70			
Aromatic >C5 - C7	µg/l	< 10	NONE	< 10			
Aromatic >C7 - C8	µg/l	< 10	NONE	< 10			
Aromatic >C8 - C10	µg/l	< 10	NONE	< 10			
Aromatic >C10 - C12	µg/l	< 10	NONE	< 10			
Aromatic >C12 - C16	µg/l	< 10	NONE	< 10			
Aromatic >C16 - C21	µg/l	< 10	NONE	< 10			
Aromatic >C21 - C35	µg/l	< 10	NONE	< 10			
Aromatic (C5 - C35)	µg/l	< 70	NONE	< 70			
Total >C5 - C35	µg/l	< 140	NONE	< 140			

Water Analysis Certificate - BTEX / MTBE						
DETS Report No: 25-02589	~ Date Sampled	06/03/25	06/03/25	06/03/25	06/03/25	06/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR01	GJR02	GJR03	GJR04	GJR05
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 17/03/2025	DETS Sample No	767718	767719	767720	767721	767722

Determinand	Unit	RL	Accreditation					
Benzene	µg/l	< 1	ISO17025	< 1	< 1	9	< 1	< 1
Toluene	µg/l	< 5	ISO17025	< 5	< 5	1520	50	< 5
Ethylbenzene	µg/l	< 5	ISO17025	< 5	< 5	363	< 5	< 5
p & m-xylene	µg/l	< 10	ISO17025	< 10	< 10	1210	< 10	< 10
o-xylene	µg/l	< 5	ISO17025	< 5	< 5	450	< 5	< 5
MTBE	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10

Water Analysis Certificate - BTEX / MTBE						
DETS Report No: 25-02589	~ Date Sampled	06/03/25				
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied				
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR06				
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied				
~ Order No: None Supplied	~ Depth (m)	None Supplied				
Reporting Date: 17/03/2025	DETS Sample No	767723				

Determinand	Unit	RL	Accreditation				
Benzene	µg/l	< 1	ISO17025	< 1			
Toluene	µg/l	< 5	ISO17025	< 5			
Ethylbenzene	µg/l	< 5	ISO17025	< 5			
p & m-xylene	µg/l	< 10	ISO17025	< 10			
o-xylene	µg/l	< 5	ISO17025	< 5			
MTBE	µg/l	< 10	ISO17025	< 10			

Water Analysis Certificate - Volatile Organic Compounds (VOC)						
DETS Report No: 25-02589	~ Date Sampled	06/03/25	06/03/25	06/03/25	06/03/25	06/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR01	GJR02	GJR03	GJR04	GJR05
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 17/03/2025	DETS Sample No	767718	767719	767720	767721	767722

Determinand	Unit	RL	Accreditation					
Dichlorodifluoromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
MTBE	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
trans-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	13	< 5	< 5
2,2-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroform	µg/l	< 5	ISO17025	< 5	< 5	371	163	6
Bromochloromethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,1,1-Trichloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Benzene	µg/l	< 1	ISO17025	< 1	< 1	9	< 1	< 1
1,2-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichloroethene	µg/l	< 5	ISO17025	< 5	< 5	40	< 5	< 5
Bromodichloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromomethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
TAME	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Toluene	µg/l	< 5	ISO17025	< 5	< 5	1522	50	< 5
trans-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,3-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dibromoethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	10	< 5
Chlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	555	< 5	< 5
1,1,1,2-Tetrachloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Ethyl Benzene	µg/l	< 5	ISO17025	< 5	< 5	363	< 5	< 5
m,p-Xylene	µg/l	< 10	ISO17025	< 10	< 10	1207	< 10	< 10
o-Xylene	µg/l	< 5	ISO17025	< 5	< 5	450	< 5	< 5
Styrene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromoform	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Isopropylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,2,3-Trichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromobenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
2-Chlorotoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	7	< 5
4-Chlorotoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
sec-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
p-Isopropyltoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	6	< 5	< 5
1,4-Dichlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	62490	133	19
1,2-Dibromo-3-chloropropane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5

Water Analysis Certificate - Volatile Organic Compounds (VOC)

DETS Report No: 25-02589	~ Date Sampled	06/03/25				
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied				
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR06				
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied				
~ Order No: None Supplied	~ Depth (m)	None Supplied				
Reporting Date: 17/03/2025	DETS Sample No	767723				

Determinand	Unit	RL	Accreditation				
Dichlorodifluoromethane	µg/l	< 5	ISO17025	< 5			
Vinyl Chloride	µg/l	< 5	ISO17025	< 5			
Chloromethane	µg/l	< 5	ISO17025	< 5			
Chloroethane	µg/l	< 5	ISO17025	< 5			
Bromomethane	µg/l	< 5	ISO17025	< 5			
Trichlorofluoromethane	µg/l	< 5	ISO17025	< 5			
1,1-Dichloroethene	µg/l	< 5	ISO17025	< 5			
MTBE	µg/l	< 10	ISO17025	< 10			
trans-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5			
1,1-Dichloroethane	µg/l	< 5	ISO17025	< 5			
cis-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5			
2,2-Dichloropropane	µg/l	< 5	ISO17025	< 5			
Chloroform	µg/l	< 5	ISO17025	< 5			
Bromochloromethane	µg/l	< 10	ISO17025	< 10			
1,1,1-Trichloroethane	µg/l	< 5	ISO17025	< 5			
1,1-Dichloropropene	µg/l	< 5	ISO17025	< 5			
Carbon Tetrachloride	µg/l	< 5	ISO17025	< 5			
1,2-Dichloroethane	µg/l	< 10	ISO17025	< 10			
Benzene	µg/l	< 1	ISO17025	< 1			
1,2-Dichloropropane	µg/l	< 5	ISO17025	< 5			
Trichloroethene	µg/l	< 5	ISO17025	< 5			
Bromodichloromethane	µg/l	< 5	ISO17025	< 5			
Dibromomethane	µg/l	< 5	ISO17025	< 5			
TAME	µg/l	< 5	ISO17025	< 5			
cis-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5			
Toluene	µg/l	< 5	ISO17025	< 5			
trans-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5			
1,1,2-Trichloroethane	µg/l	< 10	ISO17025	< 10			
1,3-Dichloropropane	µg/l	< 5	ISO17025	< 5			
Tetrachloroethene	µg/l	< 5	ISO17025	< 5			
Dibromochloromethane	µg/l	< 5	ISO17025	< 5			
1,2-Dibromoethane	µg/l	< 5	ISO17025	< 5			
Chlorobenzene	µg/l	< 5	ISO17025	< 5			
1,1,1,2-Tetrachloroethane	µg/l	< 5	ISO17025	< 5			
Ethyl Benzene	µg/l	< 5	ISO17025	< 5			
m,p-Xylene	µg/l	< 10	ISO17025	< 10			
o-Xylene	µg/l	< 5	ISO17025	< 5			
Styrene	µg/l	< 5	ISO17025	< 5			
Bromoform	µg/l	< 10	ISO17025	< 10			
Isopropylbenzene	µg/l	< 5	ISO17025	< 5			
1,1,2,2-Tetrachloroethane	µg/l	< 10	ISO17025	< 10			
1,2,3-Trichloropropane	µg/l	< 5	ISO17025	< 5			
n-Propylbenzene	µg/l	< 5	ISO17025	< 5			
Bromobenzene	µg/l	< 5	ISO17025	< 5			
2-Chlorotoluene	µg/l	< 5	ISO17025	< 5			
1,3,5-Trimethylbenzene	µg/l	< 5	ISO17025	< 5			
4-Chlorotoluene	µg/l	< 5	ISO17025	< 5			
tert-Butylbenzene	µg/l	< 5	ISO17025	< 5			
1,2,4-Trimethylbenzene	µg/l	< 5	ISO17025	< 5			
sec-Butylbenzene	µg/l	< 5	ISO17025	< 5			
p-Isopropyltoluene	µg/l	< 5	ISO17025	< 5			
1,3-Dichlorobenzene	µg/l	< 5	ISO17025	< 5			
1,4-Dichlorobenzene	µg/l	< 5	ISO17025	< 5			
n-Butylbenzene	µg/l	< 5	ISO17025	< 5			
1,2-Dichlorobenzene	µg/l	< 5	ISO17025	129			
1,2-Dibromo-3-chloropropane	µg/l	< 10	ISO17025	< 10			
Hexachlorobutadiene	µg/l	< 5	ISO17025	< 5			



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Water Analysis Certificate - Volatile Organic Compounds TIC (VOC)			
DETS Report No: 25-02589		~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd		~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley		~ TP / BH No	GJR01
~ Project / Job Ref: GJ224		~ Additional Refs	None Supplied
~ Order No: None Supplied		~ Depth (m)	None Supplied
Reporting Date: 17/03/2025		DETS Sample No	767718

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	0	µg/l	< 5	< 5
2	N/a	0	µg/l	< 5	< 5
3	N/a	0	µg/l	< 5	< 5
4	N/a	0	µg/l	< 5	< 5
5	N/a	0	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%



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Water Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 25-02589	~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR02
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied
Reporting Date: 17/03/2025	DETS Sample No	767719

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	0	µg/l	< 5	< 5
2	N/a	0	µg/l	< 5	< 5
3	N/a	0	µg/l	< 5	< 5
4	N/a	0	µg/l	< 5	< 5
5	N/a	0	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%



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Water Analysis Certificate - Volatile Organic Compounds TIC (VOC)			
DETS Report No: 25-02589		~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd		~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley		~ TP / BH No	GJR03
~ Project / Job Ref: GJ224		~ Additional Refs	None Supplied
~ Order No: None Supplied		~ Depth (m)	None Supplied
Reporting Date: 17/03/2025		DETS Sample No	767720

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	0	µg/l	< 5	< 5
2	N/a	0	µg/l	< 5	< 5
3	N/a	0	µg/l	< 5	< 5
4	N/a	0	µg/l	< 5	< 5
5	N/a	0	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%



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Water Analysis Certificate - Volatile Organic Compounds TIC (VOC)		
DETS Report No: 25-02589	~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR04
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied
Reporting Date: 17/03/2025	DETS Sample No	767721

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	0	µg/l	< 5	< 5
2	N/a	0	µg/l	< 5	< 5
3	N/a	0	µg/l	< 5	< 5
4	N/a	0	µg/l	< 5	< 5
5	N/a	0	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%



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Water Analysis Certificate - Volatile Organic Compounds TIC (VOC)			
DETS Report No: 25-02589		~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd		~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley		~ TP / BH No	GJR05
~ Project / Job Ref: GJ224		~ Additional Refs	None Supplied
~ Order No: None Supplied		~ Depth (m)	None Supplied
Reporting Date: 17/03/2025		DETS Sample No	767722

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	0	µg/l	< 5	< 5
2	N/a	0	µg/l	< 5	< 5
3	N/a	0	µg/l	< 5	< 5
4	N/a	0	µg/l	< 5	< 5
5	N/a	0	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%



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Water Analysis Certificate - Volatile Organic Compounds TIC (VOC)			
DETS Report No: 25-02589		~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd		~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley		~ TP / BH No	GJR06
~ Project / Job Ref: GJ224		~ Additional Refs	None Supplied
~ Order No: None Supplied		~ Depth (m)	None Supplied
Reporting Date: 17/03/2025		DETS Sample No	767723

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	0	µg/l	< 5	< 5
2	N/a	0	µg/l	< 5	< 5
3	N/a	0	µg/l	< 5	< 5
4	N/a	0	µg/l	< 5	< 5
5	N/a	0	µg/l	< 5	< 5

There were no / other compounds identified with a match of >90%

Water Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
DETS Report No: 25-02589	~ Date Sampled	06/03/25	06/03/25	06/03/25	06/03/25	06/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR01	GJR02	GJR03	GJR04	GJR05
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 17/03/2025	DETS Sample No	767718	767719	767720	767721	767722

Determinand	Unit	RL	Accreditation					
Phenol	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2,4-Trichlorobenzene	µg/l	< 0.1	NONE	< 0.1	< 0.1	0.2	< 0.1	< 0.1
2-Nitrophenol	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nitrobenzene	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
0-Cresol	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-chloroethoxy)methane	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-chloroethyl)ether	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dichlorophenol	µg/l	< 0.1	NONE	< 0.1	< 0.1	0.9	< 0.1	< 0.1
2-Chlorophenol	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene	µg/l	< 0.1	NONE	< 0.1	< 0.1	1.6	< 0.1	< 0.1
1,4-Dichlorobenzene	µg/l	< 0.1	NONE	< 0.1	< 0.1	6.8	< 0.1	< 0.1
1,2-Dichlorobenzene	µg/l	< 0.1	NONE	46.8	1.5	479	19.8	2
2,4-Dimethylphenol	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Isophorone	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	0.8	< 0.1
Hexachloroethane	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
p-Cresol	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	µg/l	< 0.1	NONE	< 0.1	< 0.1	1.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Nitroaniline	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylnaphthalene	µg/l	< 0.1	NONE	< 0.1	< 0.1	0.2	< 0.1	< 0.1
Hexachlorocyclopentadiene	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethyl phthalate	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloroaniline	µg/l	< 0.1	NONE	< 0.1	< 0.1	2	< 0.1	< 0.1
4-Nitrophenol	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chlorophenyl phenyl ether	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-Nitroaniline	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Nitroaniline	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Bromophenyl phenyl ether	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobenzene	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Diethyl phthalate	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzofuran	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Azobenzene	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibutyl phthalate	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Carbazole	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
bis(2-ethylhexyl)phthalate	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzyl butyl phthalate	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Di-n-octyl phthalate	µg/l	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Water Analysis Certificate - Semi Volatile Organic Compounds (SVOC)

DETS Report No: 25-02589	~ Date Sampled	06/03/25				
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied				
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR06				
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied				
~ Order No: None Supplied	~ Depth (m)	None Supplied				
Reporting Date: 17/03/2025	DETS Sample No	767723				

Determinand	Unit	RL	Accreditation				
Phenol	µg/l	< 0.1	NONE	< 0.1			
1,2,4-Trichlorobenzene	µg/l	< 0.1	NONE	< 0.1			
2-Nitrophenol	µg/l	< 0.1	NONE	< 0.1			
Nitrobenzene	µg/l	< 0.1	NONE	< 0.1			
O-Cresol	µg/l	< 0.1	NONE	< 0.1			
bis(2-chloroethoxy)methane	µg/l	< 0.1	NONE	< 0.1			
bis(2-chloroethyl)ether	µg/l	< 0.1	NONE	< 0.1			
2,4-Dichlorophenol	µg/l	< 0.1	NONE	< 0.1			
2-Chlorophenol	µg/l	< 0.1	NONE	< 0.1			
1,3-Dichlorobenzene	µg/l	< 0.1	NONE	< 0.1			
1,4-Dichlorobenzene	µg/l	< 0.1	NONE	< 0.1			
1,2-Dichlorobenzene	µg/l	< 0.1	NONE	47.8			
2,4-Dimethylphenol	µg/l	< 0.1	NONE	< 0.1			
Isophorone	µg/l	< 0.1	NONE	< 0.1			
Hexachloroethane	µg/l	< 0.1	NONE	< 0.1			
p-Cresol	µg/l	< 0.1	NONE	< 0.1			
2,4,6-Trichlorophenol	µg/l	< 0.1	NONE	< 0.1			
2,4,5-Trichlorophenol	µg/l	< 0.1	NONE	< 0.1			
2-Nitroaniline	µg/l	< 0.1	NONE	< 0.1			
4-Chloro-3-methylphenol	µg/l	< 0.1	NONE	< 0.1			
2-Methylnaphthalene	µg/l	< 0.1	NONE	< 0.1			
Hexachlorocyclopentadiene	µg/l	< 0.1	NONE	< 0.1			
Hexachlorobutadiene	µg/l	< 0.1	NONE	< 0.1			
2,6-Dinitrotoluene	µg/l	< 0.1	NONE	< 0.1			
Dimethyl phthalate	µg/l	< 0.1	NONE	< 0.1			
2-Chloronaphthalene	µg/l	< 0.1	NONE	< 0.1			
4-Chloroaniline	µg/l	< 0.1	NONE	< 0.1			
4-Nitrophenol	µg/l	< 0.1	NONE	< 0.1			
4-Chlorophenyl phenyl ether	µg/l	< 0.1	NONE	< 0.1			
3-Nitroaniline	µg/l	< 0.1	NONE	< 0.1			
4-Nitroaniline	µg/l	< 0.1	NONE	< 0.1			
4-Bromophenyl phenyl ether	µg/l	< 0.1	NONE	< 0.1			
Hexachlorobenzene	µg/l	< 0.1	NONE	< 0.1			
2,4-Dinitrotoluene	µg/l	< 0.1	NONE	< 0.1			
Diethyl phthalate	µg/l	< 0.1	NONE	< 0.1			
Dibenzofuran	µg/l	< 0.1	NONE	< 0.1			
Azobenzene	µg/l	< 0.1	NONE	< 0.1			
Dibutyl phthalate	µg/l	< 0.1	NONE	< 0.1			
Carbazole	µg/l	< 0.1	NONE	< 0.1			
bis(2-ethylhexyl)phthalate	µg/l	< 0.1	NONE	< 0.1			
Benzyl butyl phthalate	µg/l	< 0.1	NONE	< 0.1			
Di-n-octyl phthalate	µg/l	< 0.1	NONE	< 0.1			



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Tel : 01622 850410

Water Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-02589	~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR01
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied
Reporting Date: 17/03/2025	DETS Sample No	767718

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	propyl sulfide	90	µg/l	< 0.1	5
2	N/a	N/a	µg/l	< 0.1	< 0.1
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%



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Kent ME17 2JN
Tel : 01622 850410

Water Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-02589	~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR02
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied
Reporting Date: 17/03/2025	DETS Sample No	767719

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	µg/l	< 0.1	< 0.1
2	N/a	N/a	µg/l	< 0.1	< 0.1
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%



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Water Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-02589	~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR03
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied
Reporting Date: 17/03/2025	DETS Sample No	767720

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	Benzene, 1-bromo-4-chloro-	98	µg/l	< 0.1	11.5
2	1-Bromo-2,3-dichlorobenzene	99	µg/l	< 0.1	6.8
3	Ethanone, 1-(2,5-dichlorophenyl)-	99	µg/l	< 0.1	12.2
4	Ethofumesate	95	µg/l	< 0.1	5
5	Myclobutanil	99	µg/l	< 0.1	10.8

There were no / other compounds identified with a match of >90%



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Water Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)			
DETS Report No: 25-02589		~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd		~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley		~ TP / BH No	GJR04
~ Project / Job Ref: GJ224		~ Additional Refs	None Supplied
~ Order No: None Supplied		~ Depth (m)	None Supplied
Reporting Date: 17/03/2025		DETS Sample No	767721

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	Butane, 1,2-dibromo-	90	µg/l	< 0.1	11.8
2	Butane, 1,3-dibromo-	95	µg/l	< 0.1	5.1
3	Benzene, 1-bromo-4-methyl-	90	µg/l	< 0.1	147
4	n-Amyl ether	91	µg/l	< 0.1	5.1
5	1-Propanone, 1-(4-bromophenyl)-	98	µg/l	< 0.1	5

There were no / other compounds identified with a match of >90%



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Maidstone
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Tel : 01622 850410

Water Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)			
DETS Report No: 25-02589		~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd		~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley		~ TP / BH No	GJR05
~ Project / Job Ref: GJ224		~ Additional Refs	None Supplied
~ Order No: None Supplied		~ Depth (m)	None Supplied
Reporting Date: 17/03/2025		DETS Sample No	767722

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	N/a	N/a	µg/l	< 0.1	< 0.1
2	N/a	N/a	µg/l	< 0.1	< 0.1
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%



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Tel : 01622 850410

Water Analysis Certificate - Semi Volatile Organic Compounds TIC (SVOC)		
DETS Report No: 25-02589	~ Date Sampled	06/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR06
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied
Reporting Date: 17/03/2025	DETS Sample No	767723

Compound No	Compound Name	% Match	Units	RL	Estimated Concentration
1	Benzene, 1-bromo-2,6-dichloro-	98	µg/l	< 0.1	0.3
2	2,4'-Difluorobenzophenone	97	µg/l	< 0.1	0.4
3	N/a	N/a	µg/l	< 0.1	< 0.1
4	N/a	N/a	µg/l	< 0.1	< 0.1
5	N/a	N/a	µg/l	< 0.1	< 0.1

There were no / other compounds identified with a match of >90%

Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 25-02589

G & J Geoenvironmental Consultants Ltd

~Site Reference: Penrhyn Road, Knowsley

~Project / Job Ref: GJ224

~Order No: None Supplied

Reporting Date: 17/03/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	F	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (BOD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	F	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	F	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E115
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Acidification, followed by high-temperature oxidation and IR detection.	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Certificate Key

<u>Symbol</u>	<u>Description</u>
F	Filtered sample
UF	Unfiltered sample
D	Dried sample
AR	As received sample
RL	Reporting limit
~	Sample details provided by customer and can affect the validity of results
M/S	Missing Sample
S	Subcontracted analysis
U	UKAS accredited test

Chris Hepworth
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DETS Report No: 25-02997

Site Reference: Penrhyn Road, Knowsley

Project / Job Ref: GJ224

Order No: None Supplied

Sample Receipt Date: 07/03/2025

Sample Scheduled Date: 18/03/2025

Report Issue Number: 1

Reporting Date: 07/04/2025

Authorised by:



Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Water Analysis Certificate						
DETS Report No: 25-02997	~ Date Sampled	06/03/25	06/03/25			
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied			
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR03	GJR04			
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied			
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied			
Reporting Date: 07/04/2025	DETS Sample No	769294	769295			

Determinand	Unit	RL	Accreditation	(£)	(£)			
Bromate ⁽⁵⁾	µg BrO ₃ /l	< 0.8	NONE	< 0.80	< 0.80			

Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 25-02997

G & J Geoenvironmental Consultants Ltd

~Site Reference: Penrhyn Road, Knowsley

~Project / Job Ref: GJ224

~Order No: None Supplied

Reporting Date: 07/04/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	F	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (BOD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	F	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	F	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E115
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Acidification, followed by high-temperature oxidation and IR detection.	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Certificate Key

<u>Symbol</u>	<u>Description</u>
F	Filtered sample
UF	Unfiltered sample
D	Dried sample
AR	As received sample
RL	Reporting limit
~	Sample details provided by customer and can affect the validity of results
M/S	Missing Sample
S	Subcontracted analysis
\$	Recommended holding times exceeded

Chris Hepworth
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Normec DETS Limited
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DETS Report No: 25-03133

Site Reference: Penrhyn Road, Knowsley

Project / Job Ref: GJ224

Order No: None Supplied

Sample Receipt Date: 20/03/2025

Sample Scheduled Date: 20/03/2025

Report Issue Number: 1

Reporting Date: 28/03/2025

Authorised by:



Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Water Analysis Certificate						
DETS Report No: 25-03133	~ Date Sampled	18/03/25	18/03/25	18/03/25	18/03/25	18/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS201	WS202	WS203	WS204	WS205
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 28/03/2025	DETS Sample No	769612	769613	769614	769615	769616

Determinand	Unit	RL	Accreditation					
Total Cyanide	µg/l	< 5	ISO17025	5	< 5	49	8	< 5
Bromide ^(S)	mg/l	< 0.1	NONE	28.0	4.2	15.0	34.0	24.0

Water Analysis Certificate						
DETS Report No: 25-03133	~ Date Sampled	18/03/25	18/03/25	18/03/25	18/03/25	18/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS206	WS207	WS208	BH103	BH104
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 28/03/2025	DETS Sample No	769617	769618	769619	769620	769621

Determinand	Unit	RL	Accreditation					
Total Cyanide	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	21
Bromide ^(S)	mg/l	< 0.1	NONE	90.0	210.0	31.0	52.0	250.0

Water Analysis Certificate						
DETS Report No: 25-03133	~ Date Sampled	18/03/25				
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied				
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS109				
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied				
~ Order No: None Supplied	~ Depth (m)	None Supplied				
Reporting Date: 28/03/2025	DETS Sample No	769622				

Determinand	Unit	RL	Accreditation				
Total Cyanide	µg/l	< 5	ISO17025	< 5			
Bromide ^(S)	mg/l	< 0.1	NONE	2.4			

Water Analysis Certificate - TPH CWG Banded

DETS Report No: 25-03133	~ Date Sampled	18/03/25	18/03/25	18/03/25	18/03/25	18/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS201	WS202	WS203	WS204	WS205
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 28/03/2025	DETS Sample No	769612	769613	769614	769615	769616

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C6 - C8	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C8 - C10	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C10 - C12	µg/l	< 10	NONE	64	< 10	< 10	< 10	93
Aliphatic >C12 - C16	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aliphatic >C16 - C21	µg/l	< 10	NONE	< 10	< 10	39	< 10	< 10
Aliphatic >C21 - C34	µg/l	< 10	NONE	< 10	< 10	59	< 10	< 10
Aliphatic (C5 - C34)	µg/l	< 70	NONE	< 70	< 70	97	< 70	93
Aromatic >C5 - C7	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic >C7 - C8	µg/l	< 10	NONE	26	16	48	< 10	< 10
Aromatic >C8 - C10	µg/l	< 10	NONE	19	< 10	< 10	< 10	56
Aromatic >C10 - C12	µg/l	< 10	NONE	39	< 10	< 10	< 10	43
Aromatic >C12 - C16	µg/l	< 10	NONE	< 10	< 10	11	< 10	< 10
Aromatic >C16 - C21	µg/l	< 10	NONE	< 10	< 10	25	< 10	< 10
Aromatic >C21 - C35	µg/l	< 10	NONE	< 10	< 10	21	< 10	< 10
Aromatic (C5 - C35)	µg/l	< 70	NONE	83	< 70	106	< 70	99
Total >C5 - C35	µg/l	< 140	NONE	147	< 140	203	< 140	192

Water Analysis Certificate - TPH CWG Banded

DETS Report No: 25-03133	~ Date Sampled	18/03/25	18/03/25	18/03/25	18/03/25	18/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS206	WS207	WS208	BH103	BH104
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 28/03/2025	DETS Sample No	769617	769618	769619	769620	769621

Determinand	Unit	RL	Accreditation						
Aliphatic >C5 - C6	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic >C6 - C8	µg/l	< 10	NONE	< 10	10	< 10	< 10	< 10	< 10
Aliphatic >C8 - C10	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	71
Aliphatic >C10 - C12	µg/l	< 10	NONE	< 10	18	< 10	852	1102	
Aliphatic >C12 - C16	µg/l	< 10	NONE	11	< 10	< 10	< 10	< 10	49
Aliphatic >C16 - C21	µg/l	< 10	NONE	45	< 10	< 10	< 10	< 10	< 10
Aliphatic >C21 - C34	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	µg/l	< 70	NONE	< 70	< 70	< 70	852	1222	
Aromatic >C5 - C7	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	20
Aromatic >C7 - C8	µg/l	< 10	NONE	20	23	< 10	< 10	< 10	318
Aromatic >C8 - C10	µg/l	< 10	NONE	< 10	< 10	< 10	11	920	
Aromatic >C10 - C12	µg/l	< 10	NONE	< 10	15	< 10	153	238	
Aromatic >C12 - C16	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	38
Aromatic >C16 - C21	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic >C21 - C35	µg/l	< 10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic (C5 - C35)	µg/l	< 70	NONE	< 70	< 70	< 70	164	1533	
Total >C5 - C35	µg/l	< 140	NONE	< 140	< 140	< 140	1016	2755	

Water Analysis Certificate - TPH CWG Banded

DETS Report No: 25-03133	~ Date Sampled	18/03/25				
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied				
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS109				
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied				
~ Order No: None Supplied	~ Depth (m)	None Supplied				
Reporting Date: 28/03/2025	DETS Sample No	769622				

Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6	µg/l	< 10	NONE	< 10			
Aliphatic >C6 - C8	µg/l	< 10	NONE	< 10			
Aliphatic >C8 - C10	µg/l	< 10	NONE	< 10			
Aliphatic >C10 - C12	µg/l	< 10	NONE	< 10			
Aliphatic >C12 - C16	µg/l	< 10	NONE	< 10			
Aliphatic >C16 - C21	µg/l	< 10	NONE	< 10			
Aliphatic >C21 - C34	µg/l	< 10	NONE	< 10			
Aliphatic (C5 - C34)	µg/l	< 70	NONE	< 70			
Aromatic >C5 - C7	µg/l	< 10	NONE	< 10			
Aromatic >C7 - C8	µg/l	< 10	NONE	< 10			
Aromatic >C8 - C10	µg/l	< 10	NONE	10			
Aromatic >C10 - C12	µg/l	< 10	NONE	< 10			
Aromatic >C12 - C16	µg/l	< 10	NONE	< 10			
Aromatic >C16 - C21	µg/l	< 10	NONE	< 10			
Aromatic >C21 - C35	µg/l	< 10	NONE	< 10			
Aromatic (C5 - C35)	µg/l	< 70	NONE	< 70			
Total >C5 - C35	µg/l	< 140	NONE	< 140			

Water Analysis Certificate - BTEX / MTBE						
DETS Report No: 25-03133	~ Date Sampled	18/03/25	18/03/25	18/03/25	18/03/25	18/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS201	WS202	WS203	WS204	WS205
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 28/03/2025	DETS Sample No	769612	769613	769614	769615	769616

Determinand	Unit	RL	Accreditation					
Benzene	µg/l	< 1	ISO17025	2	< 1	< 1	< 1	7
Toluene	µg/l	< 5	ISO17025	26	16	48	< 5	< 5
Ethylbenzene	µg/l	< 5	ISO17025	6	< 5	< 5	< 5	< 5
p & m-xylene	µg/l	< 10	ISO17025	16	< 10	< 10	< 10	< 10
o-xylene	µg/l	< 5	ISO17025	6	< 5	< 5	< 5	< 5
MTBE	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10

Water Analysis Certificate - BTEX / MTBE						
DETS Report No: 25-03133	~ Date Sampled	18/03/25	18/03/25	18/03/25	18/03/25	18/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS206	WS207	WS208	BH103	BH104
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 28/03/2025	DETS Sample No	769617	769618	769619	769620	769621

Determinand	Unit	RL	Accreditation					
Benzene	µg/l	< 1	ISO17025	< 1	< 1	< 1	< 1	20
Toluene	µg/l	< 5	ISO17025	20	23	< 5	< 5	318
Ethylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	31
p & m-xylene	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	107
o-xylene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	63
MTBE	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10

Water Analysis Certificate - BTEX / MTBE						
DETS Report No: 25-03133	~ Date Sampled	18/03/25				
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied				
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS109				
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied				
~ Order No: None Supplied	~ Depth (m)	None Supplied				
Reporting Date: 28/03/2025	DETS Sample No	769622				

Determinand	Unit	RL	Accreditation				
Benzene	µg/l	< 1	ISO17025	< 1			
Toluene	µg/l	< 5	ISO17025	< 5			
Ethylbenzene	µg/l	< 5	ISO17025	< 5			
p & m-xylene	µg/l	< 10	ISO17025	< 10			
o-xylene	µg/l	< 5	ISO17025	< 5			
MTBE	µg/l	< 10	ISO17025	< 10			

Water Analysis Certificate - Volatile Organic Compounds (VOC)

DETS Report No: 25-03133	~ Date Sampled	18/03/25	18/03/25	18/03/25	18/03/25	18/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS201	WS202	WS203	WS204	WS205
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 28/03/2025	DETS Sample No	769612	769613	769614	769615	769616

Determinand	Unit	RL	Accreditation					
Dichlorodifluoromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
MTBE	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
trans-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
2,2-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroform	µg/l	< 5	ISO17025	6	< 5	< 5	< 5	< 5
Bromochloromethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,1,1-Trichloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Benzene	µg/l	< 1	ISO17025	2	< 1	< 1	< 1	7
1,2-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromomethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
TAME	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Toluene	µg/l	< 5	ISO17025	26	16	48	< 5	< 5
trans-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,3-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dibromoethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	µg/l	< 5	ISO17025	198	< 5	8	< 5	1371
1,1,1,2-Tetrachloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Ethyl Benzene	µg/l	< 5	ISO17025	6	< 5	< 5	< 5	< 5
m,p-Xylene	µg/l	< 10	ISO17025	16	< 10	< 10	< 10	< 10
o-Xylene	µg/l	< 5	ISO17025	6	< 5	< 5	< 5	< 5
Styrene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromoform	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Isopropylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,2,3-Trichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromobenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
2-Chlorotoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
4-Chlorotoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
sec-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
p-Isopropyltoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	µg/l	< 5	ISO17025	1468	9	28	< 5	694
1,2-Dibromo-3-chloropropane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5

Water Analysis Certificate - Volatile Organic Compounds (VOC)						
DETS Report No: 25-03133	~ Date Sampled	18/03/25	18/03/25	18/03/25	18/03/25	18/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS206	WS207	WS208	BH103	BH104
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 28/03/2025	DETS Sample No	769617	769618	769619	769620	769621

Determinand	Unit	RL	Accreditation					
Dichlorodifluoromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
MTBE	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
trans-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
2,2-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroform	µg/l	< 5	ISO17025	< 5	10	< 5	< 5	< 5
Bromochloromethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,1,1-Trichloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Benzene	µg/l	< 1	ISO17025	< 1	< 1	< 1	< 1	20
1,2-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromomethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
TAME	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Toluene	µg/l	< 5	ISO17025	20	23	< 5	< 5	318
trans-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,3-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dibromoethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	µg/l	< 5	ISO17025	11	< 5	< 5	94	465
1,1,1,2-Tetrachloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Ethyl Benzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	31
m,p-Xylene	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	107
o-Xylene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	63
Styrene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromoform	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Isopropylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,2,3-Trichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromobenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
2-Chlorotoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
4-Chlorotoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
sec-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
p-Isopropyltoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	µg/l	< 5	ISO17025	5	335	< 5	4777	8018
1,2-Dibromo-3-chloropropane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5

Water Analysis Certificate - Volatile Organic Compounds (VOC)

DETS Report No: 25-03133	~ Date Sampled	18/03/25				
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied				
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	WS109				
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied				
~ Order No: None Supplied	~ Depth (m)	None Supplied				
Reporting Date: 28/03/2025	DETS Sample No	769622				

Determinand	Unit	RL	Accreditation				
Dichlorodifluoromethane	µg/l	< 5	ISO17025	< 5			
Vinyl Chloride	µg/l	< 5	ISO17025	< 5			
Chloromethane	µg/l	< 5	ISO17025	< 5			
Chloroethane	µg/l	< 5	ISO17025	< 5			
Bromomethane	µg/l	< 5	ISO17025	< 5			
Trichlorofluoromethane	µg/l	< 5	ISO17025	< 5			
1,1-Dichloroethene	µg/l	< 5	ISO17025	< 5			
MTBE	µg/l	< 10	ISO17025	< 10			
trans-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5			
1,1-Dichloroethane	µg/l	< 5	ISO17025	< 5			
cis-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5			
2,2-Dichloropropane	µg/l	< 5	ISO17025	< 5			
Chloroform	µg/l	< 5	ISO17025	< 5			
Bromochloromethane	µg/l	< 10	ISO17025	< 10			
1,1,1-Trichloroethane	µg/l	< 5	ISO17025	< 5			
1,1-Dichloropropene	µg/l	< 5	ISO17025	< 5			
Carbon Tetrachloride	µg/l	< 5	ISO17025	< 5			
1,2-Dichloroethane	µg/l	< 10	ISO17025	< 10			
Benzene	µg/l	< 1	ISO17025	< 1			
1,2-Dichloropropane	µg/l	< 5	ISO17025	< 5			
Trichloroethene	µg/l	< 5	ISO17025	< 5			
Bromodichloromethane	µg/l	< 5	ISO17025	< 5			
Dibromomethane	µg/l	< 5	ISO17025	< 5			
TAME	µg/l	< 5	ISO17025	< 5			
cis-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5			
Toluene	µg/l	< 5	ISO17025	< 5			
trans-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5			
1,1,2-Trichloroethane	µg/l	< 10	ISO17025	< 10			
1,3-Dichloropropane	µg/l	< 5	ISO17025	< 5			
Tetrachloroethene	µg/l	< 5	ISO17025	< 5			
Dibromochloromethane	µg/l	< 5	ISO17025	< 5			
1,2-Dibromoethane	µg/l	< 5	ISO17025	< 5			
Chlorobenzene	µg/l	< 5	ISO17025	< 5			
1,1,1,2-Tetrachloroethane	µg/l	< 5	ISO17025	< 5			
Ethyl Benzene	µg/l	< 5	ISO17025	< 5			
m,p-Xylene	µg/l	< 10	ISO17025	< 10			
o-Xylene	µg/l	< 5	ISO17025	< 5			
Styrene	µg/l	< 5	ISO17025	< 5			
Bromoform	µg/l	< 10	ISO17025	< 10			
Isopropylbenzene	µg/l	< 5	ISO17025	< 5			
1,1,2,2-Tetrachloroethane	µg/l	< 10	ISO17025	< 10			
1,2,3-Trichloropropane	µg/l	< 5	ISO17025	< 5			
n-Propylbenzene	µg/l	< 5	ISO17025	< 5			
Bromobenzene	µg/l	< 5	ISO17025	< 5			
2-Chlorotoluene	µg/l	< 5	ISO17025	< 5			
1,3,5-Trimethylbenzene	µg/l	< 5	ISO17025	< 5			
4-Chlorotoluene	µg/l	< 5	ISO17025	< 5			
tert-Butylbenzene	µg/l	< 5	ISO17025	< 5			
1,2,4-Trimethylbenzene	µg/l	< 5	ISO17025	< 5			
sec-Butylbenzene	µg/l	< 5	ISO17025	< 5			
p-Isopropyltoluene	µg/l	< 5	ISO17025	< 5			
1,3-Dichlorobenzene	µg/l	< 5	ISO17025	< 5			
1,4-Dichlorobenzene	µg/l	< 5	ISO17025	< 5			
n-Butylbenzene	µg/l	< 5	ISO17025	< 5			
1,2-Dichlorobenzene	µg/l	< 5	ISO17025	9			
1,2-Dibromo-3-chloropropane	µg/l	< 10	ISO17025	< 10			
Hexachlorobutadiene	µg/l	< 5	ISO17025	< 5			

Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 25-03133

G & J Geoenvironmental Consultants Ltd

~Site Reference: Penrhyn Road, Knowsley

~Project / Job Ref: GJ224

~Order No: None Supplied

Reporting Date: 28/03/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	F	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (BOD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	F	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	F	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E115
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Acidification, followed by high-temperature oxidation and IR detection.	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Certificate Key

<u>Symbol</u>	<u>Description</u>
F	Filtered sample
UF	Unfiltered sample
D	Dried sample
AR	As received sample
RL	Reporting limit
~	Sample details provided by customer and can affect the validity of results
M/S	Missing Sample
S	Subcontracted analysis
U	UKAS accredited test

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LE12 8PY

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 25-03387

Site Reference: Penrhyn Road, Knowsley

Project / Job Ref: GJ224

Order No: None Supplied

Sample Receipt Date: 26/03/2025

Sample Scheduled Date: 26/03/2025

Report Issue Number: 1

Reporting Date: 03/04/2025

Authorised by:



Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Water Analysis Certificate						
DETS Report No: 25-03387	~ Date Sampled	24/03/25	24/03/25	24/03/25	24/03/25	24/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR01	GJR02	GJR03	GJR04	GJR05
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 03/04/2025	DETS Sample No	770413	770414	770415	770416	770417

Determinand	Unit	RL	Accreditation	(hs)	(hs)	(hs)	(hs)	(hs)
Total Cyanide	µg/l	< 5	ISO17025	< 5	< 5	53	8	< 5
Bromide ^(S)	mg/l	< 0.1	NONE	1.9	0.9	69.0	290.0	7.0
Total Chlorine ^(S)	mg/l	< 0.02	NONE	0.19	0.02	0.34	0.03	0.15

Water Analysis Certificate						
DETS Report No: 25-03387	~ Date Sampled	24/03/25				
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied				
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR06				
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied				
~ Order No: None Supplied	~ Depth (m)	None Supplied				
Reporting Date: 03/04/2025	DETS Sample No	770418				

Determinand	Unit	RL	Accreditation	(hs)				
Total Cyanide	µg/l	< 5	ISO17025	< 5				
Bromide ^(S)	mg/l	< 0.1	NONE	8.3				
Total Chlorine ^(S)	mg/l	< 0.02	NONE	< 0.02				

Water Analysis Certificate - Volatile Organic Compounds (VOC)

DETS Report No: 25-03387	~ Date Sampled	24/03/25	24/03/25	24/03/25	24/03/25	24/03/25
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR01	GJR02	GJR03	GJR04	GJR05
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~ Order No: None Supplied	~ Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 03/04/2025	DETS Sample No	770413	770414	770415	770416	770417

Determinand	Unit	RL	Accreditation	(hs)	(hs)	(hs)	(hs)	(hs)
Dichlorodifluoromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
MTBE	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
trans-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5	< 5	23	< 5	< 5
2,2-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chloroform	µg/l	< 5	ISO17025	< 5	< 5	268	40	< 5
Bromochloromethane	µg/l	< 10	ISO17025	< 10	< 10	82	< 10	< 10
1,1,1-Trichloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Benzene	µg/l	< 1	ISO17025	< 1	< 1	17	139	< 1
1,2-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Trichloroethene	µg/l	< 5	ISO17025	< 5	< 5	70	< 5	< 5
Bromodichloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromomethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
TAME	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Toluene	µg/l	< 5	ISO17025	< 5	< 5	1501	1143	< 5
trans-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,3-Dichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dibromoethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	540	9583	< 5
1,1,1,2-Tetrachloroethane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Ethyl Benzene	µg/l	< 5	ISO17025	< 5	< 5	337	6	< 5
m,p-Xylene	µg/l	< 10	ISO17025	< 10	< 10	1145	13	< 10
o-Xylene	µg/l	< 5	ISO17025	< 5	< 5	425	7	< 5
Styrene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromoform	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Isopropylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
1,2,3-Trichloropropane	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Propylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
Bromobenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
2-Chlorotoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
4-Chlorotoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
tert-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	µg/l	< 5	ISO17025	< 5	< 5	6	< 5	< 5
sec-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
p-Isopropyltoluene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	7	10	< 5
1,4-Dichlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
n-Butylbenzene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	µg/l	< 5	ISO17025	< 5	< 5	60350	149	23
1,2-Dibromo-3-chloropropane	µg/l	< 10	ISO17025	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	µg/l	< 5	ISO17025	< 5	< 5	< 5	< 5	< 5

Water Analysis Certificate - Volatile Organic Compounds (VOC)

DETS Report No: 25-03387	~ Date Sampled	24/03/25				
G & J Geoenvironmental Consultants Ltd	~ Time Sampled	None Supplied				
~ Site Reference: Penrhyn Road, Knowsley	~ TP / BH No	GJR06				
~ Project / Job Ref: GJ224	~ Additional Refs	None Supplied				
~ Order No: None Supplied	~ Depth (m)	None Supplied				
Reporting Date: 03/04/2025	DETS Sample No	770418				

Determinand	Unit	RL	Accreditation	(hs)				
Dichlorodifluoromethane	µg/l	< 5	ISO17025	< 5				
Vinyl Chloride	µg/l	< 5	ISO17025	< 5				
Chloromethane	µg/l	< 5	ISO17025	< 5				
Chloroethane	µg/l	< 5	ISO17025	< 5				
Bromomethane	µg/l	< 5	ISO17025	< 5				
Trichlorofluoromethane	µg/l	< 5	ISO17025	< 5				
1,1-Dichloroethene	µg/l	< 5	ISO17025	< 5				
MTBE	µg/l	< 10	ISO17025	< 10				
trans-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5				
1,1-Dichloroethane	µg/l	< 5	ISO17025	< 5				
cis-1,2-Dichloroethene	µg/l	< 5	ISO17025	< 5				
2,2-Dichloropropane	µg/l	< 5	ISO17025	< 5				
Chloroform	µg/l	< 5	ISO17025	< 5				
Bromochloromethane	µg/l	< 10	ISO17025	< 10				
1,1,1-Trichloroethane	µg/l	< 5	ISO17025	< 5				
1,1-Dichloropropene	µg/l	< 5	ISO17025	< 5				
Carbon Tetrachloride	µg/l	< 5	ISO17025	< 5				
1,2-Dichloroethane	µg/l	< 10	ISO17025	< 10				
Benzene	µg/l	< 1	ISO17025	< 1				
1,2-Dichloropropane	µg/l	< 5	ISO17025	< 5				
Trichloroethene	µg/l	< 5	ISO17025	< 5				
Bromodichloromethane	µg/l	< 5	ISO17025	< 5				
Dibromomethane	µg/l	< 5	ISO17025	< 5				
TAME	µg/l	< 5	ISO17025	< 5				
cis-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5				
Toluene	µg/l	< 5	ISO17025	< 5				
trans-1,3-Dichloropropene	µg/l	< 5	ISO17025	< 5				
1,1,2-Trichloroethane	µg/l	< 10	ISO17025	< 10				
1,3-Dichloropropane	µg/l	< 5	ISO17025	< 5				
Tetrachloroethene	µg/l	< 5	ISO17025	< 5				
Dibromochloromethane	µg/l	< 5	ISO17025	< 5				
1,2-Dibromoethane	µg/l	< 5	ISO17025	< 5				
Chlorobenzene	µg/l	< 5	ISO17025	< 5				
1,1,1,2-Tetrachloroethane	µg/l	< 5	ISO17025	< 5				
Ethyl Benzene	µg/l	< 5	ISO17025	< 5				
m,p-Xylene	µg/l	< 10	ISO17025	< 10				
o-Xylene	µg/l	< 5	ISO17025	< 5				
Styrene	µg/l	< 5	ISO17025	< 5				
Bromoform	µg/l	< 10	ISO17025	< 10				
Isopropylbenzene	µg/l	< 5	ISO17025	< 5				
1,1,2,2-Tetrachloroethane	µg/l	< 10	ISO17025	< 10				
1,2,3-Trichloropropane	µg/l	< 5	ISO17025	< 5				
n-Propylbenzene	µg/l	< 5	ISO17025	< 5				
Bromobenzene	µg/l	< 5	ISO17025	< 5				
2-Chlorotoluene	µg/l	< 5	ISO17025	< 5				
1,3,5-Trimethylbenzene	µg/l	< 5	ISO17025	< 5				
4-Chlorotoluene	µg/l	< 5	ISO17025	< 5				
tert-Butylbenzene	µg/l	< 5	ISO17025	< 5				
1,2,4-Trimethylbenzene	µg/l	< 5	ISO17025	< 5				
sec-Butylbenzene	µg/l	< 5	ISO17025	< 5				
p-Isopropyltoluene	µg/l	< 5	ISO17025	< 5				
1,3-Dichlorobenzene	µg/l	< 5	ISO17025	< 5				
1,4-Dichlorobenzene	µg/l	< 5	ISO17025	< 5				
n-Butylbenzene	µg/l	< 5	ISO17025	< 5				
1,2-Dichlorobenzene	µg/l	< 5	ISO17025	219				
1,2-Dibromo-3-chloropropane	µg/l	< 10	ISO17025	< 10				
Hexachlorobutadiene	µg/l	< 5	ISO17025	< 5				

Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 25-03387

G & J Geoenvironmental Consultants Ltd

~Site Reference: Penrhyn Road, Knowsley

~Project / Job Ref: GJ224

~Order No: None Supplied

Reporting Date: 03/04/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	F	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (BOD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	F	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	F	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E115
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Acidification, followed by high-temperature oxidation and IR detection.	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Certificate Key

<u>Symbol</u>	<u>Description</u>
F	Filtered sample
UF	Unfiltered sample
D	Dried sample
AR	As received sample
RL	Reporting limit
~	Sample details provided by customer and can affect the validity of results
M/S	Missing Sample
hs	Deviation due to headspace
S	Subcontracted analysis
U	UKAS accredited test

E – Groundwater Contamination Distribution Plans



DO NOT SCALE

NOTES:

- Deep groundwater
- Shallow groundwater



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Barrow upon Soar, Loughborough, LE12 8PY
Tel: 01509 410372
info@gjgeoenvironmental.com

CLIENT:

Knowsley Redvelopments Ltd

PROJECT:

**Former Contract Chemicals,
Penrhyn Road**

TITLE:

**1,2-dichlorobenzene
distribution in groundwater –
March 2025**

SCALE@SIZE :

NTS

ISSUE:

FINAL

DESIGN/DRAWN by :

CMH

DATE:

April 2025

PROJECT No:

GJ224

DRAWING No:

Photos01

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DO NOT SCALE

NOTES:

- Yellow circle: Deep groundwater
- Orange circle: Shallow groundwater



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CLIENT:

Knowsley Redvelopments Ltd

PROJECT:

**Former Contract Chemicals,
Penrhyn Road**

TITLE:

**Chlorobenzene distribution in
groundwater – March 2025**

SCALE@SIZE :

NTS

ISSUE:

FINAL

DESIGN/DRAWN by :

CMH

DATE:

April 2025

PROJECT No:

GJ224

DRAWING No:

Photos01

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DO NOT SCALE

NOTES:

- Deep groundwater
- Shallow groundwater



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CLIENT:

Knowsley Redvelopments Ltd

PROJECT:

**Former Contract Chemicals,
Penrhyn Road**

TITLE:

**Bromide distribution in
groundwater – March 2025**

SCALE@SIZE :

NTS

ISSUE:

FINAL

DESIGN/DRAWN by :

CMH

DATE:

April 2025

PROJECT No:

GJ224

DRAWING No:

Photos01

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F – Physio-Chemical Parameters

Physicochemical Properties

Contaminant	Henrys Law Constant (cm3/cm3)	Ref	Water Solubility (mg/l)	Ref	Organic Carbon - water partition co-efficient (Koc) (ml/g)	Ref	Soil - water partition co-efficient (ml/g)	Ref
1,2-dichlorobenzene	0.0338	<u>1</u>	133	<u>1</u>	692	<u>1</u>		
Chlorobenzene	0.0831	<u>1</u>	387	<u>1</u>	251	<u>1</u>		
Cyanide			1000000				5	<u>2</u>
Bromide			943 (sodium bromide)					

1 - EA 2008 - CLEA Report SR7
2 - USEPA 1999 - Partition Co-efficients for Metals in Surface Water, Soil and Waste

G – Consim Model Outputs

G1 – Soil Sources with GW Flow Towards the North

Project: Former Contract Chemicals

Project Number: GJ224

Project Details

Title: Former Contract Chemicals

Project Number: GJ224

Prepared By: C Hepworth

Date: 2025-04-08 16:08:35

Client Name: Knowsley Redevelopments Ltd

Comments:

Consim version 2.05

Simulation Level

Level 3

Simulation Parameters

Iterations 1001

Timeslices:10, 100, 1000

Water Quality Standard

Lowest Value Selected from UK and EU Drinking Water Standards

Project: Former Contract Chemicals

Project Number: GJ224

Source

Process Area

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Air Filled Porosity [fraction] UNIFORM(0.33,0.51)

Water Filled Porosity [fraction] UNIFORM(0.12,0.2)

Thickness [m] TRIANGULAR(1,1.6,2.6)

Fraction of Organic Carbon [%] TRIANGULAR(0.2,1.1,2.6)

Contaminated Land

Constant Source Term

Overall Unsaturated Zone Thickness [m] TRIANGULAR(1,3,4)

Infiltration

Infiltration [mm/year] SINGLE(330)

Source Inventory:

1,2-dichlorobenzene

Measured as Total Concentration in Soil

Organic

koc [ml/g] SINGLE(692)

Henry's Law Constant SINGLE(0.0338)

Concentration [mg/kg] EXPONENTIAL(18)

Calculate kd

Maximum Solubility [mg/l] SINGLE(133)

Project: Former Contract Chemicals

Project Number: GJ224

Unsaturated Pathway: Unsaturated Pathway

Active

Porous Medium

Thickness [m] UNIFORM(1e-030,2.8)

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Vertical Dispersivity [m] UNIFORM(1e-030,0.13)

Water Filled Porosity [fraction] UNIFORM(0.33,0.51)

Unsaturated Conductivity [m/s] UNIFORM(5e-008,5e-005)

Unsaturated Pathway Contaminants

1,2-dichlorobenzene

koc [ml/g] SINGLE(692)	Calculate kd
------------------------	--------------

Project: Former Contract Chemicals

Project Number: GJ224

Source

Hotspot Source 1

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Air Filled Porosity [fraction] UNIFORM(0.12,0.2)

Water Filled Porosity [fraction] UNIFORM(0.33,0.51)

Thickness [m] TRIANGULAR(1,1.6,2.6)

Fraction of Organic Carbon [%] TRIANGULAR(0.2,1.1,2.6)

Contaminated Land

Constant Source Term

Overall Unsaturated Zone Thickness [m] TRIANGULAR(1,3,4)

Infiltration

Infiltration [mm/year] SINGLE(330)

Source Inventory:

1,2-dichlorobenzene

Measured as Total Concentration in Soil

Organic

koc [ml/g] SINGLE(692)

Henry's Law Constant SINGLE(0.0338)

Concentration [mg/kg] SINGLE(512)

Calculate kd

Maximum Solubility [mg/l] SINGLE(133)

Project: Former Contract Chemicals

Project Number: GJ224

Unsaturated Pathway: Unsaturated Pathway 1

Active

Porous Medium

Thickness [m] UNIFORM(0,2.8)

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Vertical Dispersivity [m] UNIFORM(1e-030,0.13)

Water Filled Porosity [fraction] UNIFORM(0.33,0.51)

Unsaturated Conductivity [m/s] UNIFORM(5e-008,5e-005)

Unsaturated Pathway Contaminants

1,2-dichlorobenzene

koc [ml/g] SINGLE(692)	Calculate kd
------------------------	--------------

Project: Former Contract Chemicals

Project Number: GJ224

Source

Hotspot Source 2

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Air Filled Porosity [fraction] UNIFORM(0.12,0.2)

Water Filled Porosity [fraction] UNIFORM(0.33,0.51)

Thickness [m] TRIANGULAR(1,1.6,2.6)

Fraction of Organic Carbon [%] TRIANGULAR(0.2,1.1,2.6)

Contaminated Land

Constant Source Term

Overall Unsaturated Zone Thickness [m] TRIANGULAR(1,3,4)

Infiltration

Infiltration [mm/year] SINGLE(330)

Source Inventory:

1,2-dichlorobenzene

Measured as Total Concentration in Soil

Organic

koc [ml/g] SINGLE(692)

Henry's Law Constant SINGLE(0.0338)

Concentration [mg/kg] SINGLE(41)

Calculate kd

Maximum Solubility [mg/l] SINGLE(133)

Project: Former Contract Chemicals

Project Number: GJ224

Unsaturated Pathway: Unsaturated Pathway 1

Active

Porous Medium

Thickness [m] UNIFORM(0,2.8)

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Vertical Dispersivity [m] UNIFORM(1e-030,0.13)

Water Filled Porosity [fraction] UNIFORM(0.33,0.51)

Unsaturated Conductivity [m/s] UNIFORM(5e-008,5e-005)

Unsaturated Pathway Contaminants

1,2-dichlorobenzene

koc [ml/g] SINGLE(692)	Calculate kd
------------------------	--------------

Project: Former Contract Chemicals

Project Number: GJ224

Aquifer Pathway

Thickness [m] SINGLE(100)
Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)
Fraction of Organic Carbon [%] TRIANGULAR(0.1,0.3,0.6)
Calculated Mixing Zone Thickness
Hydraulic Conductivity [m/s] TRIANGULAR(1e-007,1e-005,0.0005)
Effective Porosity [fraction] UNIFORM(0.12,0.46)
Hydraulic Gradient SINGLE(0.019)
Groundwater Flow Direction (degrees), 5.00
Longitudinal Dispersivity [m] UNIFORM(3,100)
Lateral Dispersivity [m] UNIFORM(0.3,10)

Contaminant Inventory

1,2-dichlorobenzene
koc [ml/g] SINGLE(692) Calculate kd
Simulate Degradation in Dissolved and sorbed phases
Halflife [years] SINGLE(1.15)

Project: Former Contract Chemicals

Project Number: GJ224

Receptor

Process Area Receptor	X 343040.435779	Y 396797.980973
Receptor A	X 343036.000000	Y 396810.000000
Receptor B	X 343042.000000	Y 396880.000000
Receptor C	X 342871.000000	Y 396711.000000
Receptor D	X 342821.000000	Y 396661.000000
Abstraction A	X 343994.000000	Y 397091.000000
Abstraction B	X 340973.000000	Y 396607.000000
Hotspot Source 1 Receptor	X 343033.435779	Y 396792.980973
Hotspot Source 2 Receptor	X 342901.435779	Y 396745.980973

Input Correlations

Dispersivity	1
Source Porosity	-1
Vertical dispersivity	1
HS Source 1 Porosity	-1
Vettical dispersivity 2	1
HS Source 2 Porosity	-1
Vertical dispersivity 3	1

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Source [mg/l] - 100 years

05% of values less than 0.128114	10% of values less than 0.248101	25% of values less than 0.604278
50% of values less than 1.46795	75% of values less than 3.20538	90% of values less than 5.24368
Minimum 0.013692than 7.34305	Maximum 32.7143	
Mean 2.43168	SD 3.08347	Variance 9.50779

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway [years]

05% of values less than 1.8305	10% of values less than 2.09029	25% of values less than 2.70223
50% of values less than 3.33651	75% of values less than 3.91256	90% of values less than 4.45047
Minimum 1.15873s than 4.76947	Maximum 5.73068	
Mean 3.31257	SD 0.888836	Variance 0.79003

Retarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway [years]

05% of values less than 1.8305	10% of values less than 2.09029	25% of values less than 2.70223
50% of values less than 3.33651	75% of values less than 3.91256	90% of values less than 4.45047
Minimum 1.15873s than 4.76947	Maximum 5.73068	
Mean 3.31257	SD 0.888836	Variance 0.79003

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Base of Unsaturated Zone Unsaturated Pathway [mg/l] - 100 years

05% of values less than 0.128114	10% of values less than 0.248101	25% of values less than 0.604278
50% of values less than 1.46795	75% of values less than 3.20538	90% of values less than 5.24368
Minimum 0.013692	Maximum 32.7143	
Mean 2.43168	SD 3.08347	Variance 9.50779

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Diluted Concentration [mg/l] Unsaturated Pathway - 100 years

05% of values less than 0.00267735	10% of values less than 0.00470416	25% of values less than 0.0148788
50% of values less than 0.0380562	75% of values less than 0.0975336	90% of values less than 0.214439
Minimum 0.0001796311 0.39774	Maximum 2.10852	
Mean 0.0993144	SD 0.198536	Variance 0.0394164

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Process Area Receptor [years]

05% of values less than 1.88702	10% of values less than 2.16807	25% of values less than 2.78976
50% of values less than 3.45013	75% of values less than 4.0414	90% of values less than 4.65993
Minimum 1.23547s than 5.00316	Maximum 8.76165	
Mean 3.44691	SD 0.97679	Variance 0.954119

Retarded Travel Time to Process Area Receptor years

05% of values less than 2.01231	10% of values less than 2.39426	25% of values less than 3.17641
50% of values less than 4.01381	75% of values less than 5.28952	90% of values less than 8.56493
Minimum 1.23547s than 13.83	Maximum 134.027	
Mean 5.63459	SD 7.9857	Variance 63.7715

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Process Area Receptor [mg/l] - 100 years

05% of values less than 9.99742E-007	10% of values less than 2.9439E-005	25% of values less than 0.000625245
50% of values less than 0.00380377	75% of values less than 0.0134505	90% of values less than 0.0357362
Minimum 0es less than 0.0608766	Maximum 0.422331	
Mean 0.0143312	SD 0.0344057	Variance 0.00118376

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor A [years]

05% of values less than 1.90356	10% of values less than 2.19745	25% of values less than 2.8013
50% of values less than 3.48065	75% of values less than 4.09055	90% of values less than 4.72072
Minimum 1.23547s than 5.06895	Maximum 10.0168	
Mean 3.50198	SD 1.03986	Variance 1.08131

Retarded Travel Time to Receptor A years

05% of values less than 2.12165	10% of values less than 2.57762	25% of values less than 3.39214
50% of values less than 4.35031	75% of values less than 6.06746	90% of values less than 10.5692
Minimum 1.23547s than 16.6495	Maximum 171.2	
Mean 6.63053	SD 10.3707	Variance 107.551

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Receptor A [mg/l] - 100 years

05% of values less than 3.66392E-006	10% of values less than 4.73334E-005	25% of values less than 0.00068132
50% of values less than 0.00333268	75% of values less than 0.0113987	90% of values less than 0.0279001
Minimum 0es less than 0.0474795	Maximum 0.320262	
Mean 0.0113104	SD 0.0257547	Variance 0.000663306

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor B [years]

05% of values less than 2.10396	10% of values less than 2.44012	25% of values less than 3.06078
50% of values less than 3.79525	75% of values less than 4.50843	90% of values less than 5.35066
Minimum 1.36905s than 6.19669	Maximum 30.875	
Mean 4.01508	SD 1.92958	Variance 3.72329

Retarded Travel Time to Receptor B years

05% of values less than 3.91391	10% of values less than 4.53413	25% of values less than 5.88121
50% of values less than 8.336	75% of values less than 14.1839	90% of values less than 28.9371
Minimum 1.42813s than 47.095	Maximum 396.605	
Mean 15.663	SD 28.9982	Variance 840.894

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Receptor B [mg/l] - 100 years

05% of values less than 2.68645E-007	10% of values less than 5.35731E-006	25% of values less than 0.000119018
50% of values less than 0.000813101	75% of values less than 0.00289511	90% of values less than 0.00798029
Minimum 0es less than 0.0142094	Maximum 0.0818525	
Mean 0.00309532	SD 0.00656223	Variance 4.30629E-005

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor C [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.887664	Variance 0.787948

Retarded Travel Time to Receptor C years

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Receptor C [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor D [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.887664	Variance 0.787948

Retarded Travel Time to Receptor D years

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Receptor D [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 2.71087	10% of values less than 3.11687	25% of values less than 3.93845
50% of values less than 4.813	75% of values less than 6.19009	90% of values less than 9.72254
Minimum 1.56535s than 14.5447	Maximum 159.839	
Mean 6.40406	SD 7.67368	Variance 58.8853

Retarded Travel Time to Abstraction A years

05% of values less than 10.1003	10% of values less than 11.3733	25% of values less than 15.8768
50% of values less than 25.7698	75% of values less than 53.2986	90% of values less than 117.572
Minimum 6.01577s than 195.141	Maximum 2112.96	
Mean 57.67	SD 120.935	Variance 14625.2

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction B [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.887664	Variance 0.787948

Retarded Travel Time to Abstraction B years

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Abstraction B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 1 Receptor [years]

05% of values less than 1.87959	10% of values less than 2.16563	25% of values less than 2.78459
50% of values less than 3.43631	75% of values less than 4.01837	90% of values less than 4.62839
Minimum 1.23547s than 4.95473	Maximum 8.15599	
Mean 3.4236	SD 0.953748	Variance 0.909636

Retarded Travel Time to Hotspot Source 1 Receptor years

05% of values less than 1.99311	10% of values less than 2.35647	25% of values less than 3.09549
50% of values less than 3.89247	75% of values less than 5.01341	90% of values less than 7.81834
Minimum 1.23547s than 11.5826	Maximum 116.089	
Mean 5.2204	SD 6.91087	Variance 47.7601

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Hotspot Source 1 Receptor [mg/l] - 100 years

05% of values less than 4.72598E-006	10% of values less than 6.0214E-005	25% of values less than 0.000968735
50% of values less than 0.00521336	75% of values less than 0.0164858	90% of values less than 0.0431891
Minimum 0es less than 0.0726594	Maximum 0.51025	
Mean 0.0176187	SD 0.0415473	Variance 0.00172618

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 2.23391	10% of values less than 2.86666	25% of values less than 3.86951
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1.15873s than 1E+006	Maximum 1.00001E+006	
Mean 646357	SD 478340	Variance 2.28809E+011

Retarded Travel Time to Hotspot Source 2 Receptor years

05% of values less than 2.23391	10% of values less than 2.92098	25% of values less than 3.98838
50% of values less than 1.26301E+007	75% of values less than 2.1329E+007	90% of values less than 3.07134E+007
Minimum 1.15873s than 3.80572E+007	Maximum 6.8792E+007	
Mean 1.35097E+007	SD 1.32451E+007	Variance 1.75433E+014

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0.00220842	90% of values less than 0.0341453
Minimum 0es less than 0.0628732	Maximum 0.966587	
Mean 0.0122461	SD 0.0512717	Variance 0.00262879

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Source [mg/l] - 100 years

05% of values less than 34.6067	10% of values less than 37.276	25% of values less than 44.6094
50% of values less than 57.1817	75% of values less than 73.659	90% of values less than 103.838
Minimum 29.0719s than 128.87	Maximum 133	
Mean 63.6806	SD 25.9661	Variance 674.238

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway 1 [years]

05% of values less than 1.79358	10% of values less than 2.00972	25% of values less than 2.62957
50% of values less than 3.27229	75% of values less than 3.93125	90% of values less than 4.47381
Minimum 0.985898	Maximum 5.79486	
Mean 3.2722	SD 0.910688	Variance 0.829352

Retarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway 1 [years]

05% of values less than 1.79358	10% of values less than 2.00972	25% of values less than 2.62957
50% of values less than 3.27229	75% of values less than 3.93125	90% of values less than 4.47381
Minimum 0.985898	Maximum 5.79486	
Mean 3.2722	SD 0.910688	Variance 0.829352

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Base of Unsaturated Zone Unsaturated Pathway 1 [mg/l] - 100 years

05% of values less than 34.6067	10% of values less than 37.276	25% of values less than 44.6094
50% of values less than 57.1817	75% of values less than 73.659	90% of values less than 103.838
Minimum 29.0719s than 128.87	Maximum 133	
Mean 63.6806	SD 25.9661	Variance 674.238

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Diluted Concentration [mg/l] Unsaturated Pathway 1 - 100 years

05% of values less than 0.514789	10% of values less than 0.635874	25% of values less than 0.979804
50% of values less than 1.73588	75% of values less than 3.62036	90% of values less than 7.15326
Minimum 0.317127than 10.8022	Maximum 24.9942	
Mean 3.09276	SD 3.69275	Variance 13.6364

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Process Area Receptor [years]

05% of values less than 1.79588	10% of values less than 2.01747	25% of values less than 2.62957
50% of values less than 3.28271	75% of values less than 3.93535	90% of values less than 4.48915
Minimum 1.00104s than 4.82228	Maximum 5.79486	
Mean 3.2796	SD 0.911578	Variance 0.830974

Retarded Travel Time to Process Area Receptor years

05% of values less than 1.81161	10% of values less than 2.03304	25% of values less than 2.67271
50% of values less than 3.3389	75% of values less than 4.02741	90% of values less than 4.64074
Minimum 1.31243s than 5.07005	Maximum 12.5658	
Mean 3.39775	SD 1.10817	Variance 1.22804

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Process Area Receptor [mg/l] - 100 years

05% of values less than 0.0674625	10% of values less than 0.0903376	25% of values less than 0.144832
50% of values less than 0.246142	75% of values less than 0.419959	90% of values less than 0.642004
Minimum 0.00235071	Maximum 2.76176	
Mean 0.329934	SD 0.290035	Variance 0.0841205

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor A [years]

05% of values less than 1.80119	10% of values less than 2.03038	25% of values less than 2.66105
50% of values less than 3.31284	75% of values less than 3.94733	90% of values less than 4.51581
Minimum 1.01658s than 4.8414	Maximum 5.79486	
Mean 3.29955	SD 0.919614	Variance 0.845691

Retarded Travel Time to Receptor A years

05% of values less than 1.85821	10% of values less than 2.1591	25% of values less than 2.73952
50% of values less than 3.46567	75% of values less than 4.23605	90% of values less than 5.00258
Minimum 1.31243s than 5.80309	Maximum 24.6261	
Mean 3.72043	SD 1.96731	Variance 3.87032

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Receptor A [mg/l] - 100 years

05% of values less than 0.0770634	10% of values less than 0.0992607	25% of values less than 0.150656
50% of values less than 0.221326	75% of values less than 0.336003	90% of values less than 0.497669
Minimum 0.004931423n 0.631475	Maximum 1.34266	
Mean 0.26894	SD 0.180768	Variance 0.0326771

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor B [years]

05% of values less than 1.97632	10% of values less than 2.23345	25% of values less than 2.86494
50% of values less than 3.5702	75% of values less than 4.29674	90% of values less than 4.95007
Minimum 1.11079s than 5.52268	Maximum 16.2097	
Mean 3.68079	SD 1.35745	Variance 1.84268

Retarded Travel Time to Receptor B years

05% of values less than 3.01262	10% of values less than 3.4794	25% of values less than 4.43845
50% of values less than 5.9422	75% of values less than 9.47699	90% of values less than 18.7966
Minimum 1.87932s than 29.515	Maximum 248.4	
Mean 10.4784	SD 17.2816	Variance 298.655

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Receptor B [mg/l] - 100 years

05% of values less than 0.000517714	10% of values less than 0.00324748	25% of values less than 0.0158798
50% of values less than 0.029284	75% of values less than 0.0469335	90% of values less than 0.069639
Minimum 0es less than 0.0850354	Maximum 0.277862	
Mean 0.03448	SD 0.0285724	Variance 0.000816385

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor C [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.909859	Variance 0.827844

Retarded Travel Time to Receptor C years

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Receptor C [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor D [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.909859	Variance 0.827844

Retarded Travel Time to Receptor D years

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Receptor D [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 2.60994	10% of values less than 3.01059	25% of values less than 3.75734
50% of values less than 4.6325	75% of values less than 6.05103	90% of values less than 9.13839
Minimum 1.50392s than 13.7459	Maximum 175.873	
Mean 6.15138	SD 7.82226	Variance 61.1877

Retarded Travel Time to Abstraction A years

05% of values less than 9.23512	10% of values less than 10.7389	25% of values less than 14.4191
50% of values less than 23.0431	75% of values less than 48.7029	90% of values less than 109.423
Minimum 5.47482s than 180.924	Maximum 2335.83	
Mean 53.8025	SD 120.894	Variance 14615.5

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction B [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.909859	Variance 0.827844

Retarded Travel Time to Abstraction B years

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Abstraction B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 1 Receptor [years]

05% of values less than 1.79588	10% of values less than 2.00986	25% of values less than 2.62957
50% of values less than 3.27701	75% of values less than 3.93528	90% of values less than 4.47402
Minimum 0.993543	Maximum 5.79486	
Mean 3.27444	SD 0.910719	Variance 0.829409

Retarded Travel Time to Hotspot Source 1 Receptor years

05% of values less than 1.80857	10% of values less than 2.02231	25% of values less than 2.65133
50% of values less than 3.31214	75% of values less than 3.95932	90% of values less than 4.52137
Minimum 1.229743	Maximum 7.55753	
Mean 3.31279	SD 0.947101	Variance 0.897

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Hotspot Source 1 Receptor [mg/l] - 100 years

05% of values less than 0.148471	10% of values less than 0.184765	25% of values less than 0.297133
50% of values less than 0.51526	75% of values less than 0.911529	90% of values less than 1.50225
Minimum 0.07184671an 1.99614	Maximum 6.69277	
Mean 0.727005	SD 0.702031	Variance 0.492848

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.909859	Variance 0.827844

Retarded Travel Time to Hotspot Source 2 Receptor years

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Source [mg/l] - 100 years

05% of values less than 2.64883	10% of values less than 2.9186	25% of values less than 3.49538
50% of values less than 4.53692	75% of values less than 6.07084	90% of values less than 8.0692
Minimum 2.34162s than 10.1183	Maximum 19.2509	
Mean 5.18097	SD 2.47691	Variance 6.1351

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway 1 [years]

05% of values less than 1.77987	10% of values less than 2.15463	25% of values less than 2.69645
50% of values less than 3.33228	75% of values less than 3.97279	90% of values less than 4.53398
Minimum 1.12936s than 4.80387	Maximum 5.8907	
Mean 3.33213	SD 0.895075	Variance 0.801159

Retarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway 1 [years]

05% of values less than 1.77987	10% of values less than 2.15463	25% of values less than 2.69645
50% of values less than 3.33228	75% of values less than 3.97279	90% of values less than 4.53398
Minimum 1.12936s than 4.80387	Maximum 5.8907	
Mean 3.33213	SD 0.895075	Variance 0.801159

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Base of Unsaturated Zone Unsaturated Pathway 1 [mg/l] - 100 years

05% of values less than 2.64883	10% of values less than 2.9186	25% of values less than 3.49538
50% of values less than 4.53692	75% of values less than 6.07084	90% of values less than 8.0692
Minimum 2.34162s than 10.1183	Maximum 19.2509	
Mean 5.18097	SD 2.47691	Variance 6.1351

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Diluted Concentration [mg/l] Unsaturated Pathway 1 - 100 years

05% of values less than 0.0403984	10% of values less than 0.0495275	25% of values less than 0.0783852
50% of values less than 0.1396	75% of values less than 0.271995	90% of values less than 0.57323
Minimum 0.024494	Maximum 4.40502	
Mean 0.252238	SD 0.332628	Variance 0.110641

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Process Area Receptor [years]

05% of values less than 1.91848	10% of values less than 2.28443	25% of values less than 2.82052
50% of values less than 3.5175	75% of values less than 4.22215	90% of values less than 4.79614
Minimum 1.15682s than 5.08095	Maximum 11.0509	
Mean 3.5653	SD 1.09904	Variance 1.2079

Retarded Travel Time to Process Area Receptor years

05% of values less than 2.29164	10% of values less than 2.64466	25% of values less than 3.63068
50% of values less than 4.80387	75% of values less than 7.15071	90% of values less than 12.358
Minimum 1.22051s than 19.5381	Maximum 197.449	
Mean 7.46694	SD 11.2006	Variance 125.453

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Process Area Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 4.48002E-014
50% of values less than 7.48224E-009	75% of values less than 7.69635E-007	90% of values less than 3.1573E-006
Minimum 0es less than 5.27848E-006	Maximum 2.26958E-005	
Mean 9.74401E-007	SD 2.31154E-006	Variance 5.3432E-012

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor A [years]

05% of values less than 1.95461	10% of values less than 2.33048	25% of values less than 2.85808
50% of values less than 3.5692	75% of values less than 4.30364	90% of values less than 4.88281
Minimum 1.16909s than 5.25418	Maximum 14.4196	
Mean 3.65041	SD 1.2194	Variance 1.48693

Retarded Travel Time to Receptor A years

05% of values less than 2.5457	10% of values less than 2.90336	25% of values less than 4.02835
50% of values less than 5.34235	75% of values less than 8.27359	90% of values less than 15.5319
Minimum 1.32607s than 25.2619	Maximum 238.795	
Mean 8.95532	SD 14.3692	Variance 206.474

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Receptor A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 3.3812E-012
50% of values less than 7.16794E-008	75% of values less than 3.2219E-006	90% of values less than 1.0618E-005
Minimum 0es less than 1.62501E-005	Maximum 7.13546E-005	
Mean 3.18861E-006	SD 6.83991E-006	Variance 4.67843E-011

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor B [years]

05% of values less than 2.20904	10% of values less than 2.57372	25% of values less than 3.15906
50% of values less than 3.89991	75% of values less than 4.70389	90% of values less than 5.52075
Minimum 1.24347s than 6.93426	Maximum 47.8818	
Mean 4.23728	SD 2.50508	Variance 6.27545

Retarded Travel Time to Receptor B years

05% of values less than 4.47653	10% of values less than 5.10853	25% of values less than 6.6073
50% of values less than 9.77893	75% of values less than 17.0028	90% of values less than 37.0319
Minimum 2.26778s than 59.0617	Maximum 615.996	
Mean 19.2384	SD 37.7763	Variance 1427.05

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Receptor B [mg/l] - 100 years

05% of values less than 0	10% of values less than 4.07538E-016	25% of values less than 2.1905E-009
50% of values less than 9.28766E-007	75% of values less than 1.51514E-005	90% of values less than 4.35649E-005
Minimum 0es less than 6.60349E-005	Maximum 0.000234741	
Mean 1.31006E-005	SD 2.49959E-005	Variance 6.24797E-010

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor C [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.895481	Variance 0.801886

Retarded Travel Time to Receptor C years

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Receptor C [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor D [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.895481	Variance 0.801886

Retarded Travel Time to Receptor D years

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Receptor D [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 2.81692	10% of values less than 3.19018	25% of values less than 3.95399
50% of values less than 4.93847	75% of values less than 6.37643	90% of values less than 10.1741
Minimum 1.47234s than 15.0341	Maximum 207.545	
Mean 6.70824	SD 9.22399	Variance 85.0819

Retarded Travel Time to Abstraction A years

05% of values less than 10.3241	10% of values less than 11.9167	25% of values less than 16.6086
50% of values less than 26.7961	75% of values less than 56.839	90% of values less than 128.405
Minimum 5.08433s than 214.761	Maximum 2768.28	
Mean 62.569	SD 142.548	Variance 20319.8

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction B [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.895481	Variance 0.801886

Retarded Travel Time to Abstraction B years

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Abstraction B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 1 Receptor [years]

05% of values less than 1.90958	10% of values less than 2.24739	25% of values less than 2.80018
50% of values less than 3.49541	75% of values less than 4.18672	90% of values less than 4.76594
Minimum 1.14655s than 5.01864	Maximum 9.51458	
Mean 3.53007	SD 1.05547	Variance 1.11402

Retarded Travel Time to Hotspot Source 1 Receptor years

05% of values less than 2.22454	10% of values less than 2.56582	25% of values less than 3.48179
50% of values less than 4.52078	75% of values less than 6.66721	90% of values less than 11.0453
Minimum 1.21614s than 17.6985	Maximum 177.498	
Mean 6.8427	SD 9.85259	Variance 97.0736

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Hotspot Source 1 Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 9.21973E-014
50% of values less than 1.16086E-008	75% of values less than 1.11026E-006	90% of values less than 4.06975E-006
Minimum 0es less than 7.37174E-006	Maximum 2.91361E-005	
Mean 1.28595E-006	SD 3.02074E-006	Variance 9.12489E-012

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 1.80532	10% of values less than 2.15463	25% of values less than 2.70195
50% of values less than 3.33319	75% of values less than 3.97425	90% of values less than 4.53571
Minimum 1.12936s than 4.81381	Maximum 5.8907	
Mean 3.3345	SD 0.894884	Variance 0.800818

Retarded Travel Time to Hotspot Source 2 Receptor years

05% of values less than 1.82602	10% of values less than 2.16679	25% of values less than 2.72565
50% of values less than 3.36355	75% of values less than 4.04231	90% of values less than 4.5983
Minimum 1.12936s than 4.84	Maximum 7.77097	
Mean 3.3716	SD 0.92977	Variance 0.864472

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 0.0110859	10% of values less than 0.0148166	25% of values less than 0.0228769
50% of values less than 0.0417156	75% of values less than 0.0716757	90% of values less than 0.116022
Minimum 0.00528795	Maximum 0.40217	
Mean 0.0568876	SD 0.0513959	Variance 0.00264154

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Process Area Receptor [years]

05% of values less than 1.54636	10% of values less than 1.73931	25% of values less than 2.08064
50% of values less than 2.60121	75% of values less than 3.1103	90% of values less than 3.51294
Minimum 1.00104s than 3.72577	Maximum 5.14297	
Mean 2.61853	SD 0.684764	Variance 0.468902

Retarded Travel Time to Process Area Receptor [years]

05% of values less than 1.61864	10% of values less than 1.84956	25% of values less than 2.27435
50% of values less than 2.86253	75% of values less than 3.49953	90% of values less than 4.12842
Minimum 1.22051s than 4.56658	Maximum 12.5658	
Mean 2.98145	SD 1.07201	Variance 1.1492

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Process Area Receptor [mg/l] - 100 years

05% of values less than 0.0704932	10% of values less than 0.098048	25% of values less than 0.155607
50% of values less than 0.254441	75% of values less than 0.436214	90% of values less than 0.680048
Minimum 0.00235071	Maximum 2.78759	
Mean 0.344266	SD 0.295479	Variance 0.0873079

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Receptor A [years]

05% of values less than 1.5681	10% of values less than 1.75877	25% of values less than 2.10611
50% of values less than 2.63341	75% of values less than 3.14457	90% of values less than 3.57423
Minimum 1.01658s than 3.79808	Maximum 5.69447	
Mean 2.65837	SD 0.71095	Variance 0.50545

Retarded Travel Time to Receptor A [years]

05% of values less than 1.68803	10% of values less than 1.91223	25% of values less than 2.45551
50% of values less than 3.04225	75% of values less than 3.7398	90% of values less than 4.60139
Minimum 1.23547s than 5.72072	Maximum 24.6261	
Mean 3.38049	SD 1.99538	Variance 3.98154

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Receptor A [mg/l] - 100 years

05% of values less than 0.0825972	10% of values less than 0.105228	25% of values less than 0.158867
50% of values less than 0.231242	75% of values less than 0.351628	90% of values less than 0.504242
Minimum 0.004931483	Maximum 1.34276	
Mean 0.280253	SD 0.185119	Variance 0.0342691

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Receptor B [years]

05% of values less than 1.75127	10% of values less than 1.93514	25% of values less than 2.3404
50% of values less than 2.91288	75% of values less than 3.52897	90% of values less than 4.18647
Minimum 1.11079s than 4.77808	Maximum 16.2097	
Mean 3.10281	SD 1.3205	Variance 1.74373

Retarded Travel Time to Receptor B [years]

05% of values less than 2.76672	10% of values less than 3.2978	25% of values less than 4.21182
50% of values less than 5.76384	75% of values less than 9.36299	90% of values less than 18.7966
Minimum 1.42813s than 29.515	Maximum 248.4	
Mean 10.3387	SD 17.2943	Variance 299.092

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Receptor B [mg/l] - 100 years

05% of values less than 0.000542685	10% of values less than 0.00333335	25% of values less than 0.0171478
50% of values less than 0.0320676	75% of values less than 0.0516673	90% of values less than 0.0731014
Minimum 0es less than 0.0940011	Maximum 0.289351	
Mean 0.0375884	SD 0.0308176	Variance 0.000949723

1,2-dichlorobenzene

Unretarded Travel Time to Receptor C [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0.651368	Variance 0.42428

Retarded Travel Time to Receptor C [years]

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Receptor C [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

1,2-dichlorobenzene

Unretarded Travel Time to Receptor D [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0.651368	Variance 0.42428

Retarded Travel Time to Receptor D [years]

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

1,2-dichlorobenzene

Concentration at Receptor D [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 2.3172	10% of values less than 2.55744	25% of values less than 3.11282
50% of values less than 3.92751	75% of values less than 5.28908	90% of values less than 8.8664
Minimum 1.47234s than 13.3377	Maximum 159.839	
Mean 5.54915	SD 7.54745	Variance 56.964

Retarded Travel Time to Abstraction A [years]

05% of values less than 8.97914	10% of values less than 10.3208	25% of values less than 14.2133
50% of values less than 23.0073	75% of values less than 48.7029	90% of values less than 109.423
Minimum 5.08433s than 180.924	Maximum 2112.96	
Mean 53.3388	SD 116.508	Variance 13574.1

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

1,2-dichlorobenzene

Unretarded Travel Time to Abstraction B [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0.651368	Variance 0.42428

Retarded Travel Time to Abstraction B [years]

05% of values less than 8.77342E+006	10% of values less than 1.04383E+007	25% of values less than 1.32479E+007
50% of values less than 1.78456E+007	75% of values less than 2.53026E+007	90% of values less than 3.57527E+007
Minimum 4.74265E+0064.25381E+007	Maximum 6.8792E+007	
Mean 2.07713E+007	SD 1.07557E+007	Variance 1.15684E+014

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Abstraction B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 1 Receptor [years]

05% of values less than 1.54636	10% of values less than 1.72677	25% of values less than 2.06046
50% of values less than 2.58527	75% of values less than 3.09153	90% of values less than 3.49753
Minimum 0.993543	Maximum 5.14297	
Mean 2.6035	SD 0.677536	Variance 0.459054

Retarded Travel Time to Hotspot Source 1 Receptor [years]

05% of values less than 1.59764	10% of values less than 1.83771	25% of values less than 2.22488
50% of values less than 2.80018	75% of values less than 3.4127	90% of values less than 3.95932
Minimum 1.21614	Maximum 7.55753	
Mean 2.8641	SD 0.861834	Variance 0.742758

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Hotspot Source 1 Receptor [mg/l] - 100 years

05% of values less than 0.15813	10% of values less than 0.202505	25% of values less than 0.312244
50% of values less than 0.533562	75% of values less than 0.933795	90% of values less than 1.54388
Minimum 0.07486121an 2.01662	Maximum 6.70093	
Mean 0.744625	SD 0.707144	Variance 0.500053

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 1.70571	10% of values less than 1.96747	25% of values less than 2.53263
50% of values less than 3.1244	75% of values less than 3.73812	90% of values less than 4.31333
Minimum 1.12936s than 4.67544	Maximum 5.8907	
Mean 3.14807	SD 0.885657	Variance 0.784388

Retarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 1.70571	10% of values less than 1.9739	25% of values less than 2.55931
50% of values less than 3.15036	75% of values less than 3.79268	90% of values less than 4.42251
Minimum 1.12936s than 4.79186	Maximum 7.77097	
Mean 3.18862	SD 0.922873	Variance 0.851694

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 0.0128589	10% of values less than 0.0166276	25% of values less than 0.0263669
50% of values less than 0.0472952	75% of values less than 0.0859639	90% of values less than 0.140399
Minimum 0.00528795	Maximum 1.053	
Mean 0.0691337	SD 0.0762144	Variance 0.00580863

Aquifer Flow [m³/yr]

Process Area

05% of values less than 23300.8	10% of values less than 34380.6	25% of values less than 72832.2
50% of values less than 151675	75% of values less than 255318	90% of values less than 355354
Minimum 5519.83s than 402026	Maximum 480689	
Mean 173201	SD 119363	Variance 1.42475E+010

Hotspot Source 1

05% of values less than 177.107	10% of values less than 260.912	25% of values less than 552.208
50% of values less than 1149.78	75% of values less than 1935.37	90% of values less than 2693.65
Minimum 47.7718s than 3047.42	Maximum 3643.7	
Mean 1313.03	SD 904.65	Variance 818391

Hotspot Source 2

05% of values less than 177.107	10% of values less than 260.912	25% of values less than 552.208
50% of values less than 1149.78	75% of values less than 1935.37	90% of values less than 2693.65
Minimum 47.7718s than 3047.42	Maximum 3643.7	
Mean 1313.03	SD 904.65	Variance 818391

G2 – Soil Sources with GW Flow Towards the South-West

Project: Former Contract Chemicals

Project Number: GJ224

Project Details

Title: Former Contract Chemicals

Project Number: GJ224

Prepared By: C Hepworth

Date: 2025-04-08 16:08:29

Client Name: Knowsley Redevelopments Ltd

Comments:

Consim version 2.05

Simulation Level

Level 3

Simulation Parameters

Iterations 1001

Timeslices:10, 100, 1000

Water Quality Standard

Lowest Value Selected from UK and EU Drinking Water Standards

Project: Former Contract Chemicals

Project Number: GJ224

Source

Process Area

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Air Filled Porosity [fraction] UNIFORM(0.33,0.51)

Water Filled Porosity [fraction] UNIFORM(0.12,0.2)

Thickness [m] TRIANGULAR(1,1.6,2.6)

Fraction of Organic Carbon [%] TRIANGULAR(0.2,1.1,2.6)

Contaminated Land

Constant Source Term

Overall Unsaturated Zone Thickness [m] TRIANGULAR(1,3,4)

Infiltration

Infiltration [mm/year] SINGLE(330)

Source Inventory:

1,2-dichlorobenzene

Measured as Total Concentration in Soil

Concentration [mg/kg] EXPONENTIAL(18)

Organic

koc [ml/g] SINGLE(692)

Calculate kd

Henry's Law Constant SINGLE(0.0338)

Maximum Solubility [mg/l] SINGLE(133)

Project: Former Contract Chemicals

Project Number: GJ224

Unsaturated Pathway: Unsaturated Pathway

Active

Porous Medium

Thickness [m] UNIFORM(1e-030,2.8)

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Vertical Dispersivity [m] UNIFORM(1e-030,0.13)

Water Filled Porosity [fraction] UNIFORM(0.33,0.51)

Unsaturated Conductivity [m/s] UNIFORM(5e-008,5e-005)

Unsaturated Pathway Contaminants

1,2-dichlorobenzene

koc [ml/g] SINGLE(692)	Calculate kd
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Project: Former Contract Chemicals

Project Number: GJ224

Source

Hotspot Source 1

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Air Filled Porosity [fraction] UNIFORM(0.12,0.2)

Water Filled Porosity [fraction] UNIFORM(0.33,0.51)

Thickness [m] TRIANGULAR(1,1.6,2.6)

Fraction of Organic Carbon [%] TRIANGULAR(0.2,1.1,2.6)

Contaminated Land

Constant Source Term

Overall Unsaturated Zone Thickness [m] TRIANGULAR(1,3,4)

Infiltration

Infiltration [mm/year] SINGLE(330)

Source Inventory:

1,2-dichlorobenzene

Measured as Total Concentration in Soil

Organic

koc [ml/g] SINGLE(692)

Henry's Law Constant SINGLE(0.0338)

Concentration [mg/kg] SINGLE(512)

Calculate kd

Maximum Solubility [mg/l] SINGLE(133)

Project: Former Contract Chemicals

Project Number: GJ224

Unsaturated Pathway: Unsaturated Pathway 1

Active

Porous Medium

Thickness [m] UNIFORM(0,2.8)

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Vertical Dispersivity [m] UNIFORM(1e-030,0.13)

Water Filled Porosity [fraction] UNIFORM(0.33,0.51)

Unsaturated Conductivity [m/s] UNIFORM(5e-008,5e-005)

Unsaturated Pathway Contaminants

1,2-dichlorobenzene

koc [ml/g] SINGLE(692)	Calculate kd
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Project: Former Contract Chemicals

Project Number: GJ224

Source

Hotspot Source 2

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Air Filled Porosity [fraction] UNIFORM(0.12,0.2)

Water Filled Porosity [fraction] UNIFORM(0.33,0.51)

Thickness [m] TRIANGULAR(1,1.6,2.6)

Fraction of Organic Carbon [%] TRIANGULAR(0.2,1.1,2.6)

Contaminated Land

Constant Source Term

Overall Unsaturated Zone Thickness [m] TRIANGULAR(1,3,4)

Infiltration

Infiltration [mm/year] SINGLE(330)

Source Inventory:

1,2-dichlorobenzene

Measured as Total Concentration in Soil

Organic

koc [ml/g] SINGLE(692)

Henry's Law Constant SINGLE(0.0338)

Concentration [mg/kg] SINGLE(41)

Calculate kd

Maximum Solubility [mg/l] SINGLE(133)

Project: Former Contract Chemicals

Project Number: GJ224

Unsaturated Pathway: Unsaturated Pathway 1

Active

Porous Medium

Thickness [m] UNIFORM(0,2.8)

Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)

Vertical Dispersivity [m] UNIFORM(1e-030,0.13)

Water Filled Porosity [fraction] UNIFORM(0.33,0.51)

Unsaturated Conductivity [m/s] UNIFORM(5e-008,5e-005)

Unsaturated Pathway Contaminants

1,2-dichlorobenzene

koc [ml/g] SINGLE(692)	Calculate kd
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Project: Former Contract Chemicals

Project Number: GJ224

Aquifer Pathway

Thickness [m] SINGLE(100)
Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)
Fraction of Organic Carbon [%] TRIANGULAR(0.1,0.3,0.6)
Calculated Mixing Zone Thickness
Hydraulic Conductivity [m/s] TRIANGULAR(1e-007,1e-005,0.0005)
Effective Porosity [fraction] UNIFORM(0.12,0.46)
Hydraulic Gradient SINGLE(0.053)
Groundwater Flow Direction (degrees), 225.00
Longitudinal Dispersivity [m] UNIFORM(3,100)
Lateral Dispersivity [m] UNIFORM(0.3,10)

Contaminant Inventory

1,2-dichlorobenzene
koc [ml/g] SINGLE(692) Calculate kd
Simulate Degradation in Dissolved and sorbed phases
Halflife [years] SINGLE(1.15)

Project: Former Contract Chemicals

Project Number: GJ224

Receptor

Process Area Receptor	X 342892.464466	Y 396705.464466
Receptor A	X 343036.000000	Y 396810.000000
Receptor B	X 343042.000000	Y 396880.000000
Receptor C	X 342871.000000	Y 396711.000000
Receptor D	X 342821.000000	Y 396661.000000
Abstraction A	X 343994.000000	Y 397091.000000
Abstraction B	X 340973.000000	Y 396607.000000
Hotspot Source 1 Receptor	X 343019.464466	Y 396774.464466
Hotspot Source 2 Receptor	X 342887.464466	Y 396727.464466

Input Correlations

Dispersivity	1
Source Porosity	-1
Vertical dispersivity	1
HS Source 1 Porosity	-1
Vettical dispersivity 2	1
HS Source 2 Porosity	-1
Vertical dispersivity 3	1

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Source [mg/l] - 100 years

05% of values less than 0.111198	10% of values less than 0.22361	25% of values less than 0.561778
50% of values less than 1.43542	75% of values less than 3.25696	90% of values less than 5.66156
Minimum 0.0009292561 8.39793	Maximum 31.4486	
Mean 2.40922	SD 2.85823	Variance 8.16945

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway [years]

05% of values less than 1.84625	10% of values less than 2.15384	25% of values less than 2.70359
50% of values less than 3.31473	75% of values less than 3.91596	90% of values less than 4.50136
Minimum 1.19819s than 4.82751	Maximum 5.60399	
Mean 3.3173	SD 0.876	Variance 0.767376

Retarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway [years]

05% of values less than 1.84625	10% of values less than 2.15384	25% of values less than 2.70359
50% of values less than 3.31473	75% of values less than 3.91596	90% of values less than 4.50136
Minimum 1.19819s than 4.82751	Maximum 5.60399	
Mean 3.3173	SD 0.876	Variance 0.767376

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Base of Unsaturated Zone Unsaturated Pathway [mg/l] - 100 years

05% of values less than 0.111198	10% of values less than 0.22361	25% of values less than 0.561778
50% of values less than 1.43542	75% of values less than 3.25696	90% of values less than 5.66156
Minimum 0.0009292561 8.39793	Maximum 31.4486	
Mean 2.40922	SD 2.85823	Variance 8.16945

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Diluted Concentration [mg/l] Unsaturated Pathway - 100 years

05% of values less than 0.000544257	10% of values less than 0.00102213	25% of values less than 0.00298078
50% of values less than 0.00890073	75% of values less than 0.0239056	90% of values less than 0.0571686
Minimum 8.30628E-006 0.108757	Maximum 0.915678	
Mean 0.0278232	SD 0.0670817	Variance 0.00449995

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Process Area Receptor [years]

05% of values less than 1.91446	10% of values less than 2.20359	25% of values less than 2.74839
50% of values less than 3.38563	75% of values less than 4.05182	90% of values less than 4.61496
Minimum 1.20072s than 4.9804	Maximum 7.00667	
Mean 3.41123	SD 0.915261	Variance 0.837703

Retarded Travel Time to Process Area Receptor years

05% of values less than 2.21628	10% of values less than 2.58605	25% of values less than 3.23609
50% of values less than 4.12809	75% of values less than 5.44619	90% of values less than 7.25592
Minimum 1.25441s than 9.19576	Maximum 53.0311	
Mean 4.93203	SD 3.8312	Variance 14.6781

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Process Area Receptor [mg/l] - 100 years

05% of values less than 0.000148734	10% of values less than 0.000287099	25% of values less than 0.000942076
50% of values less than 0.00274633	75% of values less than 0.00724044	90% of values less than 0.013722
Minimum 1.01436E-007 0.0238315	Maximum 0.309239	
Mean 0.00644764	SD 0.0146256	Variance 0.000213908

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor A [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.875918	Variance 0.767233

Retarded Travel Time to Receptor A years

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Receptor A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor B [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.875918	Variance 0.767233

Retarded Travel Time to Receptor B years

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Receptor B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor C [years]

05% of values less than 1.94428	10% of values less than 2.21346	25% of values less than 2.76358
50% of values less than 3.40713	75% of values less than 4.06716	90% of values less than 4.63486
Minimum 1.20714s than 5.00124	Maximum 7.49456	
Mean 3.43394	SD 0.927245	Variance 0.859784

Retarded Travel Time to Receptor C years

05% of values less than 2.3263	10% of values less than 2.67472	25% of values less than 3.40718
50% of values less than 4.36807	75% of values less than 5.82369	90% of values less than 8.06317
Minimum 1.33186s than 10.5048	Maximum 61.462	
Mean 5.32733	SD 4.45214	Variance 19.8215

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Receptor C [mg/l] - 100 years

05% of values less than 8.35805E-005	10% of values less than 0.000186867	25% of values less than 0.000665153
50% of values less than 0.00201375	75% of values less than 0.00550934	90% of values less than 0.0110147
Minimum 2.25137E-008 0.0196313	Maximum 0.215606	
Mean 0.00504032	SD 0.0107524	Variance 0.000115614

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor D [years]

05% of values less than 2.06145	10% of values less than 2.35547	25% of values less than 2.87886
50% of values less than 3.54334	75% of values less than 4.2376	90% of values less than 4.88615
Minimum 1.24739s than 5.27258	Maximum 12.3548	
Mean 3.61298	SD 1.06488	Variance 1.13397

Retarded Travel Time to Receptor D years

05% of values less than 3.17771	10% of values less than 3.64142	25% of values less than 4.51548
50% of values less than 5.90094	75% of values less than 8.89479	90% of values less than 13.9938
Minimum 2.10569s than 20.981	Maximum 149.936	
Mean 8.47733	SD 10.1179	Variance 102.371

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Receptor D [mg/l] - 100 years

05% of values less than 1.77443E-005	10% of values less than 5.29195E-005	25% of values less than 0.000261775
50% of values less than 0.00088048	75% of values less than 0.00244931	90% of values less than 0.00500264
Minimum 0es less than 0.00811696	Maximum 0.0367818	
Mean 0.00211967	SD 0.0035707	Variance 1.27499E-005

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.875918	Variance 0.767233

Retarded Travel Time to Abstraction A years

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction B [years]

05% of values less than 3.06074	10% of values less than 3.42226	25% of values less than 4.24227
50% of values less than 5.3326	75% of values less than 7.09213	90% of values less than 11.8844
Minimum 1.97273s than 18.931	Maximum 126.782	
Mean 7.28538	SD 8.10706	Variance 65.7245

Retarded Travel Time to Abstraction B years

05% of values less than 13.059	10% of values less than 15.5827	25% of values less than 21.175
50% of values less than 35.1328	75% of values less than 69.9589	90% of values less than 154.583
Minimum 6.71297s than 253.905	Maximum 2785.76	
Mean 73.1232	SD 143.961	Variance 20724.8

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Abstraction B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 8.01739E-021
Minimum 0es less than 1.28874E-019	Maximum 1.21531E-016	
Mean 2.45646E-019	SD 4.08742E-018	Variance 1.6707E-035

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 1 Receptor [years]

05% of values less than 4.21337	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1.30494s than 1E+006	Maximum 1.00001E+006	
Mean 938065	SD 241163	Variance 5.81598E+010

Retarded Travel Time to Hotspot Source 1 Receptor years

05% of values less than 4.27085	10% of values less than 8.01536E+006	25% of values less than 1.21053E+007
50% of values less than 1.74981E+007	75% of values less than 2.42412E+007	90% of values less than 3.31088E+007
Minimum 1.30494s than 4.05039E+007	Maximum 6.88564E+007	
Mean 1.90209E+007	SD 1.09204E+007	Variance 1.19254E+014

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Hotspot Source 1 Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0.00249832	Maximum 0.367406	
Mean 0.00242099	SD 0.0218496	Variance 0.000477404

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 1.88244	10% of values less than 2.19631	25% of values less than 2.74689
50% of values less than 3.37951	75% of values less than 4.0393	90% of values less than 4.60652
Minimum 1.19819s than 4.93429	Maximum 1E+006	
Mean 3000.39	SD 54690.1	Variance 2.99101E+009

Retarded Travel Time to Hotspot Source 2 Receptor years

05% of values less than 2.14216	10% of values less than 2.51018	25% of values less than 3.14341
50% of values less than 3.95107	75% of values less than 5.04388	90% of values less than 6.66649
Minimum 1.19819s than 8.34575	Maximum 4.47338E+007	
Mean 83619	SD 1.69284E+006	Variance 2.8657E+012

Project: Former Contract Chemicals

Project Number: GJ224

Process Area - 1,2-dichlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 0.000107334	10% of values less than 0.000243836	25% of values less than 0.000917484
50% of values less than 0.00277177	75% of values less than 0.00742829	90% of values less than 0.0150598
Minimum 0es less than 0.0275261	Maximum 0.429218	
Mean 0.00743202	SD 0.0203108	Variance 0.00041253

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Source [mg/l] - 100 years

05% of values less than 33.865	10% of values less than 36.2073	25% of values less than 44.1868
50% of values less than 57.6534	75% of values less than 77.8001	90% of values less than 108.894
Minimum 28.7989s than 133	Maximum 133	
Mean 64.833	SD 27.4726	Variance 754.743

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway 1 [years]

05% of values less than 1.88217	10% of values less than 2.14446	25% of values less than 2.78751
50% of values less than 3.34719	75% of values less than 3.94853	90% of values less than 4.38663
Minimum 1.14455s than 4.73748	Maximum 5.82836	
Mean 3.34486	SD 0.858225	Variance 0.73655

Retarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway 1 [years]

05% of values less than 1.88217	10% of values less than 2.14446	25% of values less than 2.78751
50% of values less than 3.34719	75% of values less than 3.94853	90% of values less than 4.38663
Minimum 1.14455s than 4.73748	Maximum 5.82836	
Mean 3.34486	SD 0.858225	Variance 0.73655

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Base of Unsaturated Zone Unsaturated Pathway 1 [mg/l] - 100 years

05% of values less than 33.865	10% of values less than 36.2073	25% of values less than 44.1868
50% of values less than 57.6534	75% of values less than 77.8001	90% of values less than 108.894
Minimum 28.7989s than 133	Maximum 133	
Mean 64.833	SD 27.4726	Variance 754.743

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Diluted Concentration [mg/l] Unsaturated Pathway 1 - 100 years

05% of values less than 0.111323	10% of values less than 0.137654	25% of values less than 0.213932
50% of values less than 0.375089	75% of values less than 0.845302	90% of values less than 1.92069
Minimum 0.07211721	Maximum 20.7893	
Mean 0.793849	SD 1.25149	Variance 1.56623

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Process Area Receptor [years]

05% of values less than 2.05866	10% of values less than 2.28876	25% of values less than 2.95072
50% of values less than 3.57787	75% of values less than 4.19487	90% of values less than 4.79728
Minimum 1.22964s than 5.22592	Maximum 12.4339	
Mean 3.60601	SD 1.03477	Variance 1.07076

Retarded Travel Time to Process Area Receptor years

05% of values less than 3.19986	10% of values less than 3.61943	25% of values less than 4.49867
50% of values less than 5.56437	75% of values less than 7.99684	90% of values less than 13.7299
Minimum 2.06167s than 19.8916	Maximum 206.738	
Mean 7.92596	SD 9.537	Variance 90.9544

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Process Area Receptor [mg/l] - 100 years

05% of values less than 0.000121539	10% of values less than 0.000679669	25% of values less than 0.00291865
50% of values less than 0.00557039	75% of values less than 0.00895844	90% of values less than 0.0127766
Minimum 0es less than 0.0158326	Maximum 0.0296297	
Mean 0.00647812	SD 0.0050026	Variance 2.5026E-005

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor A [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.859561	Variance 0.738845

Retarded Travel Time to Receptor A years

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Receptor A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor B [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.859561	Variance 0.738845

Retarded Travel Time to Receptor B years

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Receptor B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor C [years]

05% of values less than 2.08443	10% of values less than 2.30417	25% of values less than 2.96909
50% of values less than 3.59992	75% of values less than 4.21527	90% of values less than 4.85008
Minimum 1.23783s than 5.27238	Maximum 13.492	
Mean 3.63705	SD 1.07126	Variance 1.1476

Retarded Travel Time to Receptor C years

05% of values less than 3.31729	10% of values less than 3.78057	25% of values less than 4.65454
50% of values less than 5.8063	75% of values less than 8.51629	90% of values less than 14.9505
Minimum 2.11239s than 21.9845	Maximum 230.266	
Mean 8.47256	SD 10.6727	Variance 113.906

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Receptor C [mg/l] - 100 years

05% of values less than 5.8136E-006	10% of values less than 5.34087E-005	25% of values less than 0.00093075
50% of values less than 0.00278417	75% of values less than 0.00487676	90% of values less than 0.00760743
Minimum 0es less than 0.0096022	Maximum 0.0190539	
Mean 0.00341212	SD 0.0031318	Variance 9.80815E-006

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor D [years]

05% of values less than 2.15837	10% of values less than 2.38431	25% of values less than 3.0517
50% of values less than 3.74872	75% of values less than 4.36067	90% of values less than 5.13075
Minimum 1.28517s than 5.89409	Maximum 20.1347	
Mean 3.83195	SD 1.35053	Variance 1.82394

Retarded Travel Time to Receptor D years

05% of values less than 4.06244	10% of values less than 4.50411	25% of values less than 5.53937
50% of values less than 7.25406	75% of values less than 11.8341	90% of values less than 22.2766
Minimum 2.43078s than 33.4551	Maximum 377.968	
Mean 11.904	SD 17.91	Variance 320.77

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Receptor D [mg/l] - 100 years

05% of values less than 2.18355E-006	10% of values less than 3.02379E-005	25% of values less than 0.000417403
50% of values less than 0.00175071	75% of values less than 0.00319816	90% of values less than 0.0052015
Minimum 0es less than 0.00664499	Maximum 0.0126462	
Mean 0.00219059	SD 0.00214726	Variance 4.61072E-006

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.859561	Variance 0.738845

Retarded Travel Time to Abstraction A years

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction B [years]

05% of values less than 3.0258	10% of values less than 3.50445	25% of values less than 4.30103
50% of values less than 5.32696	75% of values less than 7.28771	90% of values less than 12.6015
Minimum 1.83809s than 19.3936	Maximum 146.478	
Mean 7.53877	SD 8.85378	Variance 78.3895

Retarded Travel Time to Abstraction B years

05% of values less than 13.7026	10% of values less than 16.1371	25% of values less than 22.1057
50% of values less than 36.3295	75% of values less than 73.0405	90% of values less than 160.344
Minimum 7.6518ss than 271.536	Maximum 3187.27	
Mean 77.171	SD 157.716	Variance 24874.4

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Abstraction B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 3.92571E-021
Minimum 0es less than 1.1216E-019	Maximum 1.15149E-016	
Mean 2.17314E-019	SD 3.75754E-018	Variance 1.41191E-035

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 1 Receptor [years]

05% of values less than 1.89389	10% of values less than 2.14446	25% of values less than 2.78751
50% of values less than 3.34719	75% of values less than 3.94853	90% of values less than 4.38718
Minimum 1.14455s than 4.75834	Maximum 5.82836	
Mean 3.34587	SD 0.858303	Variance 0.736684

Retarded Travel Time to Hotspot Source 1 Receptor years

05% of values less than 1.89647	10% of values less than 2.14984	25% of values less than 2.80442
50% of values less than 3.37169	75% of values less than 3.97178	90% of values less than 4.40984
Minimum 1.14455s than 4.79576	Maximum 6.59261	
Mean 3.36349	SD 0.867511	Variance 0.752576

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Hotspot Source 1 Receptor [mg/l] - 100 years

05% of values less than 0.0481371	10% of values less than 0.0590695	25% of values less than 0.0937238
50% of values less than 0.169728	75% of values less than 0.32342	90% of values less than 0.669615
Minimum 0.02440651an 0.902103	Maximum 2.69691	
Mean 0.2773	SD 0.298107	Variance 0.0888678

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 2.03565	10% of values less than 2.27232	25% of values less than 2.93381
50% of values less than 3.5538	75% of values less than 4.16355	90% of values less than 4.73043
Minimum 1.22089s than 5.13345	Maximum 11.3047	
Mean 3.57288	SD 0.999056	Variance 0.998113

Retarded Travel Time to Hotspot Source 2 Receptor years

05% of values less than 3.07291	10% of values less than 3.46689	25% of values less than 4.3182
50% of values less than 5.30222	75% of values less than 7.47247	90% of values less than 12.2954
Minimum 2.00754s than 17.6448	Maximum 181.629	
Mean 7.34261	SD 8.3361	Variance 69.4906

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 1 - 1,2-dichlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 4.81346E-006	10% of values less than 5.98075E-005	25% of values less than 0.00117874
50% of values less than 0.00318364	75% of values less than 0.0056535	90% of values less than 0.00844178
Minimum 0es less than 0.0110145	Maximum 0.0232961	
Mean 0.00390635	SD 0.0036068	Variance 1.3009E-005

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Source [mg/l] - 100 years

05% of values less than 2.65985	10% of values less than 2.86546	25% of values less than 3.43769
50% of values less than 4.51702	75% of values less than 6.09572	90% of values less than 8.63568
Minimum 2.30157s than 10.4475	Maximum 21.6948	
Mean 5.24108	SD 2.60447	Variance 6.78328

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway 1 [years]

05% of values less than 1.71377	10% of values less than 2.05821	25% of values less than 2.64646
50% of values less than 3.274	75% of values less than 3.92388	90% of values less than 4.5309
Minimum 1.12481s than 4.84016	Maximum 5.69628	
Mean 3.2929	SD 0.918906	Variance 0.844388

Retarded Travel Time to Base of Unsaturated Zone Unsaturated Pathway 1 [years]

05% of values less than 1.71377	10% of values less than 2.05821	25% of values less than 2.64646
50% of values less than 3.274	75% of values less than 3.92388	90% of values less than 4.5309
Minimum 1.12481s than 4.84016	Maximum 5.69628	
Mean 3.2929	SD 0.918906	Variance 0.844388

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Base of Unsaturated Zone Unsaturated Pathway 1 [mg/l] - 100 years

05% of values less than 2.65985	10% of values less than 2.86546	25% of values less than 3.43769
50% of values less than 4.51702	75% of values less than 6.09572	90% of values less than 8.63568
Minimum 2.30157s than 10.4475	Maximum 21.6948	
Mean 5.24108	SD 2.60447	Variance 6.78328

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Diluted Concentration [mg/l] Unsaturated Pathway 1 - 100 years

05% of values less than 0.0088943	10% of values less than 0.0109414	25% of values less than 0.016741
50% of values less than 0.0305915	75% of values less than 0.0659829	90% of values less than 0.146892
Minimum 0.005299073n 0.236556	Maximum 1.18613	
Mean 0.0634609	SD 0.0979278	Variance 0.00958985

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Process Area Receptor [years]

05% of values less than 1.71377	10% of values less than 2.06847	25% of values less than 2.66148
50% of values less than 3.27925	75% of values less than 3.92568	90% of values less than 4.53846
Minimum 1.12481s than 4.84379	Maximum 5.71056	
Mean 3.29786	SD 0.918138	Variance 0.842978

Retarded Travel Time to Process Area Receptor years

05% of values less than 1.7866	10% of values less than 2.14056	25% of values less than 2.72691
50% of values less than 3.36121	75% of values less than 4.01759	90% of values less than 4.63836
Minimum 1.12481s than 4.98669	Maximum 10.2498	
Mean 3.37773	SD 0.970551	Variance 0.94197

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Process Area Receptor [mg/l] - 100 years

05% of values less than 0.000439229	10% of values less than 0.000956431	25% of values less than 0.0018834
50% of values less than 0.00351831	75% of values less than 0.00719984	90% of values less than 0.0134442
Minimum 9.70727E-008 0.0170918	Maximum 0.0592133	
Mean 0.00561692	SD 0.00614847	Variance 3.78037E-005

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor A [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.919714	Variance 0.845874

Retarded Travel Time to Receptor A years

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Receptor A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor B [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.919714	Variance 0.845874

Retarded Travel Time to Receptor B years

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Receptor B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor C [years]

05% of values less than 1.71377	10% of values less than 2.06847	25% of values less than 2.67034
50% of values less than 3.29187	75% of values less than 3.9308	90% of values less than 4.55677
Minimum 1.12481s than 4.86293	Maximum 5.7189	
Mean 3.305	SD 0.91824	Variance 0.843165

Retarded Travel Time to Receptor C years

05% of values less than 1.83373	10% of values less than 2.18981	25% of values less than 2.79301
50% of values less than 3.44093	75% of values less than 4.11926	90% of values less than 4.82822
Minimum 1.12481s than 5.17499	Maximum 14.3594	
Mean 3.49776	SD 1.09504	Variance 1.19912

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Receptor C [mg/l] - 100 years

05% of values less than 0.00210883	10% of values less than 0.00261212	25% of values less than 0.0039265
50% of values less than 0.00667045	75% of values less than 0.0117882	90% of values less than 0.0175171
Minimum 0.00106504	Maximum 0.0630325	
Mean 0.00899671	SD 0.00759067	Variance 5.76182E-005

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor D [years]

05% of values less than 1.81761	10% of values less than 2.1673	25% of values less than 2.78476
50% of values less than 3.41675	75% of values less than 4.06783	90% of values less than 4.7379
Minimum 1.1526ss than 5.02148	Maximum 7.16396	
Mean 3.4302	SD 0.956019	Variance 0.913973

Retarded Travel Time to Receptor D years

05% of values less than 2.5146	10% of values less than 2.93059	25% of values less than 3.67975
50% of values less than 4.63384	75% of values less than 5.95815	90% of values less than 8.67245
Minimum 1.54013s than 11.8442	Maximum 93.4858	
Mean 5.68125	SD 4.77686	Variance 22.8184

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Receptor D [mg/l] - 100 years

05% of values less than 0.000549778	10% of values less than 0.000772911	25% of values less than 0.00108701
50% of values less than 0.00158462	75% of values less than 0.00258567	90% of values less than 0.00395385
Minimum 1.45073E-007 0.00516491	Maximum 0.0184442	
Mean 0.00207798	SD 0.00163966	Variance 2.68847E-006

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.919714	Variance 0.845874

Retarded Travel Time to Abstraction A years

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction B [years]

05% of values less than 2.95198	10% of values less than 3.37648	25% of values less than 4.15679
50% of values less than 5.2051	75% of values less than 6.94532	90% of values less than 11.9652
Minimum 1.79704s than 17.1048	Maximum 133.355	
Mean 7.13703	SD 8.07895	Variance 65.2694

Retarded Travel Time to Abstraction B years

05% of values less than 12.978	10% of values less than 15.1997	25% of values less than 20.5209
50% of values less than 33.459	75% of values less than 66.8665	90% of values less than 148.865
Minimum 6.60509s than 249.517	Maximum 2902.79	
Mean 70.9482	SD 144.148	Variance 20778.7

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Abstraction B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 1.21383E-021
Minimum 0es less than 2.62516E-020	Maximum 7.34731E-018	
Mean 2.63832E-020	SD 2.89759E-019	Variance 8.396E-038

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 1 Receptor [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1.00001E+006	
Mean 1E+006	SD 0.919714	Variance 0.845874

Retarded Travel Time to Hotspot Source 1 Receptor years

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Hotspot Source 1 Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 1.71377	10% of values less than 2.05821	25% of values less than 2.64646
50% of values less than 3.274	75% of values less than 3.92388	90% of values less than 4.53653
Minimum 1.12481s than 4.84016	Maximum 5.70167	
Mean 3.29395	SD 0.918871	Variance 0.844324

Retarded Travel Time to Hotspot Source 2 Receptor years

05% of values less than 1.74832	10% of values less than 2.07165	25% of values less than 2.67034
50% of values less than 3.29472	75% of values less than 3.93943	90% of values less than 4.56486
Minimum 1.12481s than 4.87895	Maximum 5.86387	
Mean 3.31178	SD 0.925872	Variance 0.857239

Project: Former Contract Chemicals

Project Number: GJ224

Hotspot Source 2 - 1,2-dichlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 0.00390461	10% of values less than 0.00495319	25% of values less than 0.00746686
50% of values less than 0.0134382	75% of values less than 0.0281894	90% of values less than 0.0519886
Minimum 0.00192061	Maximum 0.230595	
Mean 0.0228265	SD 0.0262205	Variance 0.000687513

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Process Area Receptor [years]

05% of values less than 1.60581	10% of values less than 1.76363	25% of values less than 2.15854
50% of values less than 2.63771	75% of values less than 3.1349	90% of values less than 3.52635
Minimum 1.12481s than 3.74123	Maximum 4.62678	
Mean 2.65015	SD 0.663676	Variance 0.440466

Retarded Travel Time to Process Area Receptor [years]

05% of values less than 1.70347	10% of values less than 1.95994	25% of values less than 2.45224
50% of values less than 3.02119	75% of values less than 3.59138	90% of values less than 4.18566
Minimum 1.12481s than 4.53459	Maximum 10.2498	
Mean 3.0626	SD 0.878032	Variance 0.770941

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Process Area Receptor [mg/l] - 100 years

05% of values less than 0.00334491	10% of values less than 0.00597441	25% of values less than 0.00982923
50% of values less than 0.0152071	75% of values less than 0.0221908	90% of values less than 0.0330515
Minimum 1.15698E-005 0.0435702	Maximum 0.33	
Mean 0.0185427	SD 0.017487	Variance 0.000305796

1,2-dichlorobenzene

Unretarded Travel Time to Receptor A [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0.641875	Variance 0.412004

Retarded Travel Time to Receptor A [years]

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Receptor A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Receptor B [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0.641875	Variance 0.412004

Retarded Travel Time to Receptor B [years]

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Receptor B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

1,2-dichlorobenzene

Unretarded Travel Time to Receptor C [years]

05% of values less than 1.61247	10% of values less than 1.76595	25% of values less than 2.1637
50% of values less than 2.64654	75% of values less than 3.14453	90% of values less than 3.54016
Minimum 1.12481s than 3.79006	Maximum 4.65108	
Mean 2.66509	SD 0.667638	Variance 0.445741

Retarded Travel Time to Receptor C [years]

05% of values less than 1.7302	10% of values less than 2.02947	25% of values less than 2.53596
50% of values less than 3.14074	75% of values less than 3.74255	90% of values less than 4.50256
Minimum 1.12481s than 4.85377	Maximum 14.3594	
Mean 3.21478	SD 1.03541	Variance 1.07208

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Receptor C [mg/l] - 100 years

05% of values less than 0.00629479	10% of values less than 0.00736683	25% of values less than 0.00970575
50% of values less than 0.0139379	75% of values less than 0.0210537	90% of values less than 0.0301251
Minimum 0.00328295	Maximum 0.231248	
Mean 0.0174491	SD 0.0136712	Variance 0.000186901

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Receptor D [years]

05% of values less than 1.687	10% of values less than 1.86406	25% of values less than 2.26445
50% of values less than 2.77585	75% of values less than 3.28536	90% of values less than 3.74483
Minimum 1.1526ss than 4.11067	Maximum 7.01112	
Mean 2.8147	SD 0.757714	Variance 0.57413

Retarded Travel Time to Receptor D [years]

05% of values less than 2.49785	10% of values less than 2.7615	25% of values less than 3.46554
50% of values less than 4.35735	75% of values less than 5.80491	90% of values less than 8.66648
Minimum 1.54013s than 11.5555	Maximum 93.4858	
Mean 5.47498	SD 4.78194	Variance 22.8669

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Receptor D [mg/l] - 100 years

05% of values less than 0.000916827	10% of values less than 0.00155904	25% of values less than 0.00320893
50% of values less than 0.00540628	75% of values less than 0.00814332	90% of values less than 0.0118404
Minimum 1.45073E-007 0.0150767	Maximum 0.0405433	
Mean 0.00638824	SD 0.00490185	Variance 2.40282E-005

1,2-dichlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0.641875	Variance 0.412004

Retarded Travel Time to Abstraction A [years]

05% of values less than 8.3586E+006	10% of values less than 1.01279E+007	25% of values less than 1.30224E+007
50% of values less than 1.80961E+007	75% of values less than 2.45465E+007	90% of values less than 3.34432E+007
Minimum 5.60825E+0064.05039E+007	Maximum 6.88564E+007	
Mean 2.02339E+007	SD 9.93965E+006	Variance 9.87967E+013

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Abstraction B [years]

05% of values less than 2.54472	10% of values less than 2.89978	25% of values less than 3.51851
50% of values less than 4.4162	75% of values less than 6.33026	90% of values less than 11.4142
Minimum 1.79704s than 17.1048	Maximum 126.782	
Mean 6.50935	SD 8.03723	Variance 64.597

Retarded Travel Time to Abstraction B [years]

05% of values less than 12.6489	10% of values less than 14.7295	25% of values less than 19.9932
50% of values less than 33.2176	75% of values less than 66.8665	90% of values less than 148.865
Minimum 6.60509s than 249.517	Maximum 2785.76	
Mean 70.5821	SD 141.823	Variance 20113.8

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Abstraction B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 1.95069E-020
Minimum 0es less than 3.71676E-019	Maximum 2.44027E-016	
Mean 4.89343E-019	SD 7.97737E-018	Variance 6.36384E-035

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 1 Receptor [years]

05% of values less than 1.82258	10% of values less than 2.10685	25% of values less than 2.75682
50% of values less than 3.31703	75% of values less than 3.90885	90% of values less than 4.37377
Minimum 1.14455s than 4.71272	Maximum 5.66599	
Mean 3.31089	SD 0.856239	Variance 0.733144

Retarded Travel Time to Hotspot Source 1 Receptor [years]

05% of values less than 1.8636	10% of values less than 2.13668	25% of values less than 2.7633
50% of values less than 3.32736	75% of values less than 3.92242	90% of values less than 4.3788
Minimum 1.14455s than 4.75258	Maximum 6.59261	
Mean 3.32872	SD 0.865535	Variance 0.74915

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Hotspot Source 1 Receptor [mg/l] - 100 years

05% of values less than 0.0481371	10% of values less than 0.0600473	25% of values less than 0.0938527
50% of values less than 0.170765	75% of values less than 0.326654	90% of values less than 0.678339
Minimum 0.02440651an 0.91254	Maximum 2.69691	
Mean 0.279721	SD 0.301371	Variance 0.0908244

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 1.59778	10% of values less than 1.7634	25% of values less than 2.15189
50% of values less than 2.62757	75% of values less than 3.12567	90% of values less than 3.50971
Minimum 1.12481s than 3.71115	Maximum 4.60084	
Mean 2.63874	SD 0.661401	Variance 0.437452

Retarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 1.65799	10% of values less than 1.91985	25% of values less than 2.40915
50% of values less than 2.93788	75% of values less than 3.50306	90% of values less than 3.96865
Minimum 1.12481s than 4.32475	Maximum 5.86387	
Mean 2.96047	SD 0.79566	Variance 0.633076

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 0.00900163	10% of values less than 0.0104563	25% of values less than 0.0150838
50% of values less than 0.0238851	75% of values less than 0.040738	90% of values less than 0.0672539
Minimum 0.00566234	Maximum 0.474059	
Mean 0.0341649	SD 0.0348781	Variance 0.00121648

Aquifer Flow [m³/yr]

Process Area

05% of values less than 82397	10% of values less than 126639	25% of values less than 321482
50% of values less than 658728	75% of values less than 1.12515E+006	90% of values less than 1.52719E+006
Minimum 16090.8s than 1.71817E+006	Maximum 2.10974E+006	
Mean 752861	SD 517386	Variance 2.67688E+011

Hotspot Source 1

05% of values less than 660.64	10% of values less than 1014.85	25% of values less than 2575.5
50% of values less than 5277.07	75% of values less than 9013.5	90% of values less than 12234.2
Minimum 133.595s than 13764.1	Maximum 16900.9	
Mean 6031.24	SD 4144.59	Variance 1.71776E+007

Hotspot Source 2

05% of values less than 660.64	10% of values less than 1014.85	25% of values less than 2575.5
50% of values less than 5277.07	75% of values less than 9013.5	90% of values less than 12234.2
Minimum 133.595s than 13764.1	Maximum 16900.9	
Mean 6031.24	SD 4144.59	Variance 1.71776E+007

G3 – Groundwater Sources with GW Flow Towards the North

Project: Former Contract Chemicals

Project Number: GJ224

Project Details

Title: Former Contract Chemicals

Project Number: GJ224

Prepared By: C Hepworth

Date: 2025-04-08 17:04:28

Client Name: Knowsley Redevelopments Ltd

Comments:

Consim version 2.05

Simulation Level

Level 3a

Simulation Parameters

Iterations 1001

Timeslices:10, 100, 1000

Water Quality Standard

Lowest Value Selected from UK and EU Drinking Water Standards

Project: Former Contract Chemicals

Project Number: GJ224

Source

GJR03

Infiltration

Infiltration [mm/year] SINGLE(330)

Source Inventory:

Cyanide (Total)

Aquifer Source Concentration [mg/l] SINGLE(0.17)

Inorganic

1,2-dichlorobenzene

Aquifer Source Concentration [mg/l] SINGLE(62.4)

Organic

Project: Former Contract Chemicals

Project Number: GJ224

Source

GJR04

Infiltration

Infiltration [mm/year] SINGLE(330)

Source Inventory:

Chlorobenzene

Aquifer Source Concentration [mg/l] SINGLE(9.6)

Organic

Project: Former Contract Chemicals

Project Number: GJ224

Aquifer Pathway

Thickness [m] SINGLE(100)
 Dry Bulk Density [g/cm³] TRIANGULAR(2.02,2.15,2.28)
 Fraction of Organic Carbon [%] TRIANGULAR(0.1,0.3,0.6)
 Calculated Mixing Zone Thickness
 Hydraulic Conductivity [m/s] TRIANGULAR(1e-007,1e-005,0.0001)
 Effective Porosity [fraction] UNIFORM(0.12,0.46)
 Hydraulic Gradient SINGLE(0.019)
 Groundwater Flow Direction (degrees), 5.00
 Longitudinal Dispersivity [m] UNIFORM(3,100)
 Lateral Dispersivity [m] UNIFORM(0.3,10)

Contaminant Inventory

Cyanide (Total)

Partition Coefficient [ml/g] SINGLE(5)
 Simulate Degradation in Dissolved and sorbed phases
 Halflife [years] SINGLE(1)

1,2-dichlorobenzene

koc [ml/g] SINGLE(692) Calculate kd
 Simulate Degradation in Dissolved and sorbed phases
 Halflife [years] SINGLE(1.15)

Chlorobenzene

koc [ml/g] SINGLE(251) Calculate kd
 Simulate Degradation in Dissolved and sorbed phases
 Halflife [years] SINGLE(1.17)

Project: Former Contract Chemicals

Project Number: GJ224

Receptor		
Receptor E	X 342975.000000	Y 396810.000000
Receptor F	X 342981.000000	Y 396880.000000
Abstraction A	X 343994.000000	Y 397091.000000
Hotspot Source 2 Receptor	X 342901.435779	Y 396745.980973
GJR03 Receptor	X 342970.435779	Y 396744.980973
GJR04 Receptor	X 342880.435779	Y 396754.980973
Abstraction B	X 340973.000000	Y 396607.000000
Receptor G	X 342878.000000	Y 396647.000000
Receptor H	X 342840.000000	Y 396710.000000
Receptor I	X 342805.000000	Y 396674.000000

Input Correlations

Dispersivity 1

Project: Former Contract Chemicals

Project Number: GJ224

Source Inventory:

Cyanide (Total)

Aquifer Source Concentration [mg/l] SINGLE(0.17)

1,2-dichlorobenzene

Aquifer Source Concentration [mg/l] SINGLE(62.4)

GJR03 - Cyanide (Total)

Unretarded Travel Time to Receptor E [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0.270345	75% of values less than 0.730059	90% of values less than 1.56851
Minimum 0es less than 2.49376	Maximum 33.1884	
Mean 0.673553	SD 1.56892	Variance 2.46153

Retarded Travel Time to Receptor E years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 11.3992	75% of values less than 28.2111	90% of values less than 62.3535
Minimum 0es less than 97.3831	Maximum 1161.2	
Mean 25.2235	SD 54.3056	Variance 2949.1

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor E [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0.270345	75% of values less than 0.730059	90% of values less than 1.56851
Minimum 0es less than 2.49376	Maximum 33.1884	
Mean 0.673553	SD 1.56892	Variance 2.46153

Retarded Travel Time to Receptor E years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 5.20704	75% of values less than 12.33	90% of values less than 29.0278
Minimum 0es less than 44.5406	Maximum 385.897	
Mean 12.1041	SD 25.1967	Variance 634.873

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Concentration at Receptor E [mg/l] - 100 years

05% of values less than 1.77319E-010	10% of values less than 1.87655E-008	25% of values less than 3.28335E-006
50% of values less than 0.000102118	75% of values less than 0.17	90% of values less than 0.17
Minimum 0es less than 0.17	Maximum 0.17	
Mean 0.0464569	SD 0.0756924	Variance 0.00572934

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Concentration at Receptor E [mg/l] - 100 years

05% of values less than 0.000155997	10% of values less than 0.00289573	25% of values less than 0.0646977
50% of values less than 0.446841	75% of values less than 62.4	90% of values less than 62.4
Minimum 1.78894E-015 62.4	Maximum 62.4	
Mean 19.2619	SD 28.5737	Variance 816.459

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Unretarded Travel Time to Receptor F [years]

05% of values less than 0.362041	10% of values less than 0.479438	25% of values less than 0.748115
50% of values less than 1.29085	75% of values less than 2.6064	90% of values less than 4.85985
Minimum 0.158594	Maximum 68.978	
Mean 2.3687	SD 3.99552	Variance 15.9642

Retarded Travel Time to Receptor F years

05% of values less than 17.3345	10% of values less than 21.2547	25% of values less than 31.7645
50% of values less than 51.76	75% of values less than 98.8201	90% of values less than 167.744
Minimum 9.7926	Maximum 2413.41	
Mean 88.0627	SD 130.525	Variance 17036.8

GJR03 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor F [years]

05% of values less than 0.362041	10% of values less than 0.479438	25% of values less than 0.748115
50% of values less than 1.29085	75% of values less than 2.6064	90% of values less than 4.85985
Minimum 0.158594	Maximum 68.978	
Mean 2.3687	SD 3.99552	Variance 15.9642

Retarded Travel Time to Receptor F years

05% of values less than 6.83845	10% of values less than 8.96114	25% of values less than 14.3689
50% of values less than 23.6841	75% of values less than 44.5257	90% of values less than 89.3612
Minimum 2.92349	Maximum 802.039	
Mean 42.4253	SD 63.8599	Variance 4078.09

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Concentration at Receptor F [mg/l] - 100 years

05% of values less than 2.118E-018	10% of values less than 1.89025E-014	25% of values less than 2.1668E-010
50% of values less than 9.9875E-008	75% of values less than 2.6861E-006	90% of values less than 1.59671E-005
Minimum 0es less than 2.97998E-005	Maximum 0.000124739	
Mean 4.95096E-006	SD 1.24382E-005	Variance 1.5471E-010

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Concentration at Receptor F [mg/l] - 100 years

05% of values less than 1.01044E-009	10% of values less than 3.68759E-007	25% of values less than 0.000194662
50% of values less than 0.00601664	75% of values less than 0.0400302	90% of values less than 0.130381
Minimum 1.05017E-029 0.213845	Maximum 0.751404	
Mean 0.0424662	SD 0.0872173	Variance 0.00760685

GJR03 - Cyanide (Total)

Unretarded Travel Time to Abstraction A [years]

05% of values less than 1.75982	10% of values less than 2.19101	25% of values less than 3.36113
50% of values less than 5.66996	75% of values less than 10.7184	90% of values less than 19.4852
Minimum 0.908762	Maximum 221.031	
Mean 9.89831	SD 15.9418	Variance 254.14

Retarded Travel Time to Abstraction A years

05% of values less than 92.121	10% of values less than 101.789	25% of values less than 138.532
50% of values less than 223.19	75% of values less than 413.167	90% of values less than 712.989
Minimum 68.492	Maximum 7733.44	
Mean 367.279	SD 503.575	Variance 253588

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 1.75982	10% of values less than 2.19101	25% of values less than 3.36113
50% of values less than 5.66996	75% of values less than 10.7184	90% of values less than 19.4852
Minimum 0.908762	Maximum 221.031	
Mean 9.89831	SD 15.9418	Variance 254.14

Retarded Travel Time to Abstraction A years

05% of values less than 34.8797	10% of values less than 43.9198	25% of values less than 62.0705
50% of values less than 102.569	75% of values less than 189.164	90% of values less than 359.612
Minimum 16.5422	Maximum 2615.93	
Mean 177.199	SD 252.21	Variance 63610

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0.361637	
Mean 0.00187821	SD 0.0153904	Variance 0.000236865

Retarded Travel Time to Hotspot Source 2 Receptor years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 9.07065	
Mean 0.0661996	SD 0.472839	Variance 0.223576

GJR03 - 1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.00187821	Maximum 0.361637	
Mean 0.00187821	SD 0.0153904	Variance 0.000236865

Retarded Travel Time to Hotspot Source 2 Receptor years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.0262864	Maximum 2.97461	
Mean 0.0262864	SD 0.185638	Variance 0.0344615

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 0.17	10% of values less than 0.17	25% of values less than 0.17
50% of values less than 0.17	75% of values less than 0.17	90% of values less than 0.17
Minimum 0.05 less than 0.17	Maximum 0.17	
Mean 0.166094	SD 0.0254839	Variance 0.000649427

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 62.4	10% of values less than 62.4	25% of values less than 62.4
50% of values less than 62.4	75% of values less than 62.4	90% of values less than 62.4
Minimum 0es less than 62.4	Maximum 62.4	
Mean 61.7766	SD 6.20875	Variance 38.5486

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Unretarded Travel Time to GJR03 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0.0338739	Maximum 0.654534	
Mean 0.00763944	SD 0.0422108	Variance 0.00178175

Retarded Travel Time to GJR03 Receptor years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 1.29057	Maximum 25.8163	
Mean 0.286925	SD 1.52072	Variance 2.31257

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Unretarded Travel Time to GJR03 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0.0338739	Maximum 0.654534	
Mean 0.00763944	SD 0.0422108	Variance 0.00178175

Retarded Travel Time to GJR03 Receptor years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0.538531	Maximum 13.6908	
Mean 0.129153	SD 0.710753	Variance 0.50517

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Concentration at GJR03 Receptor [mg/l] - 100 years

05% of values less than 0.0247389	10% of values less than 0.17	25% of values less than 0.17
50% of values less than 0.17	75% of values less than 0.17	90% of values less than 0.17
Minimum 1.34602E-005 0.17	Maximum 0.17	
Mean 0.161271	SD 0.0366297	Variance 0.00134174

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Concentration at GJR03 Receptor [mg/l] - 100 years

05% of values less than 62.4	10% of values less than 62.4	25% of values less than 62.4
50% of values less than 62.4	75% of values less than 62.4	90% of values less than 62.4
Minimum 0.08605091an 62.4	Maximum 62.4	
Mean 60.2523	SD 10.8443	Variance 117.6

GJR03 - Cyanide (Total)

Unretarded Travel Time to GJR04 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0.0759473	Maximum 1.06911	
Mean 0.0122774	SD 0.0663354	Variance 0.00440038

Retarded Travel Time to GJR04 Receptor years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 2.83052	Maximum 39.4935	
Mean 0.459224	SD 2.4067	Variance 5.79219

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Unretarded Travel Time to GJR04 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0.0759473	Maximum 1.06911	
Mean 0.0122774	SD 0.0663354	Variance 0.00440038

Retarded Travel Time to GJR04 Receptor years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 1.23	Maximum 20.9441	
Mean 0.204442	SD 1.08181	Variance 1.17031

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Concentration at GJR04 Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 0.17	25% of values less than 0.17
50% of values less than 0.17	75% of values less than 0.17	90% of values less than 0.17
Minimum 0es less than 0.17	Maximum 0.17	
Mean 0.157772	SD 0.0439446	Variance 0.00193113

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Concentration at GJR04 Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 62.4	25% of values less than 62.4
50% of values less than 62.4	75% of values less than 62.4	90% of values less than 62.4
Minimum 0es less than 62.4	Maximum 62.4	
Mean 58.9714	SD 14.2264	Variance 202.39

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Unretarded Travel Time to Abstraction B [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Abstraction B years

05% of values less than 2.52625E+007	10% of values less than 2.62513E+007	25% of values less than 2.95365E+007
50% of values less than 3.80775E+007	75% of values less than 5.29115E+007	90% of values less than 7.10455E+007
Minimum 2.35937E+0077.76572E+007	Maximum 9.29538E+007	
Mean 4.33277E+007	SD 1.68683E+007	Variance 2.84539E+014

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Unretarded Travel Time to Abstraction B [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Abstraction B years

05% of values less than 8.05693E+006	10% of values less than 1.00899E+007	25% of values less than 1.35317E+007
50% of values less than 1.77191E+007	75% of values less than 2.52134E+007	90% of values less than 3.53933E+007
Minimum 5.40708E+0064.37944E+007	Maximum 6.65449E+007	
Mean 2.06371E+007	SD 1.05861E+007	Variance 1.12065E+014

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Concentration at Abstraction B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Concentration at Abstraction B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

GJR03 - Cyanide (Total)

Unretarded Travel Time to Receptor G [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Receptor G years

05% of values less than 2.52625E+007	10% of values less than 2.62513E+007	25% of values less than 2.95365E+007
50% of values less than 3.80775E+007	75% of values less than 5.29115E+007	90% of values less than 7.10455E+007
Minimum 2.35937E+0077.76572E+007	Maximum 9.29538E+007	
Mean 4.33277E+007	SD 1.68683E+007	Variance 2.84539E+014

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor G [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Receptor G years

05% of values less than 8.05693E+006	10% of values less than 1.00899E+007	25% of values less than 1.35317E+007
50% of values less than 1.77191E+007	75% of values less than 2.52134E+007	90% of values less than 3.53933E+007
Minimum 5.40708E+0064.37944E+007	Maximum 6.65449E+007	
Mean 2.06371E+007	SD 1.05861E+007	Variance 1.12065E+014

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Concentration at Receptor G [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Concentration at Receptor G [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

GJR03 - Cyanide (Total)

Unretarded Travel Time to Receptor H [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Receptor H years

05% of values less than 2.52625E+007	10% of values less than 2.62513E+007	25% of values less than 2.95365E+007
50% of values less than 3.80775E+007	75% of values less than 5.29115E+007	90% of values less than 7.10455E+007
Minimum 2.35937E+0077.76572E+007	Maximum 9.29538E+007	
Mean 4.33277E+007	SD 1.68683E+007	Variance 2.84539E+014

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor H [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Receptor H years

05% of values less than 8.05693E+006	10% of values less than 1.00899E+007	25% of values less than 1.35317E+007
50% of values less than 1.77191E+007	75% of values less than 2.52134E+007	90% of values less than 3.53933E+007
Minimum 5.40708E+0064.37944E+007	Maximum 6.65449E+007	
Mean 2.06371E+007	SD 1.05861E+007	Variance 1.12065E+014

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Concentration at Receptor H [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Concentration at Receptor H [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

GJR03 - Cyanide (Total)

Unretarded Travel Time to Receptor I [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Receptor I years

05% of values less than 2.52625E+007	10% of values less than 2.62513E+007	25% of values less than 2.95365E+007
50% of values less than 3.80775E+007	75% of values less than 5.29115E+007	90% of values less than 7.10455E+007
Minimum 2.35937E+0077.76572E+007	Maximum 9.29538E+007	
Mean 4.33277E+007	SD 1.68683E+007	Variance 2.84539E+014

GJR03 - 1,2-dichlorobenzene

Unretarded Travel Time to Receptor I [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Receptor I years

05% of values less than 8.05693E+006	10% of values less than 1.00899E+007	25% of values less than 1.35317E+007
50% of values less than 1.77191E+007	75% of values less than 2.52134E+007	90% of values less than 3.53933E+007
Minimum 5.40708E+0064.37944E+007	Maximum 6.65449E+007	
Mean 2.06371E+007	SD 1.05861E+007	Variance 1.12065E+014

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - Cyanide (Total)

Concentration at Receptor I [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

GJR03 - 1,2-dichlorobenzene

Concentration at Receptor I [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Source Inventory:

Chlorobenzene

Aquifer Source Concentration [mg/l] SINGLE(9.6)

GJR04 - Chlorobenzene

Unretarded Travel Time to Receptor E [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0.24997	75% of values less than 0.673056	90% of values less than 1.49641
Minimum 0es less than 2.46662	Maximum 28.3895	
Mean 0.630013	SD 1.44419	Variance 2.08569

Retarded Travel Time to Receptor E years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 1.92074	75% of values less than 4.65712	90% of values less than 10.4903
Minimum 0es less than 17.0058	Maximum 137.824	
Mean 4.51535	SD 9.53715	Variance 90.9572

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Concentration at Receptor E [mg/l] - 100 years

05% of values less than 6.39512E-017	10% of values less than 7.10245E-012	25% of values less than 2.98617E-006
50% of values less than 0.000626753	75% of values less than 9.6	90% of values less than 9.6
Minimum 0es less than 9.6	Maximum 9.6	
Mean 3.9514	SD 4.7266	Variance 22.3407

GJR04 - Chlorobenzene

Unretarded Travel Time to Receptor F [years]

05% of values less than 0.345302	10% of values less than 0.452858	25% of values less than 0.729979
50% of values less than 1.26643	75% of values less than 2.55608	90% of values less than 4.80942
Minimum 0.13946s than 6.95963	Maximum 64.1791	
Mean 2.30891	SD 3.8581	Variance 14.885

Retarded Travel Time to Receptor F years

05% of values less than 2.75814	10% of values less than 3.51935	25% of values less than 5.50547
50% of values less than 9.25046	75% of values less than 17.4941	90% of values less than 33.7189
Minimum 1.02135s than 51.9229	Maximum 311.574	
Mean 16.478	SD 24.8476	Variance 617.404

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Concentration at Receptor F [mg/l] - 100 years

05% of values less than 6.33035E-013	10% of values less than 4.63862E-009	25% of values less than 1.28447E-005
50% of values less than 0.000639759	75% of values less than 0.00481921	90% of values less than 0.0125285
Minimum 0es less than 0.018611	Maximum 0.0538574	
Mean 0.00388601	SD 0.00674079	Variance 4.54382E-005

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 1.75262	10% of values less than 2.18131	25% of values less than 3.34844
50% of values less than 5.64272	75% of values less than 10.641	90% of values less than 19.3728
Minimum 0.89962s than 29.3971	Maximum 216.232	
Mean 9.83852	SD 15.8061	Variance 249.833

Retarded Travel Time to Abstraction A years

05% of values less than 14.6495	10% of values less than 17.4741	25% of values less than 24.838
50% of values less than 40.6366	75% of values less than 76.0296	90% of values less than 141.346
Minimum 6.6457ss than 205.877	Maximum 1059.88	
Mean 70.1613	SD 100.115	Variance 10023

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 1E+006
Minimum 0es less than 1E+006	Maximum 1E+006	
Mean 185814	SD 389151	Variance 1.51439E+011

Retarded Travel Time to Hotspot Source 2 Receptor years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 6.87067E+006
Minimum 0es less than 1.03664E+007	Maximum 2.35923E+007	
Mean 1.62671E+006	SD 3.9391E+006	Variance 1.55165E+013

GJR04 - Chlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 9.6
50% of values less than 9.6	75% of values less than 9.6	90% of values less than 9.6
Minimum 0es less than 9.6	Maximum 9.6	
Mean 7.81618	SD 3.73585	Variance 13.9566

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Unretarded Travel Time to GJR03 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.es less than 0.0119381	Maximum 0.445601	
Mean 0.00433878	SD 0.0260258	Variance 0.00067734

Retarded Travel Time to GJR03 Receptor years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.es less than 0.0758168	Maximum 2.00098	
Mean 0.0303509	SD 0.170188	Variance 0.0289641

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Concentration at GJR03 Receptor [mg/l] - 100 years

05% of values less than 9.6	10% of values less than 9.6	25% of values less than 9.6
50% of values less than 9.6	75% of values less than 9.6	90% of values less than 9.6
Minimum 0es less than 9.6	Maximum 9.6	
Mean 9.51369	SD 0.906633	Variance 0.821982

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Unretarded Travel Time to GJR04 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.es less than 0.0393805	Maximum 0.564697	
Mean 0.00774954	SD 0.0412648	Variance 0.00170279

Retarded Travel Time to GJR04 Receptor years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.es less than 0.2712	Maximum 4.29483	
Mean 0.0566404	SD 0.301112	Variance 0.0906683

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Concentration at GJR04 Receptor [mg/l] - 100 years

05% of values less than 9.6	10% of values less than 9.6	25% of values less than 9.6
50% of values less than 9.6	75% of values less than 9.6	90% of values less than 9.6
Minimum 0.297985	Maximum 9.6	
Mean 9.46339	SD 1.04955	Variance 1.10155

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Unretarded Travel Time to Abstraction B [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Abstraction B years

05% of values less than 3.55967E+006	10% of values less than 4.29707E+006	25% of values less than 5.54545E+006
50% of values less than 7.06431E+006	75% of values less than 9.7826E+006	90% of values less than 1.3475E+007
Minimum 2.59852E+0061.65222E+007	Maximum 2.47742E+007	
Mean 8.12271E+006	SD 3.83974E+006	Variance 1.47436E+013

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Concentration at Abstraction B [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

GJR04 - Chlorobenzene

Unretarded Travel Time to Receptor G [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Receptor G years

05% of values less than 3.55967E+006	10% of values less than 4.29707E+006	25% of values less than 5.54545E+006
50% of values less than 7.06431E+006	75% of values less than 9.7826E+006	90% of values less than 1.3475E+007
Minimum 2.59852E+0061.65222E+007	Maximum 2.47742E+007	
Mean 8.12271E+006	SD 3.83974E+006	Variance 1.47436E+013

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Concentration at Receptor G [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Unretarded Travel Time to Receptor H [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Receptor H years

05% of values less than 3.55967E+006	10% of values less than 4.29707E+006	25% of values less than 5.54545E+006
50% of values less than 7.06431E+006	75% of values less than 9.7826E+006	90% of values less than 1.3475E+007
Minimum 2.59852E+0061.65222E+007	Maximum 2.47742E+007	
Mean 8.12271E+006	SD 3.83974E+006	Variance 1.47436E+013

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Concentration at Receptor H [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

GJR04 - Chlorobenzene

Unretarded Travel Time to Receptor I [years]

05% of values less than 1E+006	10% of values less than 1E+006	25% of values less than 1E+006
50% of values less than 1E+006	75% of values less than 1E+006	90% of values less than 1E+006
Minimum 1E+006s than 1E+006	Maximum 1E+006	
Mean 1E+006	SD 0	Variance 0

Retarded Travel Time to Receptor I years

05% of values less than 3.55967E+006	10% of values less than 4.29707E+006	25% of values less than 5.54545E+006
50% of values less than 7.06431E+006	75% of values less than 9.7826E+006	90% of values less than 1.3475E+007
Minimum 2.59852E+0061.65222E+007	Maximum 2.47742E+007	
Mean 8.12271E+006	SD 3.83974E+006	Variance 1.47436E+013

Project: Former Contract Chemicals

Project Number: GJ224

GJR04 - Chlorobenzene

Concentration at Receptor I [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Cyanide (Total)

Unretarded Travel Time to Receptor E [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0.270345	75% of values less than 0.730059	90% of values less than 1.56851
Minimum 0es less than 2.49376	Maximum 33.1884	
Mean 0.673553	SD 1.56892	Variance 2.46153

Retarded Travel Time to Receptor E [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 11.3992	75% of values less than 28.2111	90% of values less than 62.3535
Minimum 0es less than 97.3831	Maximum 1161.2	
Mean 25.2235	SD 54.3056	Variance 2949.1

1,2-dichlorobenzene

Unretarded Travel Time to Receptor E [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0.270345	75% of values less than 0.730059	90% of values less than 1.56851
Minimum 0es less than 2.49376	Maximum 33.1884	
Mean 0.673553	SD 1.56892	Variance 2.46153

Retarded Travel Time to Receptor E [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 5.20704	75% of values less than 12.33	90% of values less than 29.0278
Minimum 0es less than 44.5406	Maximum 385.897	
Mean 12.1041	SD 25.1967	Variance 634.873

Project: Former Contract Chemicals

Project Number: GJ224

Chlorobenzene

Unretarded Travel Time to Receptor E [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0.24997	75% of values less than 0.673056	90% of values less than 1.49641
Minimum 0es less than 2.46662	Maximum 28.3895	
Mean 0.630013	SD 1.44419	Variance 2.08569

Retarded Travel Time to Receptor E [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 1.92074	75% of values less than 4.65712	90% of values less than 10.4903
Minimum 0es less than 17.0058	Maximum 137.824	
Mean 4.51535	SD 9.53715	Variance 90.9572

Cyanide (Total)

Concentration at Receptor E [mg/l] - 100 years

05% of values less than 1.77319E-010	10% of values less than 1.87655E-008	25% of values less than 3.28335E-006
50% of values less than 0.000102118	75% of values less than 0.17	90% of values less than 0.17
Minimum 0es less than 0.17	Maximum 0.17	
Mean 0.0464569	SD 0.0756924	Variance 0.00572934

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Receptor E [mg/l] - 100 years

05% of values less than 0.000155997	10% of values less than 0.00289573	25% of values less than 0.0646977
50% of values less than 0.446841	75% of values less than 62.4	90% of values less than 62.4
Minimum 1.78894E-015 62.4	Maximum 62.4	
Mean 19.2619	SD 28.5737	Variance 816.459

Project: Former Contract Chemicals

Project Number: GJ224

Chlorobenzene

Concentration at Receptor E [mg/l] - 100 years

05% of values less than 6.39512E-017	10% of values less than 7.10245E-012	25% of values less than 2.98617E-006
50% of values less than 0.000626753	75% of values less than 9.6	90% of values less than 9.6
Minimum 0es less than 9.6	Maximum 9.6	
Mean 3.9514	SD 4.7266	Variance 22.3407

Project: Former Contract Chemicals

Project Number: GJ224

Cyanide (Total)

Unretarded Travel Time to Receptor F [years]

05% of values less than 0.362041	10% of values less than 0.479438	25% of values less than 0.748115
50% of values less than 1.29085	75% of values less than 2.6064	90% of values less than 4.85985
Minimum 0.158594	Maximum 68.978	
Mean 2.3687	SD 3.99552	Variance 15.9642

Retarded Travel Time to Receptor F [years]

05% of values less than 17.3345	10% of values less than 21.2547	25% of values less than 31.7645
50% of values less than 51.76	75% of values less than 98.8201	90% of values less than 167.744
Minimum 9.7926	Maximum 2413.41	
Mean 88.0627	SD 130.525	Variance 17036.8

1,2-dichlorobenzene

Unretarded Travel Time to Receptor F [years]

05% of values less than 0.362041	10% of values less than 0.479438	25% of values less than 0.748115
50% of values less than 1.29085	75% of values less than 2.6064	90% of values less than 4.85985
Minimum 0.158594	Maximum 68.978	
Mean 2.3687	SD 3.99552	Variance 15.9642

Retarded Travel Time to Receptor F [years]

05% of values less than 6.83845	10% of values less than 8.96114	25% of values less than 14.3689
50% of values less than 23.6841	75% of values less than 44.5257	90% of values less than 89.3612
Minimum 2.92349	Maximum 802.039	
Mean 42.4253	SD 63.8599	Variance 4078.09

Project: Former Contract Chemicals

Project Number: GJ224

Chlorobenzene

Unretarded Travel Time to Receptor F [years]

05% of values less than 0.345302	10% of values less than 0.452858	25% of values less than 0.729979
50% of values less than 1.26643	75% of values less than 2.55608	90% of values less than 4.80942
Minimum 0.13946s than 6.95963	Maximum 64.1791	
Mean 2.30891	SD 3.8581	Variance 14.885

Retarded Travel Time to Receptor F [years]

05% of values less than 2.75814	10% of values less than 3.51935	25% of values less than 5.50547
50% of values less than 9.25046	75% of values less than 17.4941	90% of values less than 33.7189
Minimum 1.02135s than 51.9229	Maximum 311.574	
Mean 16.478	SD 24.8476	Variance 617.404

Project: Former Contract Chemicals

Project Number: GJ224

Cyanide (Total)

Concentration at Receptor F [mg/l] - 100 years

05% of values less than 2.118E-018	10% of values less than 1.89025E-014	25% of values less than 2.1668E-010
50% of values less than 9.9875E-008	75% of values less than 2.6861E-006	90% of values less than 1.59671E-005
Minimum 0es less than 2.97998E-005	Maximum 0.000124739	
Mean 4.95096E-006	SD 1.24382E-005	Variance 1.5471E-010

1,2-dichlorobenzene

Concentration at Receptor F [mg/l] - 100 years

05% of values less than 1.01044E-009	10% of values less than 3.68759E-007	25% of values less than 0.000194662
50% of values less than 0.00601664	75% of values less than 0.0400302	90% of values less than 0.130381
Minimum 1.05017E-029 0.213845	Maximum 0.751404	
Mean 0.0424662	SD 0.0872173	Variance 0.00760685

Project: Former Contract Chemicals

Project Number: GJ224

Chlorobenzene

Concentration at Receptor F [mg/l] - 100 years

05% of values less than 6.33035E-013	10% of values less than 4.63862E-009	25% of values less than 1.28447E-005
50% of values less than 0.000639759	75% of values less than 0.00481921	90% of values less than 0.0125285
Minimum 0es less than 0.018611	Maximum 0.0538574	
Mean 0.00388601	SD 0.00674079	Variance 4.54382E-005

Project: Former Contract Chemicals

Project Number: GJ224

Cyanide (Total)

Unretarded Travel Time to Abstraction A [years]

05% of values less than 1.75982	10% of values less than 2.19101	25% of values less than 3.36113
50% of values less than 5.66996	75% of values less than 10.7184	90% of values less than 19.4852
Minimum 0.908762	Maximum 221.031	
Mean 9.89831	SD 15.9418	Variance 254.14

Retarded Travel Time to Abstraction A [years]

05% of values less than 92.121	10% of values less than 101.789	25% of values less than 138.532
50% of values less than 223.19	75% of values less than 413.167	90% of values less than 712.989
Minimum 68.492	Maximum 7733.44	
Mean 367.279	SD 503.575	Variance 253588

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 1.75982	10% of values less than 2.19101	25% of values less than 3.36113
50% of values less than 5.66996	75% of values less than 10.7184	90% of values less than 19.4852
Minimum 0.908762	Maximum 221.031	
Mean 9.89831	SD 15.9418	Variance 254.14

Retarded Travel Time to Abstraction A [years]

05% of values less than 34.8797	10% of values less than 43.9198	25% of values less than 62.0705
50% of values less than 102.569	75% of values less than 189.164	90% of values less than 359.612
Minimum 16.5422	Maximum 2615.93	
Mean 177.199	SD 252.21	Variance 63610

Project: Former Contract Chemicals

Project Number: GJ224

Chlorobenzene

Unretarded Travel Time to Abstraction A [years]

05% of values less than 1.75262	10% of values less than 2.18131	25% of values less than 3.34844
50% of values less than 5.64272	75% of values less than 10.641	90% of values less than 19.3728
Minimum 0.89962s than 29.3971	Maximum 216.232	
Mean 9.83852	SD 15.8061	Variance 249.833

Retarded Travel Time to Abstraction A [years]

05% of values less than 14.6495	10% of values less than 17.4741	25% of values less than 24.838
50% of values less than 40.6366	75% of values less than 76.0296	90% of values less than 141.346
Minimum 6.6457ss than 205.877	Maximum 1059.88	
Mean 70.1613	SD 100.115	Variance 10023

Project: Former Contract Chemicals

Project Number: GJ224

Cyanide (Total)

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Project: Former Contract Chemicals

Project Number: GJ224

Chlorobenzene

Concentration at Abstraction A [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0	
Mean 0	SD 0	Variance 0

Cyanide (Total)

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.es less than 0	Maximum 0.361637	
Mean 0.00187821	SD 0.0153904	Variance 0.000236865

Retarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.es less than 0	Maximum 9.07065	
Mean 0.0661996	SD 0.472839	Variance 0.223576

1,2-dichlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 0.361637	
Mean 0.00187821	SD 0.0153904	Variance 0.000236865

Retarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0	Maximum 2.97461	
Mean 0.0262864	SD 0.185638	Variance 0.0344615

Project: Former Contract Chemicals

Project Number: GJ224

Chlorobenzene

Unretarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 1E+006
Minimum 0es less than 1E+006	Maximum 1E+006	
Mean 185814	SD 389151	Variance 1.51439E+011

Retarded Travel Time to Hotspot Source 2 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 6.87067E+006
Minimum 0es less than 1.03664E+007	Maximum 2.35923E+007	
Mean 1.62671E+006	SD 3.9391E+006	Variance 1.55165E+013

Project: Former Contract Chemicals

Project Number: GJ224

Cyanide (Total)

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 0.17	10% of values less than 0.17	25% of values less than 0.17
50% of values less than 0.17	75% of values less than 0.17	90% of values less than 0.17
Minimum 0.05 less than 0.17	Maximum 0.17	
Mean 0.166094	SD 0.0254839	Variance 0.000649427

1,2-dichlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 62.4	10% of values less than 62.4	25% of values less than 62.4
50% of values less than 62.4	75% of values less than 62.4	90% of values less than 62.4
Minimum 0es less than 62.4	Maximum 62.4	
Mean 61.7766	SD 6.20875	Variance 38.5486

Project: Former Contract Chemicals

Project Number: GJ224

Chlorobenzene

Concentration at Hotspot Source 2 Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 0	25% of values less than 9.6
50% of values less than 9.6	75% of values less than 9.6	90% of values less than 9.6
Minimum 0es less than 9.6	Maximum 9.6	
Mean 7.81618	SD 3.73585	Variance 13.9566

Project: Former Contract Chemicals

Project Number: GJ224

Cyanide (Total)

Unretarded Travel Time to GJR03 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0.0338739	Maximum 0.654534	
Mean 0.00763944	SD 0.0422108	Variance 0.00178175

Retarded Travel Time to GJR03 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 1.29057	Maximum 25.8163	
Mean 0.286925	SD 1.52072	Variance 2.31257

1,2-dichlorobenzene

Unretarded Travel Time to GJR03 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.es less than 0.0338739	Maximum 0.654534	
Mean 0.00763944	SD 0.0422108	Variance 0.00178175

Retarded Travel Time to GJR03 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.es less than 0.538531	Maximum 13.6908	
Mean 0.129153	SD 0.710753	Variance 0.50517

Chlorobenzene

Unretarded Travel Time to GJR03 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0.0119381	Maximum 0.445601	
Mean 0.00433878	SD 0.0260258	Variance 0.00067734

Retarded Travel Time to GJR03 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0.0758168	Maximum 2.00098	
Mean 0.0303509	SD 0.170188	Variance 0.0289641

Project: Former Contract Chemicals

Project Number: GJ224

Cyanide (Total)

Concentration at GJR03 Receptor [mg/l] - 100 years

05% of values less than 0.0247389	10% of values less than 0.17	25% of values less than 0.17
50% of values less than 0.17	75% of values less than 0.17	90% of values less than 0.17
Minimum 1.34602E-005 0.17	Maximum 0.17	
Mean 0.161271	SD 0.0366297	Variance 0.00134174

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at GJR03 Receptor [mg/l] - 100 years

05% of values less than 62.4	10% of values less than 62.4	25% of values less than 62.4
50% of values less than 62.4	75% of values less than 62.4	90% of values less than 62.4
Minimum 0.08605091an 62.4	Maximum 62.4	
Mean 60.2523	SD 10.8443	Variance 117.6

Project: Former Contract Chemicals

Project Number: GJ224

Chlorobenzene

Concentration at GJR03 Receptor [mg/l] - 100 years

05% of values less than 9.6	10% of values less than 9.6	25% of values less than 9.6
50% of values less than 9.6	75% of values less than 9.6	90% of values less than 9.6
Minimum 0es less than 9.6	Maximum 9.6	
Mean 9.51369	SD 0.906633	Variance 0.821982

Project: Former Contract Chemicals

Project Number: GJ224

Cyanide (Total)

Unretarded Travel Time to GJR04 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0.0759473	Maximum 1.06911	
Mean 0.0122774	SD 0.0663354	Variance 0.00440038

Retarded Travel Time to GJR04 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 2.83052	Maximum 39.4935	
Mean 0.459224	SD 2.4067	Variance 5.79219

1,2-dichlorobenzene

Unretarded Travel Time to GJR04 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 0.0759473	Maximum 1.06911	
Mean 0.0122774	SD 0.0663354	Variance 0.00440038

Retarded Travel Time to GJR04 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0es less than 1.23	Maximum 20.9441	
Mean 0.204442	SD 1.08181	Variance 1.17031

Project: Former Contract Chemicals

Project Number: GJ224

Chlorobenzene

Unretarded Travel Time to GJR04 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.es less than 0.0393805	Maximum 0.564697	
Mean 0.00774954	SD 0.0412648	Variance 0.00170279

Retarded Travel Time to GJR04 Receptor [years]

05% of values less than 0	10% of values less than 0	25% of values less than 0
50% of values less than 0	75% of values less than 0	90% of values less than 0
Minimum 0.es less than 0.2712	Maximum 4.29483	
Mean 0.0566404	SD 0.301112	Variance 0.0906683

Project: Former Contract Chemicals

Project Number: GJ224

Cyanide (Total)

Concentration at GJR04 Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 0.17	25% of values less than 0.17
50% of values less than 0.17	75% of values less than 0.17	90% of values less than 0.17
Minimum 0es less than 0.17	Maximum 0.17	
Mean 0.157772	SD 0.0439446	Variance 0.00193113

Project: Former Contract Chemicals

Project Number: GJ224

1,2-dichlorobenzene

Concentration at GJR04 Receptor [mg/l] - 100 years

05% of values less than 0	10% of values less than 62.4	25% of values less than 62.4
50% of values less than 62.4	75% of values less than 62.4	90% of values less than 62.4
Minimum 0es less than 62.4	Maximum 62.4	
Mean 58.9714	SD 14.2264	Variance 202.39