

Caulmert Limited

Engineering, Environmental & Planning
Consultancy Services

Standard Landfill Site

Flintshire County Council Waste Management Services

Annual Monitoring Review 2019

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10439a Standard 22-05-2019 - Environmental Monitoring Locations

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1.0 INTRODUCTION

1.1 Background

- 1.1.1 This report has been compiled in accordance with the Environmental Permit (EPR), ref. EPR/BP3390VA (previously EAWML 37073) for Standard Landfill Site, Buckley, which requires an annual review of the monitoring data collected at the site. Standard Landfill is a Closed Landfill, confirmed by letter (37073/ML1/05) NRW on the 17th May 2018, in approval of the Closure Plan 3031-CAU-XX-XX-RP-V-0304.A0-C3.
- 1.1.2 The data reviewed by this report was collected between the 1st of January and the 31st of December 2019. This report records and discusses the monitoring data collected for landfill gas, groundwater, leachate, and surface water at the site.

1.2 Site Location and Surrounding Land-use

- 1.2.1 Standard Landfill Site is located approximately 1 km north-east of Buckley town centre, Flintshire, North Wales (NGR SJ 290 650). The site is accessed via the B5127 (Liverpool Road).
- 1.2.2 The site is bounded to the east by Burntwood Road where several residential properties have boundaries within 50m of the eastern extreme of the site. To the west of the site lies agricultural land, separated from the landfill boundary by a water course. The Spencer Industrial Estate, which comprises several small industrial units, is situated beyond the southern site boundary. The A55 dual carriageway runs adjacent to the northern boundary.
- 1.2.3 A Site of Special Scientific Interest (SSSI), namely The Buckley Claypits and Commons, is located close to the site. Standard Landfill is also surrounded by the Deeside and Buckley Newt Site Special Area of Conservation.

1.3 Site History and Development

- 1.3.1 Standard Landfill Site was developed in the void created by a former open cast coal mine extending to approximately 13.3 ha. The site was excavated to a depth of approximately 100 mAOD (metres Above Ordnance Datum). The site entrance is at 141 mAOD.
- 1.3.2 The site comprises six distinct cells. They were developed on the basis of containment of leachate by basal and side slope engineering with engineered clay, and subject to construction quality assurance.
- 1.3.3 Infilling at the site commenced in January 1990. Capping has been completed at site with a 1.0 mm welded flexible membrane cap. Restoration soils were installed over the plastic cap. The site restoration was completed in 2004. Official closure was granted by NRW on the 17th May 2018.

2.0 ENVIRONMENTAL CONTEXT

2.1 Geology

- 2.1.1 The underlying geology of the site consists of a sequence of grey mudstone with sandstone bands, interbedded with coal. The coal bands are between 0.2 m and 1.5 m thick, while the mudstone / sandstone bands can be up to 26 m thick in places, but are more commonly found with thicknesses in the order of 10 m.
- 2.1.2 Bands of pure mudstone are also present at the site, indicating a heterogeneous nature to the mudstone/sandstone lithology. Shales are also noted as occurring in conjunction with the coal bands. In a few instances, bands of black mudstone are found at depths greater than 100 mAOD.

2.2 Hydrogeology

- 2.2.1 Groundwater flow at the site is predominantly through silt and mud bands. There is also potential groundwater flows at the site through adducts and old workings, present in the underlying coal measures.

2.3 Hydrology

- 2.3.1 The site is enclosed by streams to the west and north. There are several large bodies of surface water at the site. There is a pond situated approximately 500 m west of the site, in agricultural fields and there is also a large lake 500 m south of the site.

3.0 LANDFILL GAS

3.1 Introduction

- 3.1.1 Routine landfill gas (LFG) monitoring was carried out on a weekly basis at 29 perimeter boreholes during the review period. Methane, carbon dioxide, oxygen, carbon monoxide, hydrogen sulphide, relative pressure and atmospheric pressure were all recorded during each monitoring visit. In waste gas is monitored annually via trace gas analysis and engine and flare emissions testing.
- 3.1.2 Borehole locations are shown on Environmental Monitoring Locations drawing in Appendix 1.
- 3.1.3 A summary and time series graphs displaying methane and carbon dioxide concentrations and can be found in Appendix 2.

3.2 Perimeter Boreholes

Methane

- 3.2.1 Methane was only detected at BH22 during 2019 but remained below the compliance limit (1.0 %). Concentrations ranged from 0.1 % to 0.3 % within BH22. All other locations remained below 0.0 % throughout the review period.

Carbon Dioxide

- 3.2.2 Carbon dioxide was detected at all locations throughout the review period, but did not exceed compliance limits during 2019. Average carbon dioxide concentrations ranged from 1.38 % in BH2.2 and 1.89 % in BH7.1.

Carbon Monoxide and Hydrogen Sulphide

- 3.2.3 No carbon monoxide or hydrogen sulphide was detected at any of the monitoring locations during 2019.

Surface Emissions Monitoring

- 3.2.4 A surface emissions survey was undertaken on the 13th August 2019 by Caulmert Ltd, in accordance with the Permit and methodology defined in LFTGN07 'Guidance on monitoring landfill gas surface emissions'. An FID was used to complete a walkover survey of the entire site, to include all landfill gas and leachate extraction installations, monitoring points, pipework, manifolds, interfaces between capped zones and the landfill perimeter to identify any point source landfill gas emissions. The full report is included in Appendix 1.
- 3.2.5 Seventeen-point source emissions were identified, however, only one of these were above the upper limit of detection (10,000 ppm). This is a significant decrease from last year's (2018) twenty-five emissions, with seven close to, or above the limit of detection.

- 3.2.6 No emissions were detected on the ground surface away from wells or pipework. There were no signs of vegetation die-back on the site.

Engine and Flare Emissions Monitoring

- 3.2.7 No trace gas or emissions surveys were conducted for the landfill gas utilisation plant due to insufficient landfill gas production. The landfill gas engine is currently only utilised for approximately 1.2 hours / day due to the low gas productivity of the aged waste mass. The landfill gas flare is also only utilised infrequently, less than 10 % of the year.

4.0 LEACHATE

4.1 Introduction

- 4.1.1 Leachate levels at nine leachate monitoring locations were recorded monthly. Samples from all chambers were collected and analysed quarterly. Samples were tested for a suite of metals and hazardous substances in the fourth quarter.
- 4.1.2 Previously monitored leachate collection point, LC2 could not be accessed, so a nearby well was utilised during 2019. This has been referred to as LC2.1 for the purpose of the Review.
- 4.1.3 Well locations are shown on the Environmental Monitoring Location drawing in Appendix 1.

4.2 Leachate Levels

- 4.2.1 Leachate levels were recorded on a monthly basis. Time series graphs displaying leachate levels, in metres above cell base and mAOD, can be found in Appendix 3.
- 4.2.2 All leachate levels remained very stable throughout the review period levels fluctuating less than 0.15 m. On average, the highest leachate levels were recorded in LC7 at 1.66 meters above the base. All locations remained below the compliance limit of 2 meters above base throughout the review. It should be noted that the base levels are unconfirmed, and the accuracy of these leachate 'head' figures cannot be verified.
- 4.2.3 The meters above ordinance datum calculations for all locations, based on recent top of well surveys, show that all levels were comparable to those detected previously. On average levels ranged from 104.49 mAOD at LS5 to 132.64 mAOD at LC7. Levels were comparable to those seen in the previous reviews.
- 4.2.4 As requested in the CAR Form; CAR_NRW0035089, Action 1, the locations LS5 and LS6 are confirmed to be the side slope risers which are alternatively referred to as SSR5 and SSR6 or SUMPR5 and SUMPR6. These locations cannot provide accurate representations of the leachate height above base in these chambers due to the sloping nature of the installations, however the leachate levels are provided to assist in monitoring of the leachate levels in these phases.
- 4.2.5 Leachate is pumped from Standard Landfill to a holding tank (HT) Leachate is then tankered to the leachate treatment plant at the nearby Brookhill Landfill Site. The quality of the final discharge from this plant is discussed in the environmental monitoring data reviews for Brookhill Landfill Site.

4.3 Leachate Quality

- 4.3.1 Concentrations of ammoniacal nitrogen (as N) fluctuated throughout the review period. The highest concentration occurred in LC7, at 1420 mg/l, similar to the previously annual reviews reported maximum of 1450 mg/l.

- 4.3.2 Chloride concentrations in leachate ranged between 45.1 mg/l in S1 (shallow installation) and 2100 mg/l in LC7. The majority of the LC monitoring points recorded a decreasing trend in chloride concentrations since quarter 2 during each consecutive quarter.
- 4.3.3 COD concentrations decreased from quarter 2 at the majority of the leachate monitoring points, in a similar trend observed in the chloride results. The highest COD concentration was observed in LC7 where a concentration of 2840 mg/l was recorded in Q2, an increase from the maximum of 2400 mg/l at LC2.1 in the previous review.
- 4.3.4 The pH remained relatively stable in the majority of locations, fluctuating between 7.4 and 8.4. However, both LC3 and S1 saw a significant decrease during quarter 4 to 7.22 and 7.18 respectively.
- 4.3.5 In total, 15 hazardous substances were detected of the 190 parameters tested for. These concentrations are highlighted below in Table 4.1.

Table 4.1: Hazardous Substances detected within the Leachate

Parameter	Unit	LC2	LC3	LC4	LC7	S1	S2	S3	SSR5	SSR6
Inorganics										
Cyanide, Total	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Mineral Oil / Oils & Greases										
Mineral oil >C10 C40 (aq)	mg/l	0.193	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.117
Semi-Volatile Organic Compounds (SVOCs)										
2,4-Dimethylphenol (aq)	mg/l	0.0125	<0.002	0.0183	0.00654	<0.001	<0.001	<0.002	<0.008	<0.004
bis(2-Ethylhexyl) phthalate (aq)	mg/l	0.0211	<0.004	<0.02	<0.008	<0.002	<0.002	<0.004	<0.016	<0.008
Volatile Organic Compounds (VOCs)										
1,3,5-Trimethylbenzene	mg/l	0.00135	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00106	0.00121
1,4-Dichlorobenzene	mg/l	0.00167	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.00182	0.0015
4-iso-Propyltoluene	mg/l	0.00178	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzene	mg/l	0.00171	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00135	<0.001
Chlorobenzene	mg/l	0.00277	0.00112	<0.001	<0.001	<0.001	<0.001	<0.001	0.00183	<0.001
Ethylbenzene	mg/l	0.00245	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylene	mg/l	0.0031	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Naphthalene	mg/l	0.00843	<0.001	0.00135	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o-Xylene	mg/l	0.00506	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0053	0.00392
Toluene	mg/l	0.00257	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0012	<0.001
Combined Pesticides / Herbicides										
p,p'-Methoxychlor	mg/l	0.00027	<0.00002	<0.00001	<0.00002	<0.00002	<0.00002	0.000023	0.000216	0.000117

5.0 GROUNDWATER

5.1 Introduction

- 5.1.1 Groundwater levels were recorded on a monthly basis at groundwater monitoring boreholes GW1, GW2R, GW3, GW4R, GW5, GW6 and GW7R. Location GW2R was installed in October 2016 to replace GW2.
- 5.1.2 GW3, GW4R, GW6 and GW7R are considered downgradient of the site and are subject to a Permit Compliance Limit of 6.4 mg/l for ammoniacal nitrogen.
- 5.1.3 Groundwater quality samples were taken on a quarterly basis (with the exception of the third quarter) and analysed for the range of determinants listed below:

Total organic carbon, alkalinity (as CaCO₃), ammoniacal nitrogen, chloride, chemical oxygen demand (COD), electrical conductivity, dissolved oxygen, pH, total oxidised nitrogen (TON), sulphate, cadmium, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, zinc, total xylenes, toluene.

- 5.1.4 Samples collected in Q4 were analysed for a more extensive suite of metals and hazardous substances, but did not include the quarterly parameters.

5.2 Groundwater Levels

- 5.2.1 Groundwater level data was recorded on a monthly basis in metres below ground level (mBGL) and metres above Ordnance Datum (mAOD).
- 5.2.2 Groundwater levels follow the same trend at the majority of the boreholes with a gradual decrease from January through to August, followed by a more pronounced increase towards the end of the monitoring period in December. This is consistent with seasonal trends.
- 5.2.3 GW5 remains relatively stable throughout the year and does not fluctuate as much as other boreholes. The average level in GW5 is 131.28 mAOD.
- 5.2.4 Time series graphs of the groundwater levels, in metres below ground level (mBGL) and metres above Ordnance Datum (mAOD) are included in Appendix 3.

5.3 Groundwater Quality

- 5.3.1 In May 2013, a leachate outbreak was detected at the north-west edge of the site, close to gas monitoring borehole 2.2. A faulty air pump allowed leachate to escape the site into a drainage ditch, which was overgrown. Elevated ammoniacal nitrogen, chloride, BOD, COD and heavy metal concentrations were subsequently detected within GW6. The air pump was replaced and pooled leachate within the drainage ditch was pumped back into the leachate collection system.
- 5.3.2 Ammoniacal nitrogen concentrations in GW6 showed a decrease since 2018, the average concentration in 2019 was 5.6 mg/l, compared to an average of 8.2 mg/l in 2018.

Concentrations were above the compliance limit (6.4 mg/l) during quarter 1 at 7.75 mg/l, however, during Quarter 2 and 4 concentrations were below the compliance limit. This represents a vast improvement over previous reviews where concentrations were decreasing but remained above the compliance limit.

- 5.3.3 Ammoniacal nitrogen concentrations at other monitoring points range between <0.2 mg/l in GW1, GW2R, GW3, GW4R and GW7 to 5.33 mg/l in GW5.
- 5.3.4 Chloride concentrations in GW6 decreased throughout the review period from 68 mg/l (Q1) to 45.1 mg/l (Q4), compared to a previous maximum of 134 mg/l in 2018. This decrease in concentration further highlights the recovery of the groundwater quality at this location.
- 5.3.5 Average chloride concentrations at other locations ranged between 16.05 mg/l in GW5 and 56.6 mg/l in GW7.
- 5.3.6 Concentrations of lead were detected in all locations. Averages were low within GW1 to GW4R and GW6, ranging from 2.13 ug/l in GW3 to 5.51 ug/l in GW6. Average concentrations were significantly higher in GW5 and GW7 at 54.87 ug/l and 21.1 ug/l respectively. Concentrations peaked at all locations during July, with the exception of GW4R and GW5 which peaked during January 2020.
- 5.3.7 Iron concentrations were an order of magnitude higher within GW5 when compared to the remaining monitoring locations. Concentrations within GW5 decreased throughout the review from 34.7 mg/l to 1 mg/l. Average concentrations in the remaining locations ranged from <0.019 mg/l in GW3 to 2.29 mg/l in GW7. This is higher than the maximum concentration observed in 2018; 1.77 mg/l in GW1.
- 5.3.8 Potassium concentrations were highest in GW6, as in 2018, with a maximum of 26.4 mg/l in quarter 1, a slight decrease from 27.8 mg/l in the 2018 review. It should be noted the concentrations within GW6 decreased throughout the review period to 19.3 mg/l during quarter 4. Concentrations at the remaining locations were between 7.22 mg/l (GW5) and 15.7 mg/l (GW4R), comparable to the previous review period.
- 5.3.9 On average, sodium concentrations were once again highest in GW6 with an average of 63.9 mg/l, however, the maximum concentration was highest within GW7 at 81.6 mg/l. A decrease compared to the previous reviews (2018) maxima of 109 mg/l in GW6.
- 5.3.10 Magnesium concentrations were relatively stable throughout the review period. As in the previous review the highest magnesium concentration was detected within GW3 at an average of 39.6 mg/l (maxima of 43.2 mg/l in 2018). As noted in the previous review, magnesium concentrations continued to decrease in GW6, which are now comparable to the background concentrations observed at the other monitoring points.
- 5.3.11 Nickel concentrations were relatively low at all locations. As in the previous review, the highest concentrations were detected during January 2020 at GW4R (516 ug/l). This is an increase on the previous reviews' maxima of 355 ug/l also detected within GW4R.

- 5.3.12 No mineral oil, Phenols or free cyanide were detected at any of the monitoring locations across the site in 2019.
- 5.3.13 No Semi-volatile or volatile organic compounds were detected within the annual suite. Only one herbicide (simazine) was detected within the groundwater at GW3 (0.00002 mg/l).

6.0 SURFACE WATER

6.1 Introduction

6.1.1 Surface water samples were routinely collected from three locations during 2019; SW4, SW5 and SW6 which are shown on the Environmental Monitoring Locations drawing in Appendix 1.

6.1.2 SW5 is the first pond in a series of 3 surface water collection lagoons for runoff from the landfill. This sample point is subject to Permit Compliance Limits of 1.0 mg/l ammoniacal nitrogen and 105 mg/l of chloride.

6.1.3 Surface water samples are analysed on a quarterly basis for:

Alkalinity (as CaCO₃), ammoniacal nitrogen, biological oxygen demand (BOD), chemical oxygen demand (COD), cyanide, nitrate, nitrite, pH, total oxidised nitrogen (TON), arsenic, cadmium, copper, iron, lead, magnesium, mercury, nickel, potassium, sodium, zinc, total phenols and a detailed pesticides and herbicides suite.

6.1.4 A summary of the laboratory analysis of the surface water samples is presented in Appendix 4.

6.2 Surface Water Quality

6.2.1 No ammoniacal nitrogen was detected at SW5 and SW6, as observed in 2018. Concentrations peaked within SW4 at 2.04 mg/l during October. During the remainder of the review period ammoniacal nitrogen concentrations remained below the limit of detection.

6.2.2 Average COD concentration ranged between 22.7 mg/l in SW4 and 136.4 mg/l in SW6. Concentrations in both SW5 and SW6 peaked during October at 220 mg/l and 249 mg/l respectively. Maximum concentrations have increased significantly since the previous reviews (2018) maxima of 66.5 mg/l.

6.2.3 Chloride concentrations at SW5 remained below the compliance limit throughout 2019, with a maximum concentration of 24.3 mg/l. Concentrations within SW4 increased throughout the review period from 24.1 mg/l in May to 181 mg/l during January.

6.2.4 The pH in the surface water was stable and consistent, ranging between 7.42 (SW5) and 8.47 (SW4).

7.0 CONCLUSIONS

7.1 Landfill gas

- 7.1.1 Methane was only detected at BH22 during 2019 but remained below the compliance limit (1.0 %).
- 7.1.2 Carbon dioxide was detected at all locations throughout the review period but did not exceed compliance limits during 2019.

6.1 Leachate

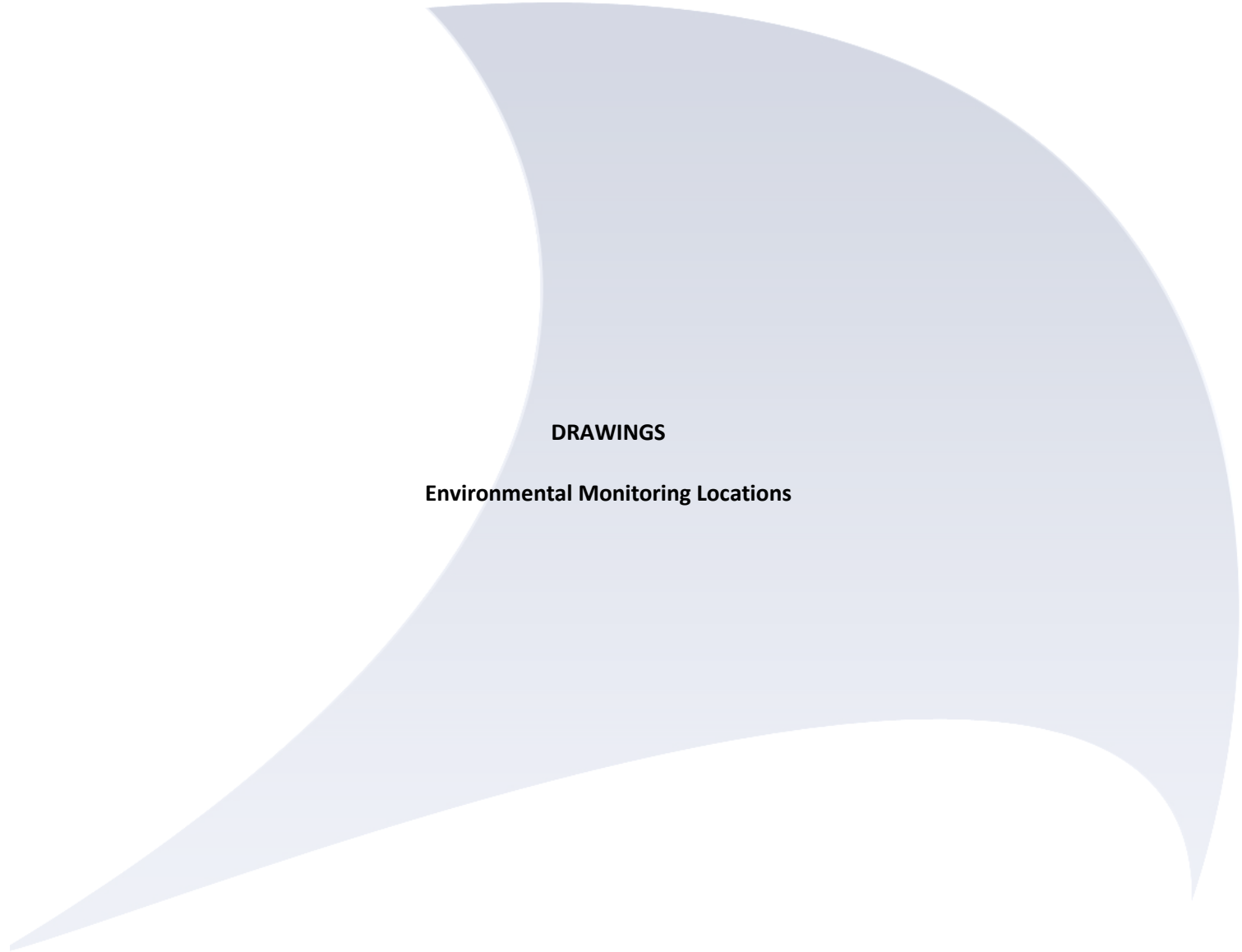
- 6.1.1 All leachate levels remained relatively stable throughout the review period with no significant fluctuations at all locations.
- 6.1.2 There was no overall increase in concentrations of ammoniacal nitrogen and chloride during 2019. COD concentrations showed a general decrease from quarter two onwards within the majority of boreholes.
- 6.1.3 Leachate quality results indicate that a medium to strong leachate is present. This is to be expected given the age of the waste mass and the closed and capped nature of the site.
- 6.1.4 Fifteen hazardous parameters were detected within the leachate as part of the annual suite.

6.2 Groundwater

- 6.2.1 Groundwater levels follow the same trend at the majority of the boreholes with a gradual decrease from January through to August, followed by a more pronounced increase towards the end of the monitoring period in December. This is consistent with seasonal trends.
- 6.2.2 GW6 continues to display the highest concentrations of most parameters potentially due to the residual impact of the leachate outbreak close to this borehole which was detected in May 2013. Key leachate indicator parameters have continued to decrease in concentration over 2019.
- 6.2.3 Iron concentrations were an order of magnitude higher within GW5 when compared to the remaining monitoring locations. Concentrations of lead were also elevated within GW5 compared to the remaining monitoring locations.
- 6.2.4 No mineral oil, Phenols or free cyanide were detected at any of the monitoring locations across the site in 2019. Similarly, no Semi-volatile or volatile organic compounds were detected within the annual suite. Only one herbicide (simazine) was detected within the groundwater at GW3.

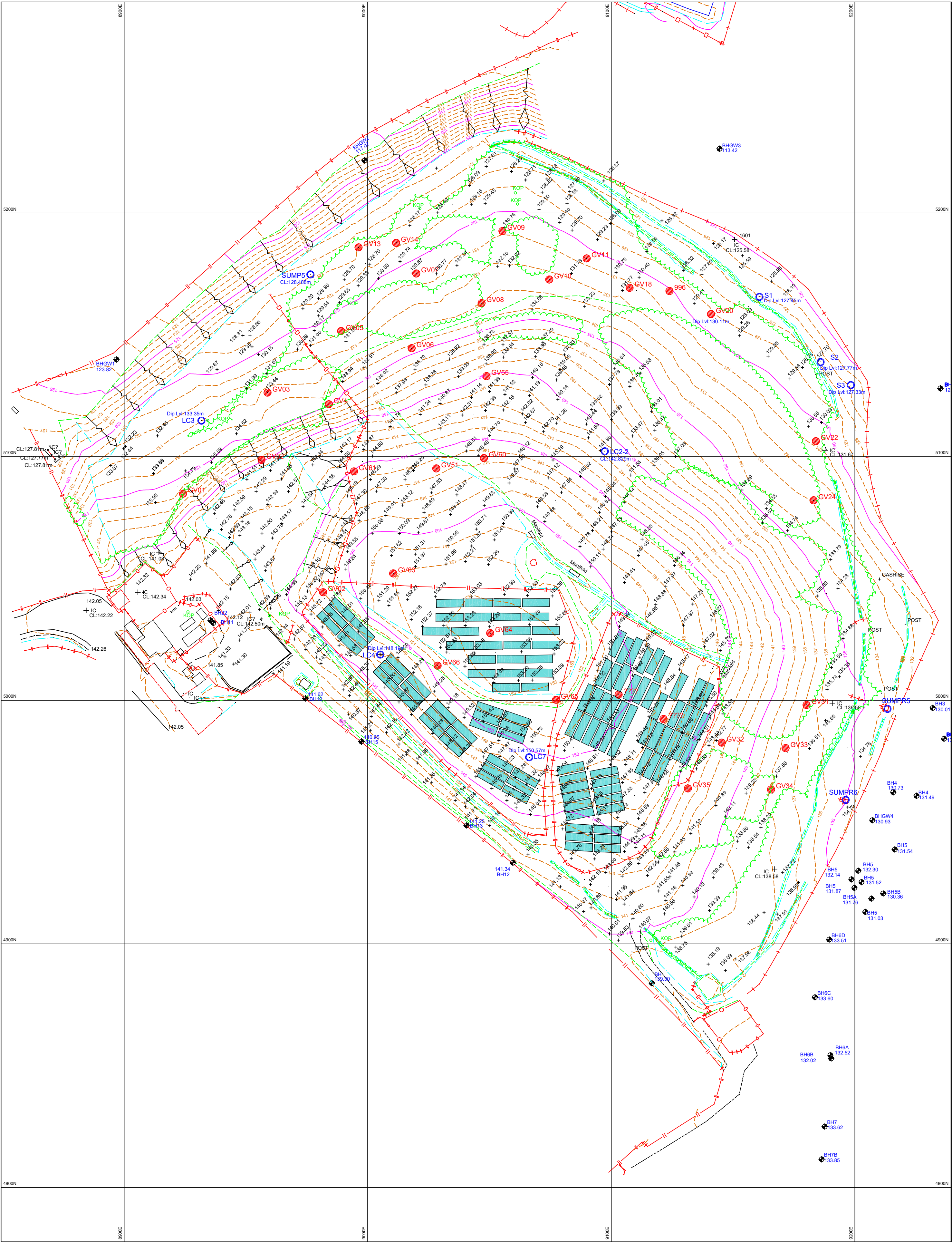
6.3 Surface Water

- 6.3.1 No ammoniacal nitrogen was detected at SW5 and SW6, as observed in 2018. Concentrations peaked within SW4 during October. During the remainder of the review period ammoniacal nitrogen concentrations remained below the limit of detection.
- 6.3.2 Overall, surface water quality at the Site was of good quality, indicating that there is little discernible impact from the landfill on the surrounding water course.

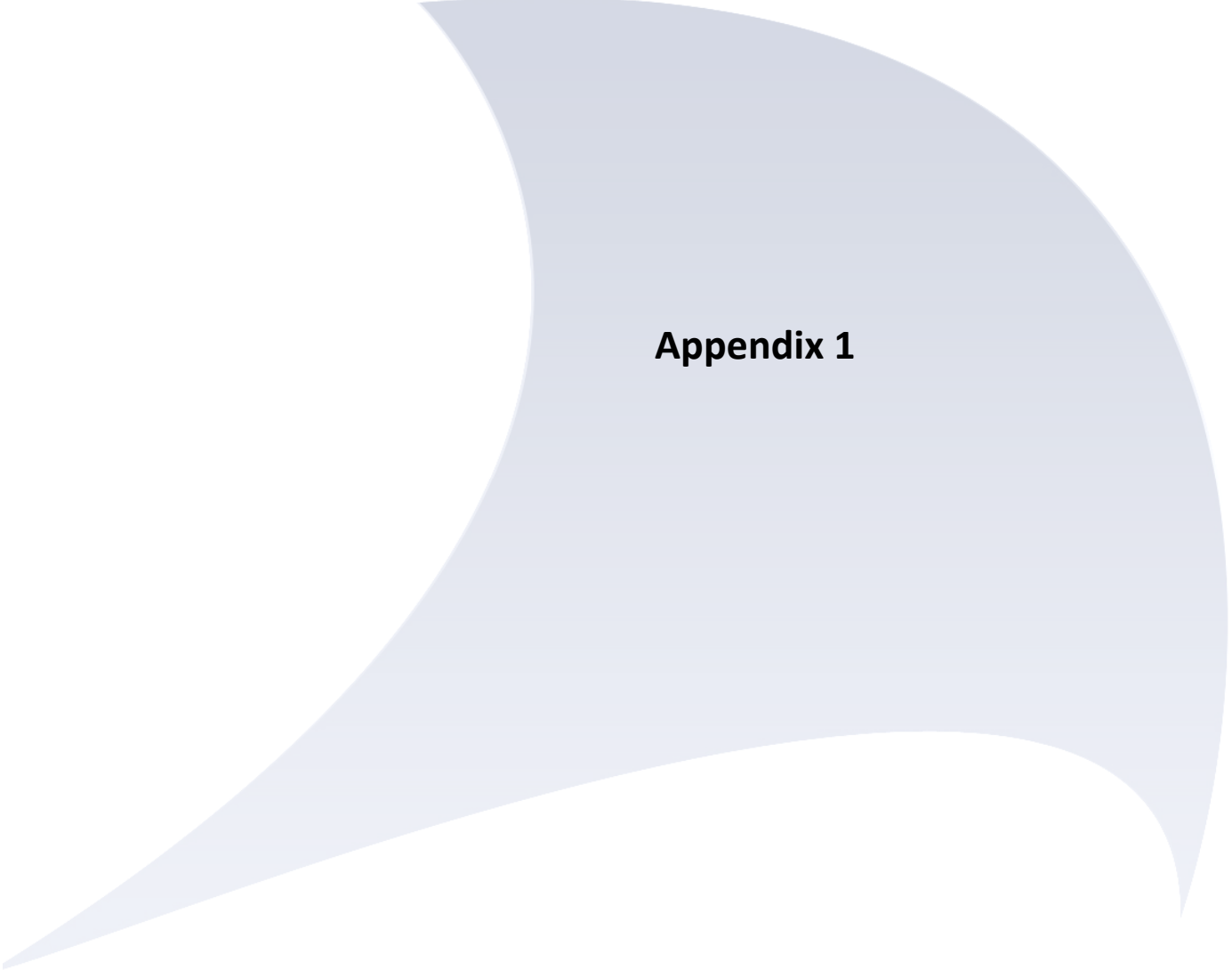


DRAWINGS

Environmental Monitoring Locations



	SITE	SCALE	Site Grid Shown Levels Relate to Site Datum  Solar Panel  LC5 Leachate Well  GV31 Gas Vent Switched On	 www.stafsurv.com Vernon Courtyard, Main Road, Sudbury, Derbyshire, DE6 5HS T 01283 584800 F 01284 584844 E info@stafsurv.com
	Standard Landfill	DATE		
	PROJECT	DRAWING No.		
	Site Survey	10439a		

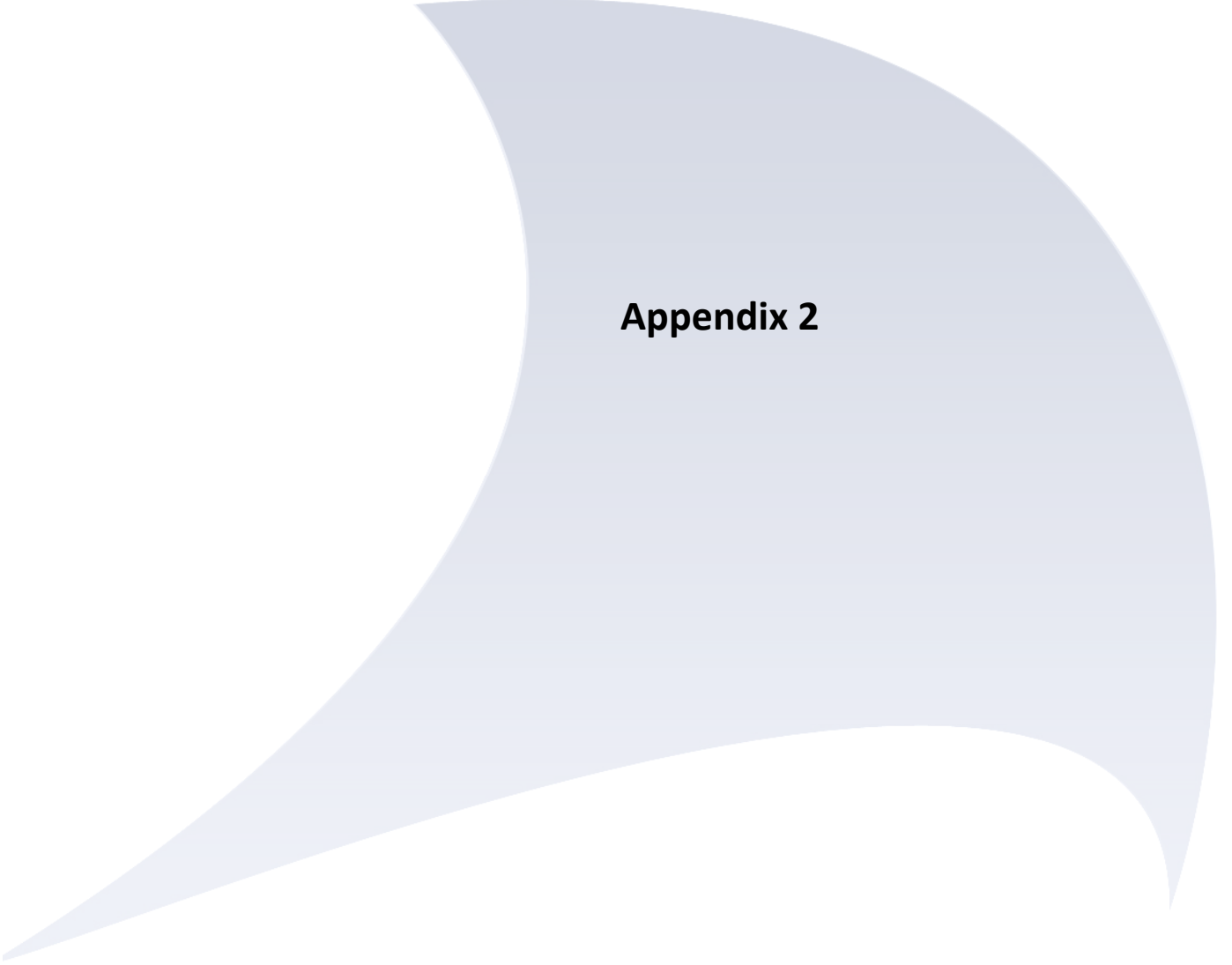


Appendix 1

APPENDIX 1 – LANDFILL GAS

Table 1: Perimeter Landfill Gas

ID	Methane					Carbon Dioxide				
	Min	Max	Average	Count	Trigger	Min	Max	Average	Count	Trigger
BH 1	0	0	0	51	1	1.1	1.9	1.45	51	5.4
BH 1.1	0	0	0	51	1	1.1	2	1.59	51	5.4
BH 2.0	0	0	0	51	1	1.2	2.3	1.86	51	7
BH 2.1	0	0	0	51	1	1.1	2.1	1.59	51	7.6
BH 2.2	0	0	0	51	1	1.1	2	1.38	51	5.8
BH 3.0	0	0	0	51	1	1.1	2.1	1.61	51	6.7
BH 3.1	0	0	0	51	1	1.2	1.9	1.51	51	7.8
BH 4.0	0	0	0	51	10	1.3	2.3	1.78	51	10.6
BH 4.1	0	0	0	51	1	1.1	2.2	1.69	51	7.1
BH 4.2	0	0	0	51	1	1.2	2.3	1.64	51	8.6
BH 5.0	0	0	0	51	15	1.1	2.4	1.72	51	19.4
BH 5.1	0	0	0	51	1	1.2	2.1	1.63	51	5.8
BH 5.2	0	0	0	51	1	1.2	2.4	1.77	51	9.6
BH 5.3	0	0	0	51	1	1.1	2	1.52	51	6
BH 5.4	0	0	0	51	1	1.2	2.4	1.84	51	16
BH 5.5	0	0	0	51	1	1	2	1.42	51	17.1
BH 5.7	0	0	0	51	1	1.1	1.9	1.42	51	7.1
BH 6.0	0	0	0	51	1	1.1	2.3	1.73	51	5.4
BH 6.1	0	0	0	51	1	1	2.2	1.55	51	5.4
BH 6.2	0	0	0	51	1	1	2.1	1.61	51	5.4
BH 6.3	0	0	0	51	1	1.2	2.3	1.79	51	8.2
BH 7.0	0	0	0	51	1	1.1	2	1.65	51	6.2
BH 7.1	0	0	0	51	1	1.4	2.5	1.89	51	5.5
BH 12	0	0	0	51	10	1.2	1.9	1.53	51	6.5
BH 13	0	0	0	51	10	1.1	1.9	1.47	51	5.2
BH 15	0	0	0	51	1	1.1	2	1.44	51	8.3
BH 16	0	0	0	51	1	1	2.3	1.66	51	3
BH 22	0.1	0.3	0.12	51	1.6	1.1	2.4	1.49	51	3.1

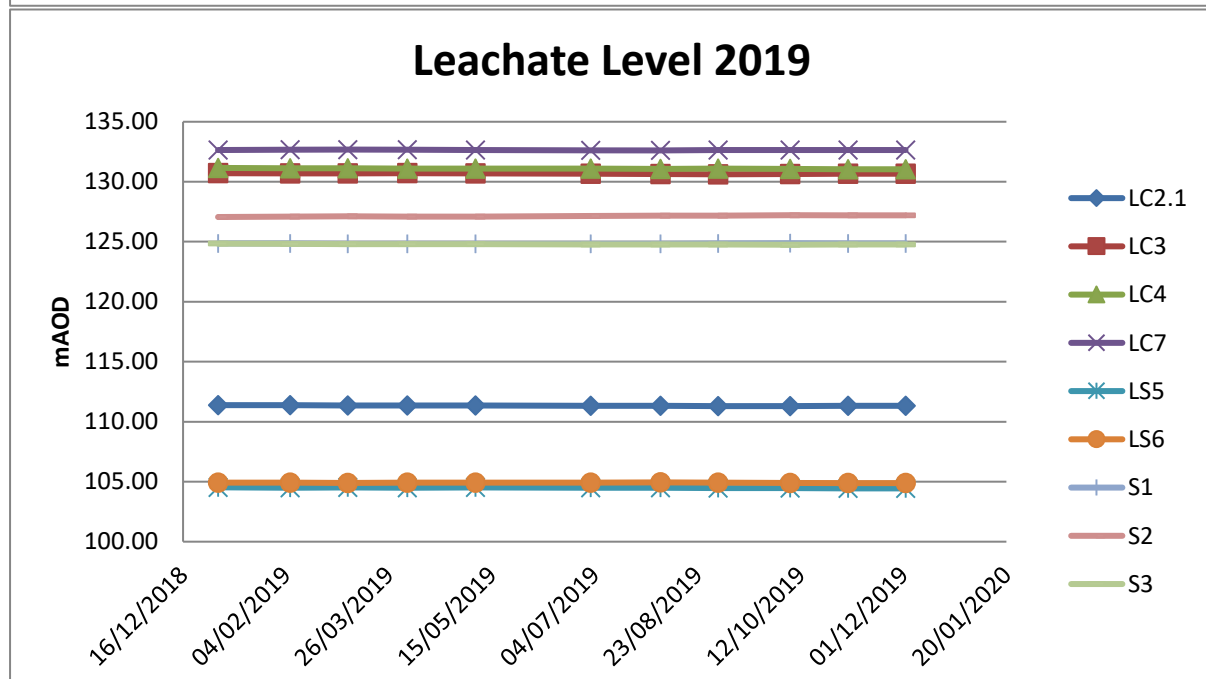
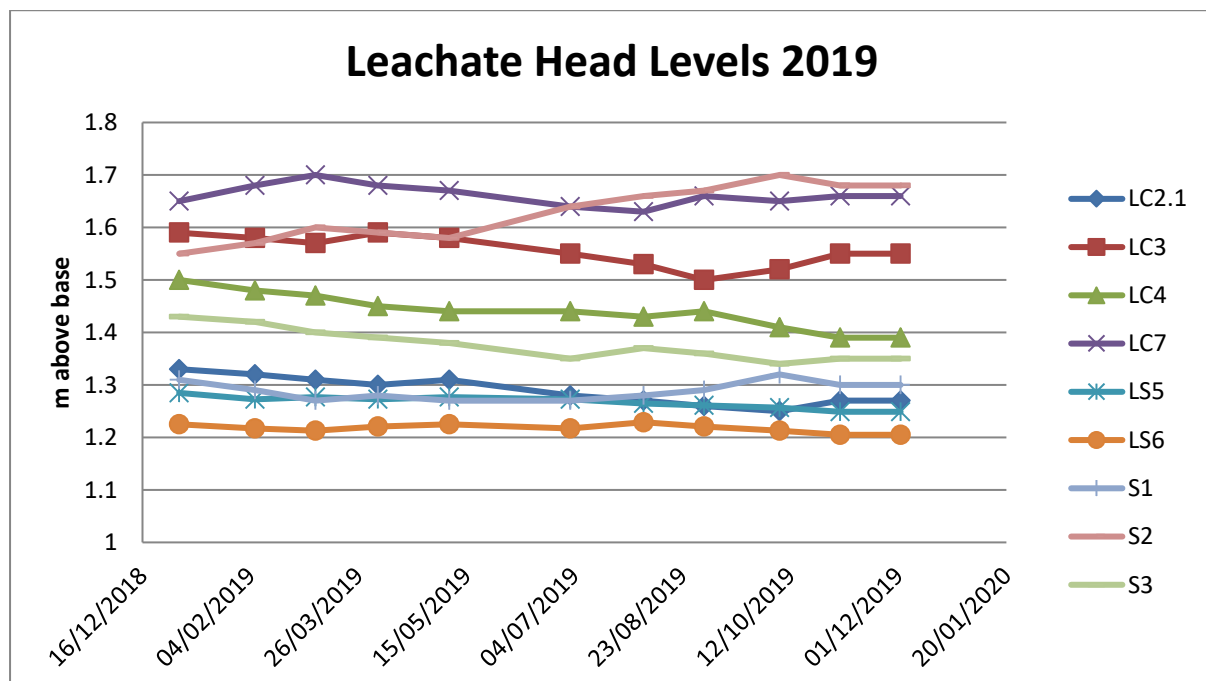


Appendix 2

APPENDIX 2 - LEACHATE

Table 1: Leachate Levels

Location	Leachate head (m above cell base)		
	Min	Max	Average
LC2.1	1.25	1.33	1.29
LC3	1.50	1.59	1.56
LC4	1.39	1.50	1.44
LC7	1.63	1.70	1.66
LS5	1.25	1.28	1.27
LS6	1.20	1.23	1.22
S1	1.27	1.32	1.29
S2	1.55	1.70	1.63
S3	1.34	1.43	1.38



APPENDIX 2 - LEACHATE

Table 2 – Quarterly Leachate monitoring data

ID	Date Sampled	Alkalinity, Total as CaCO ₃ (mg/L)	Ammoniacal Nitrogen as N (mg/L)	Ammoniacal Nitrogen as NH ₄ (mg/L)	BOD, unfiltered (mg/L)	Chloride (mg/L)	Chlorine, Total (Residual) (mg/L)	COD, unfiltered (mg/L)
LC2.1	Min	2940	579	744	50.6	689	0.2	690
	Max	6310	610	1630	572	1650	1.6	1810
	Average	4608.0	594.0	1107	217.20	1156	0.9	1518.0
LC3	Min	740	105	53.6	<5	84.1	0.02	83.9
	Max	7560	891	1150	134	1260	0.8	1340
	Average	3505	498	592.20	73	690.3	0.29	654.5
LC4	Min	1330	187	240	<50	276	0.2	436
	Max	4300	698	1040	85.1	1280	1	1320
	Average	3380	442.0	762.0	70	1006.0	0.6	942.0
LC7	Min	2150	382	491	171	496	0.8	938
	Max	7530	1420	1920	250	2100	2	2840
	Average	4622.0	901	1244	200	1278.0	1.2	1792.0
S1	Min	515	359	19.8	<2.32	45.1	0.02	52.9
	Max	4480	533	858	100	1020	1	998
	Average	2846	446	506.2	<49.23	630	0.500	571
S2	Min	530	716	26.2	<3.49	65.5	0.04	56.2
	Max	4700	860	1110	230	1260	1.4	2210
	Average	3095	788	665.8	102.62	754.4	0.480	1234.00
S3	Min	3580	665	855	60.2	905	0.8	1000
	Max	6770	910	1790	489	1620	2.1	2390
	Average	4768.0	788.0	1186.0	213.00	1234	1.3	1575
SSR5	Min	3920	763	914	65.2	1040	0.4	1060
	Max	4240	785	1010	312	1200	0.8	2180
	Average	4120	774	979	132.3	1132.0	0.5	1362.0
SSR6	Min	4400	1010	1060	116	1270	0.06	1160
	Max	5770	1050	1390	126	1550	1.5	1580
	Average	5302.0	1030	1275	119	1440	0.69	1462.0

APPENDIX 2 - LEACHATE

ID	Date Sampled	Conductivity @ 20 deg.C (mS/cm)	pH	Total Oxidised Nitrogen as N (mg/L)	Total Oxidised Nitrogen as NO3 (mg/L)	Magnesium (Dis.Filt) (mg/L)	Potassium (Dis.Filt) (mg/L)	Sodium (Dis.Filt) (mg/L)
LC2.1	Min	6.63	7.73	<0.282	<1.5	0.918	3.84	7.95
	Max	13.3	7.97	<0.5	<1.5	75.5	644	1440
	Average	10.14	7.84	<0.4460	<1.5	54.6040	374.71	862.74
LC3	Min	1.55	7.22	<0.1	<0.482	46.3	27.5	65.9
	Max	10.7	8.03	<0.5	<1.5	84.7	468	1050
	Average	6.040	7.8	<0.3	<0.991	64.3	250.20	566
LC4	Min	3.19	7.63	<0.1	<0.38	57.6	115	227
	Max	10.1	7.95	0.64	<1.5	88.9	473	1090
	Average	8.08	7.78	<0.4	<0.94	75.00	352	815
LC7	Min	4.73	7.44	<0.2	<1.5	62	229	453
	Max	16.6	8.23	<0.5	<1.5	96	728	1890
	Average	10.420	7.88	<0.4	<1.5	76	446.0	1095
S1	Min	1.29	7.18	<0.188	<1.5	34	14.1	35.7
	Max	9.12	7.86	16.1	71.3	83.3	404	877
	Average	6.05	7.6	4.4260	36.4	60	235	510.7
S2	Min	1.74	7.51	<0.11	<1.5	52.9	21	61.4
	Max	10.6	8.19	1.12	4.96	73.6	440	962
	Average	7.13	7.760	0.56	3.2	62.4	280	617.6
S3	Min	7.89	7.67	<0.202	<1.5	64.2	313	695
	Max	14.4	8.3	<0.5	<1.5	85.6	668	1530
	Average	10.600	7.92	<0.4260	<1.5	72.2	454.0	1026.0
SSR5	Min	9.27	7.69	<0.164	<0.727	71.7	361	872
	Max	9.71	8.1	15	66.3	84.7	428	1000
	Average	9.540	7.87	4.324	33.5140	78.3	398	927
SSR6	Min	10	7.69	0.683	64.2	70.6	437	981
	Max	13.3	8.15	125	555	95.4	572	1440
	Average	12	7.83	35.586	309.6	83.6	514	1303

APPENDIX 3 – LEACHATE

Table 4 – Quarter 4 Annual Hazardous Substances Leachate monitoring data (detected substances highlighted)

Laboratory data		LC2	LC3	LC4	LC7	S1	S2	S3	SSR5	SSR6
Inorganics										
Cyanide, Free	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cyanide, Total	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Filtered (Dissolved) Metals										
Cadmium (diss.filt)	mg/l	<0.0008	<0.00008	<0.0008	<0.0008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008
Mercury (diss.filt)	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Mineral Oil / Oils & Greases										
Mineral oil >C10 C40 (aq)	mg/l	0.193	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.117
Semi-Volatile Organic Compounds (SVOCs)										
1,2,4-Trichlorobenzene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
1,2-Dichlorobenzene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
1,3-Dichlorobenzene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
1,4-Dichlorobenzene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
2,4,5-Trichlorophenol (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
2,4,6-Trichlorophenol (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
2,4-Dichlorophenol (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
2,4-Dimethylphenol (aq)	mg/l	0.0125	<0.002	0.0183	0.00654	<0.001	<0.001	<0.002	<0.008	<0.004
2,4-Dinitrotoluene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
2,6-Dinitrotoluene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
2-Chloronaphthalene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
2-Chlorophenol (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
2-Methylnaphthalene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
2-Methylphenol (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
2-Nitroaniline (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
2-Nitrophenol (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
3-Nitroaniline (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
4-Bromophenylphenylether (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004

APPENDIX 3 – LEACHATE

Laboratory data		LC2	LC3	LC4	LC7	S1	S2	S3	SSR5	SSR6
4-Chloro-3-methylphenol (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
4-Chloroaniline (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
4-Chlorophenylphenylether (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
4-Methylphenol (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
4-Nitroaniline (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
4-Nitrophenol (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Acenaphthene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Acenaphthylene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Anthracene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Azobenzene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Benzo(a)anthracene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Benzo(a)pyrene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Benzo(b)fluoranthene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Benzo(g,h,i)perylene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Benzo(k)fluoranthene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
bis(2-Chloroethoxy)methane (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
bis(2-Chloroethyl)ether (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
bis(2-Ethylhexyl) phthalate (aq)	mg/l	0.0211	<0.004	<0.02	<0.008	<0.002	<0.002	<0.004	<0.016	<0.008
Butylbenzyl phthalate (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Carbazole (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Chrysene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Dibenzo(a,h)anthracene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Dibenzofuran (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Diethyl phthalate (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Dimethyl phthalate (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Fluoranthene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Fluorene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Hexachlorobenzene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004

APPENDIX 3 – LEACHATE

Laboratory data		LC2	LC3	LC4	LC7	S1	S2	S3	SSR5	SSR6
Hexachlorobutadiene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Hexachlorocyclopentadiene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Hexachloroethane (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Indeno(1,2,3-cd)pyrene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Isophorone (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Naphthalene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
n-Dibutyl phthalate (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
n-Dioctyl phthalate (aq)	mg/l	<0.04	<0.01	<0.05	<0.02	<0.005	<0.005	<0.01	<0.04	<0.02
Nitrobenzene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
n-Nitroso-n-dipropylamine (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Pentachlorophenol (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Phenanthrene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Phenol (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Pyrene (aq)	mg/l	<0.008	<0.002	<0.01	<0.004	<0.001	<0.001	<0.002	<0.008	<0.004
Volatile Organic Compounds (VOCs)										
1,1,1,2-Tetrachloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichloropropane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,4-Trichlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,4-Trimethylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-chloropropane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromoethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

APPENDIX 3 – LEACHATE

Laboratory data		LC2	LC3	LC4	LC7	S1	S2	S3	SSR5	SSR6
1,2-Dichlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloropropane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trichlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene	mg/l	0.00135	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00106	0.00121
1,3-Dichlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	mg/l	0.00167	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.00182	0.0015
2,2-Dichloropropane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Chlorotoluene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-Bromofluorobenzene**	%	97	98.5	95	96	97.4	97.2	98.4	96.3	96.3
4-Chlorotoluene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-iso-Propyltoluene	mg/l	0.00178	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzene	mg/l	0.00171	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00135	<0.001
Bromobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromochloromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromodichloromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromoform	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromomethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon disulphide	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbontetrachloride	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene	mg/l	0.00277	0.00112	<0.001	<0.001	<0.001	<0.001	<0.001	0.00183	<0.001
Chloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroform	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,3-Dichloropropene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibromochloromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

APPENDIX 3 – LEACHATE

Laboratory data		LC2	LC3	LC4	LC7	S1	S2	S3	SSR5	SSR6
Dibromofluoromethane**	%	107	114	106	110	109	108	109	109	105
Dibromomethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichlorodifluoromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichloromethane	mg/l	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Ethylbenzene	mg/l	0.00245	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Hexachlorobutadiene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Isopropylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylene	mg/l	0.0031	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Methyl tertiary butyl ether (MTBE)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Naphthalene	mg/l	0.00843	<0.001	0.00135	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
n-Butylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o-Xylene	mg/l	0.00506	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0053	0.00392
Propylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
sec-Butylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Styrene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
tert-Amyl methyl ether (TAME)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
tert-Butylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloroethene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	mg/l	0.00257	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0012	<0.001
Toluene-d8**	%	97	97.9	96.4	96.7	97.2	98.2	99	98.6	98.3
trans-1,2-Dichloroethene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,3-Dichloropropene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorofluoromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl chloride	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Combined Pesticides / Herbicides										
Aldrin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
alpha-HCH	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001

APPENDIX 3 – LEACHATE

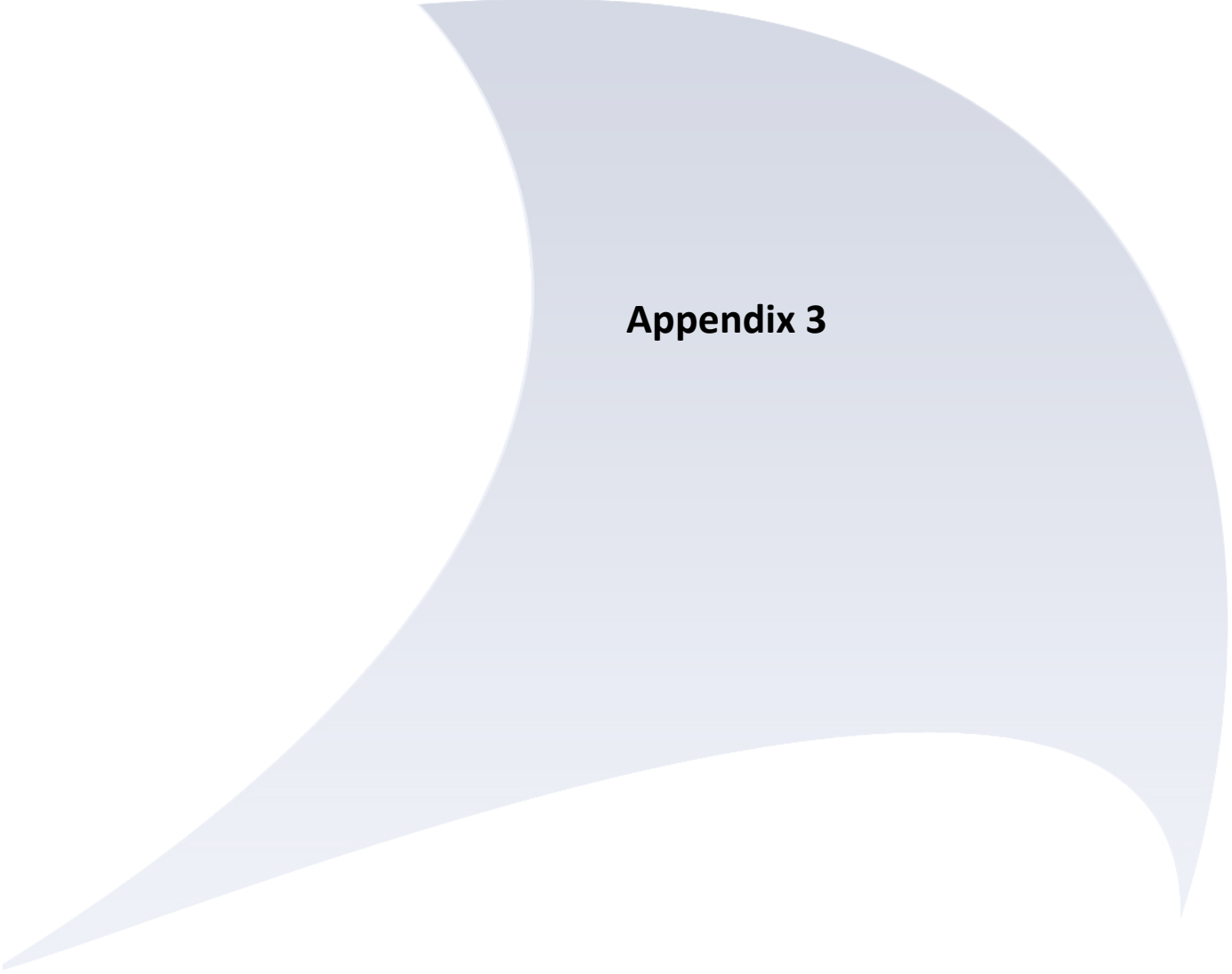
Laboratory data		LC2	LC3	LC4	LC7	S1	S2	S3	SSR5	SSR6
Atrazine	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Azinphos ethyl	mg/l	<0.00004	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Azinphos methyl	mg/l	<0.00004	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006
beta-HCH	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Carbophenothion	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chlorfenvinphos	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chlorothalonil	mg/l	<0.00002	<0.00001	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
Chlorpyrifos	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chlorpyrifos-methyl	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
cis-Chlordane	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Diazinon	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dichlorvos	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dieldrin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dimethoate	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Disulfoton	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Endosulphan I	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Endosulphan II	mg/l	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Endosulphan Sulphate	mg/l	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Endrin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Ethion	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Etrimphos	mg/l	<0.00002	<0.00001	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
Fenitrothion	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Fenthion	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
gamma-HCH (Lindane)	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Heptachlor	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Heptachlor epoxide	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Hexachlorobenzene	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Isodrin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001

APPENDIX 3 – LEACHATE

Laboratory data		LC2	LC3	LC4	LC7	S1	S2	S3	SSR5	SSR6
Malathion	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Methyl Parathion	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Mevinphos	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
o,p'-DDD (TDE)	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
o,p'-DDE	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
o,p'-DDT	mg/l	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
p,p'-DDD (TDE)	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
p,p'-DDE	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
p,p'-DDT	mg/l	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
p,p'-Methoxychlor	mg/l	0.00027	<0.00002	<0.00001	<0.00002	<0.00002	<0.00002	0.000023	0.000216	0.000117
Parathion	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Pendimethalin	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Permethrin I	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Permethrin II	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Phosalone	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Pirimiphos-methyl	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Propetamphos	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Quintozone (PCNB)	mg/l	<0.00002	<0.00001	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
Simazine	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Tecnazene	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Telodrin	mg/l	<0.00002	<0.00001	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
trans-Chlordane	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Triadimefon	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Triallate	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Triazophos	mg/l	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Trifluralin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Miscellaneous Organics										
Dibutyl tin	mg/l	<0.00005	<0.000005	<0.00005	<0.00005	<0.000005	<0.000005	<0.000015	<0.00005	<0.00005

APPENDIX 3 – LEACHATE

Laboratory data		LC2	LC3	LC4	LC7	S1	S2	S3	SSR5	SSR6
Surrogate	%	54.9	69.2	58.6	55.4	85.5	56.5	52.7	57.6	52.2
Tetrabutyl tin	mg/l	<0.00002	<0.000002	<0.00002	<0.00002	<0.000002	<0.000002	<0.000006	<0.00002	<0.00002
Tributyl tin	mg/l	<0.00001	<0.000001	<0.00001	<0.00001	<0.000001	<0.000001	<0.000003	<0.00001	<0.00001
Triphenyl tin	mg/l	<0.00001	<0.000001	<0.00001	<0.00001	<0.000001	<0.000001	<0.000003	<0.00001	<0.00001

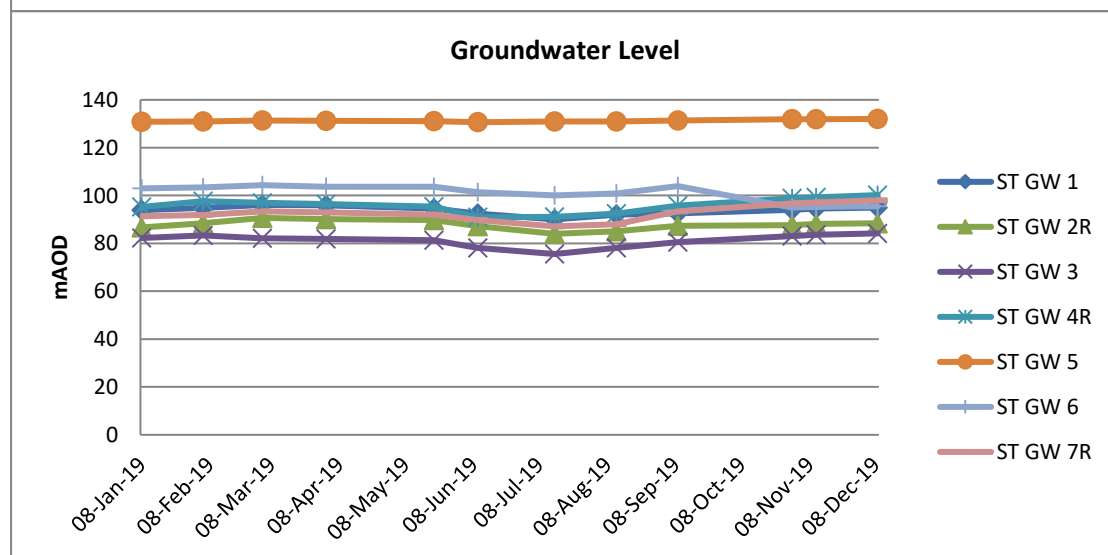
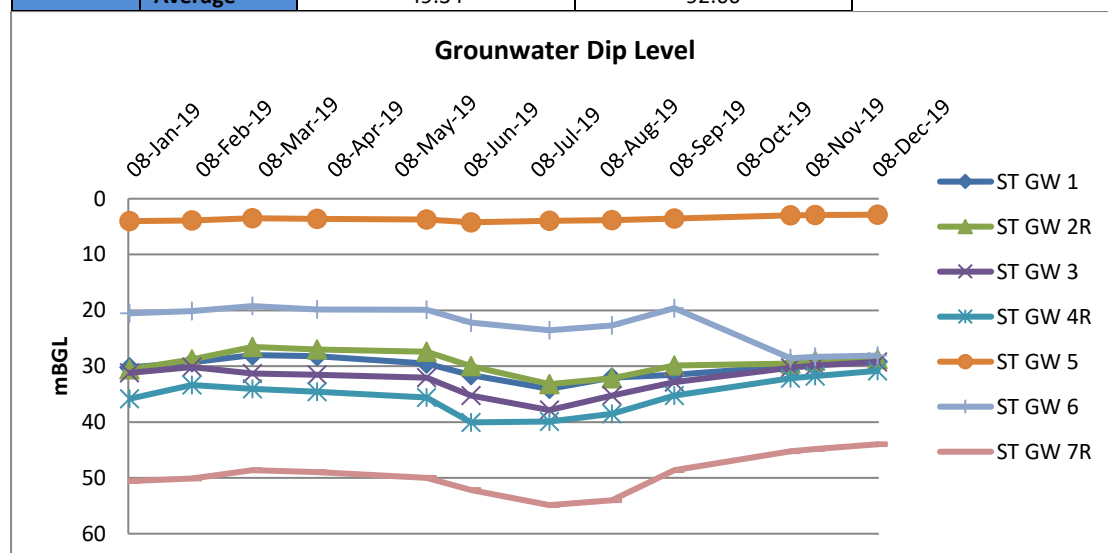


Appendix 3

APPENDIX 3 - GROUNDWATER

Table 1: Groundwater Levels

Location	Data	Dip Level (mBGL)	GW Level (mAOD)
GW 1	Minimum	28.01	90.02
	Maximum	34.06	96.07
	Average	30.27	93.81
GW 2R	Minimum	26.55	84.00
	Maximum	33.21	90.66
	Average	29.41	87.80
GW 3	Minimum	29.23	75.56
	Maximum	37.86	84.19
	Average	32.25	81.17
GW 4R	Minimum	30.82	90.94
	Maximum	40.06	100.18
	Average	35.17	95.83
GW 5	Minimum	2.86	130.64
	Maximum	4.22	132.00
	Average	3.58	131.28
GW 6	Minimum	19.23	95.00
	Maximum	28.57	104.34
	Average	22.72	100.85
GW 7R	Minimum	43.98	87.12
	Maximum	54.88	98.02
	Average	49.34	92.66



APPENDIX 3 - GROUNDWATER**Table 2 – Quarterly monitoring data summary**

ID	Date Sampled	Alkalinity, Total as CaCO ₃ (mg/L)	Ammoniacal Nitrogen as N (mg/L)	Ammoniacal Nitrogen as NH ₄ (mg/L)	Arsenic (tot.unfilt) (mg/L)	BOD, unfiltered (mg/L)	Cadmium (tot.unfilt) (mg/L)	Calcium (Tot. Unfilt.) (mg/L)	Chloride (mg/L)	Chlorine, Total (Residual) (mg/L)	COD, unfiltered (mg/L)
GW1	Min	92.2	<0.2	<0.3	<0.00274	<2.03	<0.0005	57.1	50.6	<0.01	179
	Max	115	<0.2	<0.3	2.08	3.68	<0.003	67.3	52.6	<0.01	700
	Average	104.7	<0.2	<0.3	<0.69825	<2.9	<0.0013	61.2	51.4	<0.01	368
GW2R	Min	45.7	<0.2	<0.3	<0.012	<1	<0.0005	56.2	50.9	<0.01	31.7
	Max	95	<0.2	<0.3	<2	<3	<0.003	61.8	56.6	<0.01	214
	Average	77.9	<0.2	<0.3	<0.728	<2	<0.0013	58.4	53.7	<0.01	120.2
Compliance Limit		-	-	6.4	6.4	-	-	-	-	-	-
GW3	Min	200	0.402	0.517	<0.002	<1	<0.0005	80.9	52.3	<0.01	29
	Max	266	1.24	1.59	<2	3.67	<0.0005	97	57.1	<0.01	61
	Average	225	0.691	0.887	<0.668	<3	<0.0005	90.2	54.9	<0.01	40
Compliance Limit		-	-	6.4	6.4	-	-	-	-	-	-
GW4R	Min	104	<0.2	<0.3	<0.002	<1	<0.0005	86.2	26.2	<0.01	25.7
	Max	226	2.44	3.14	<2	<2.82	0.00847	123	79.5	<0.01	165
	Average	162	1	1.3	<0.672	<2	0.0033	101.5	55	<0.01	73.8
GW5	Min	274	4.09	5.26	<0.308	<1.5	<0.0005	95.2	11.3	0.4	290
	Max	315	5.33	6.85	55.1	9.05	<0.003	120	20.8	0.8	754
	Average	289	4.86	6.25	18.588	4.2	<0.0014	107.1	16.00	0.6	510
Compliance Limit		-	-	6.4	6.4	-	-	-	-	-	-
GW6	Min	6	3.1	3.99	<0.002	<1	<0.00214	83.1	45.1	<0.01	48.2
	Max	32.5	6.03	7.75	<2	<1	<0.00277	91.3	68	<0.01	134
	Average	19	4.4	5.6	<0.668	<1	<0.0024	87.7	56.8	<0.01	84.6
Compliance Limit		-	-	6.4	6.4	-	-	-	-	-	-
GW7	Min	158	<0.2	<0.3	<0.012	<1	<0.0005	66.7	53.3	<0.01	8.95
	Max	270	1.08	1.39	2.2	12.5	<0.003	84.9	59.9	0.05	221
	Average	199	0.7	1	<0.746	6	<0.0016	74.6	56.6	0.02	80.88

APPENDIX 3 - GROUNDWATER

ID	Date Sampled	Copper (tot.unfilt) (mg/L)	Cresols (mg/L)	Cyanide, Total (mg/L)	Iron (Dis.Filt) (mg/L)	Lead (tot.unfilt) (µg/L)	Magnesium (Dis.Filt) (mg/L)	Mercury (tot.unfilt) (mg/L)	Nickel (tot.unfilt) (µg/L)	Nitrate as NO3 (mg/L)	Nitrite as NO2 (mg/L)
GW1	Min	0.00858	<0.006	<0.05	<0.019	<3.44	26.5	0.000344	4	0.749	<0.0152
	Max	0.0206	<0.006	<0.05	0.0958	<6	28.9	0.0589	11.1	3.32	<0.0152
	Average	0.01659	<0.006	<0.05	0.045	<5.03	27.4	0.029281	8	1.609	<0.0152
GW2R	Min	0.00158	<0.006	<0.05	<0.019	<1.25	27.2	4.2E-05	1.7	0.669	<0.0152
	Max	0.0192	<0.006	<0.05	0.291	<6	29.1	0.00221	67.2	4.91	<0.0152
	Average	0.00991	<0.006	<0.05	0.143	<3.68	28.2	0.00102	25.9	2.117	<0.0152
GW3	Min	<0.001	<0.006	<0.05	<0.019	<1.01	38.7	<2E-05	1.52	0.242	<0.0152
	Max	0.00678	<0.006	<0.05	<0.019	<4.18	40.7	7.1E-05	6.17	2.08	<0.0152
	Average	0.003	<0.006	<0.05	<0.019	<2.13	39.6	0.000037	3.13	0.934	<0.0152
GW4R	Min	<0.001	<0.006	<0.05	0.0199	<2.32	31.1	<2E-05	26.9	0.189	<0.0152
	Max	0.0637	<0.006	<0.05	0.722	93.6	39.8	4.8E-05	516	29.8	<0.0152
	Average	0.023	<0.006	<0.05	0.2581	32.77	34.7	2.93E-05	210.4	10.071	<0.0152
GW5	Min	0.00753	<0.006	<0.05	1	13.5	10.6	<2E-05	13.4	<0.0677	<0.0152
	Max	0.0698	<0.006	<0.05	34.7	102	20.8	8.2E-05	43.8	<0.0677	<0.0152
	Average	0.03471	<0.006	<0.05	15	54.9	14.1	4.43E-05	27	<0.0677	<0.0152
GW6	Min	0.0035	<0.006	<0.05	<0.019	<1.86	33.5	<2E-05	67.4	10.6	<0.0152
	Max	0.0106	<0.006	<0.05	0.0349	8.54	37.7	4.7E-05	84.4	92.8	<0.0152
	Average	0.0073	<0.006	<0.05	0.024	<5.51	35.3	0.000029	74.7	40	<0.0152
GW7	Min	0.00629	<0.006	<0.05	<0.019	10.4	15.8	<2E-05	11.4	<0.0677	<0.0152
	Max	0.0497	<0.006	<0.05	6.76	38.4	31.6	0.0572	22.1	0.778	<0.0152
	Average	0.02716	<0.006	<0.05	2.293	21.1	24.7	0.01908	16.3	0.42280	<0.0152

APPENDIX 3 - GROUNDWATER

ID	Date Sampled	Organic Carbon, Total (mg/L)	pH (pH Units)	Phenol (mg/L)	Phenols, Total Detected monohydric (mg/L)	Potassium (Dis.Filt) (mg/L)	Sodium (Dis.Filt) (mg/L)	Sulphate (mg/L)	Total Oxidised Nitrogen as NO3 (mg/L)	Xylenols (mg/L)	Zinc (tot.unfilt) (mg/L)
GW1	Min	43.9	6.04	<0.025	<0.016	10.5	28.3	204	0.753	<0.008	0.0898
	Max	56.7	6.71	<0.025	<0.016	11.1	30.8	210	0.762	<0.008	0.3350
	Average	48.5	6.31	<0.025	<0.016	10.8	29.6	208	0.7580	<0.008	0.2026
GW2R	Min	7.53	6.15	<0.025	<0.016	8.99	28.8	173	0.773	<0.008	0.0392
	Max	42.8	6.39	<0.025	<0.016	11.2	35.4	213	1.11	<0.008	0.2470
	Average	29.08	6.28	<0.025	<0.016	10.2	31.7	198	0.9420	<0.008	0.1147
GW3	Min	4.04	6.44	<0.025	<0.016	8.45	46.9	185	0.475	<0.008	0.0319
	Max	6.24	8.21	<0.025	<0.016	12.4	60.4	225	0.484	<0.008	0.0889
	Average	5.08	7.32	<0.025	<0.016	10.38	51.5	210	0.4800	<0.008	0.0586
GW4R	Min	6.39	6.56	<0.025	<0.016	8.6	21.8	227	0.23	<0.008	0.0986
	Max	29.6	6.84	<0.025	<0.016	15.7	56.2	275	6.74	<0.008	0.6170
	Average	14.19	6.71	<0.025	<0.016	11.2	39.9	244	3.480	<0.008	0.2819
GW5	Min	6.09	6.78	<0.025	-	7.22	12.4	65.8	<0.1	<0.008	0.1160
	Max	61.7	7.85	<0.025	-	10.6	23.1	120	<0.1	<0.008	0.2530
	Average	38.46	7.14	<0.025	-	8.58	17.2	92.9	<0.1	<0.008	0.2020
GW6	Min	10.4	5.65	<0.025	<0.016	19.3	52.5	349	10.6	<0.008	0.1100
	Max	11.3	7.04	<0.025	<0.016	26.4	72.6	426	21	<0.008	0.1320
	Average	10.9	6.12	<0.025	<0.016	23	63.9	380	15.8	<0.008	0.1200
GW7	Min	5.18	6.35	<0.025	<0.016	9.82	28.2	102	0.775	<0.008	0.0894
	Max	72.1	7.35	0.04	<0.016	13.4	81.6	215	0.775	<0.008	0.5260
	Average	31.19	6.93	0.0320	<0.016	11.17	53	158.0	0.775	<0.008	0.3165

APPENDIX 3 - GROUNDWATER**Table 3 - Q4 Annual hazardous substances data (detected substances highlighted)**

Laboratory data		GW1	GW2R	GW3	GW4R	GW5	GW6	GW7
Inorganics								
Cyanide, Free	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cyanide, Total	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Filtered (Dissolved) Metals								
Cadmium (diss.filt)	mg/l	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	0.00193	<0.00008
Mercury (diss.filt)	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001
Phenols								
2,3,5-Trimethylphenol	mg/l	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
2-Isopropylphenol	mg/l	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Cresols	mg/l	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Phenol	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Phenols, Total Detected 5 speciated	mg/l	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Xylenols	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Mineral Oil / Oils & Greases								
Mineral oil >C10 C40 (aq)	mg/l	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1
Semi-Volatile Organic Compounds (SVOCs)								
1,2,4-Trichlorobenzene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
1,2-Dichlorobenzene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
1,3-Dichlorobenzene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
1,4-Dichlorobenzene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2,4,5-Trichlorophenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2,4,6-Trichlorophenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2,4-Dichlorophenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2,4-Dimethylphenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2,4-Dinitrotoluene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2,6-Dinitrotoluene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2-Chloronaphthalene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2-Chlorophenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2-Methylnaphthalene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2-Methylphenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2-Nitroaniline (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
2-Nitrophenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01

APPENDIX 3 - GROUNDWATER

Laboratory data		GW1	GW2R	GW3	GW4R	GW5	GW6	GW7
3-Nitroaniline (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
4-Bromophenylphenylether (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
4-Chloro-3-methylphenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
4-Chloroaniline (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
4-Chlorophenylphenylether (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
4-Methylphenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
4-Nitroaniline (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
4-Nitrophenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Acenaphthene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Acenaphthylene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Anthracene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Azobenzene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Benzo(a)anthracene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Benzo(a)pyrene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Benzo(b)fluoranthene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Benzo(g,h,i)perylene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Benzo(k)fluoranthene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
bis(2-Chloroethoxy)methane (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
bis(2-Chloroethyl)ether (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
bis(2-Ethylhexyl) phthalate (aq)	mg/l	<0.02	<0.016	<0.008	<0.008	<0.016	<0.004	<0.02
Butylbenzyl phthalate (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Carbazole (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Chrysene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Dibenzo(a,h)anthracene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Dibenzofuran (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Diethyl phthalate (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Dimethyl phthalate (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Fluoranthene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Fluorene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Hexachlorobenzene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Hexachlorobutadiene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Hexachlorocyclopentadiene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Hexachloroethane (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Indeno(1,2,3-cd)pyrene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01

APPENDIX 3 - GROUNDWATER

Laboratory data		GW1	GW2R	GW3	GW4R	GW5	GW6	GW7
Isophorone (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Naphthalene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
n-Dibutyl phthalate (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
n-Dioctyl phthalate (aq)	mg/l	<0.05	<0.04	<0.02	<0.02	<0.04	<0.01	<0.05
Nitrobenzene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
n-Nitroso-n-dipropylamine (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Pentachlorophenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Phenanthrene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Phenol (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Pyrene (aq)	mg/l	<0.01	<0.008	<0.004	<0.004	<0.008	<0.002	<0.01
Volatile Organic Compounds (VOCs)								
1,1,1,2-Tetrachloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloropropene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,3-Trichloropropane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,4-Trichlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,4-Trimethylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromo-3-chloropropane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dibromoethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloropropane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trichlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3,5-Trimethylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichloropropane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,2-Dichloropropane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Chlorotoluene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

APPENDIX 3 - GROUNDWATER

Laboratory data		GW1	GW2R	GW3	GW4R	GW5	GW6	GW7
4-Bromofluorobenzene**	%	93.9	96.2	98.5	99.9	97.5	98.7	99.4
4-Chlorotoluene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4-iso-Propyltoluene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromochloromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromodichloromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromoform	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromomethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon disulphide	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbontetrachloride	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroform	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,3-Dichloropropene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibromochloromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibromofluoromethane**	%	115	112	113	108	110	107	111
Dibromomethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichlorodifluoromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichloromethane	mg/l	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Ethylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Hexachlorobutadiene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Isopropylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Methyl tertiary butyl ether (MTBE)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Naphthalene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
n-Butylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o-Xylene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Propylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
sec-Butylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Styrene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
tert-Amyl methyl ether (TAME)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

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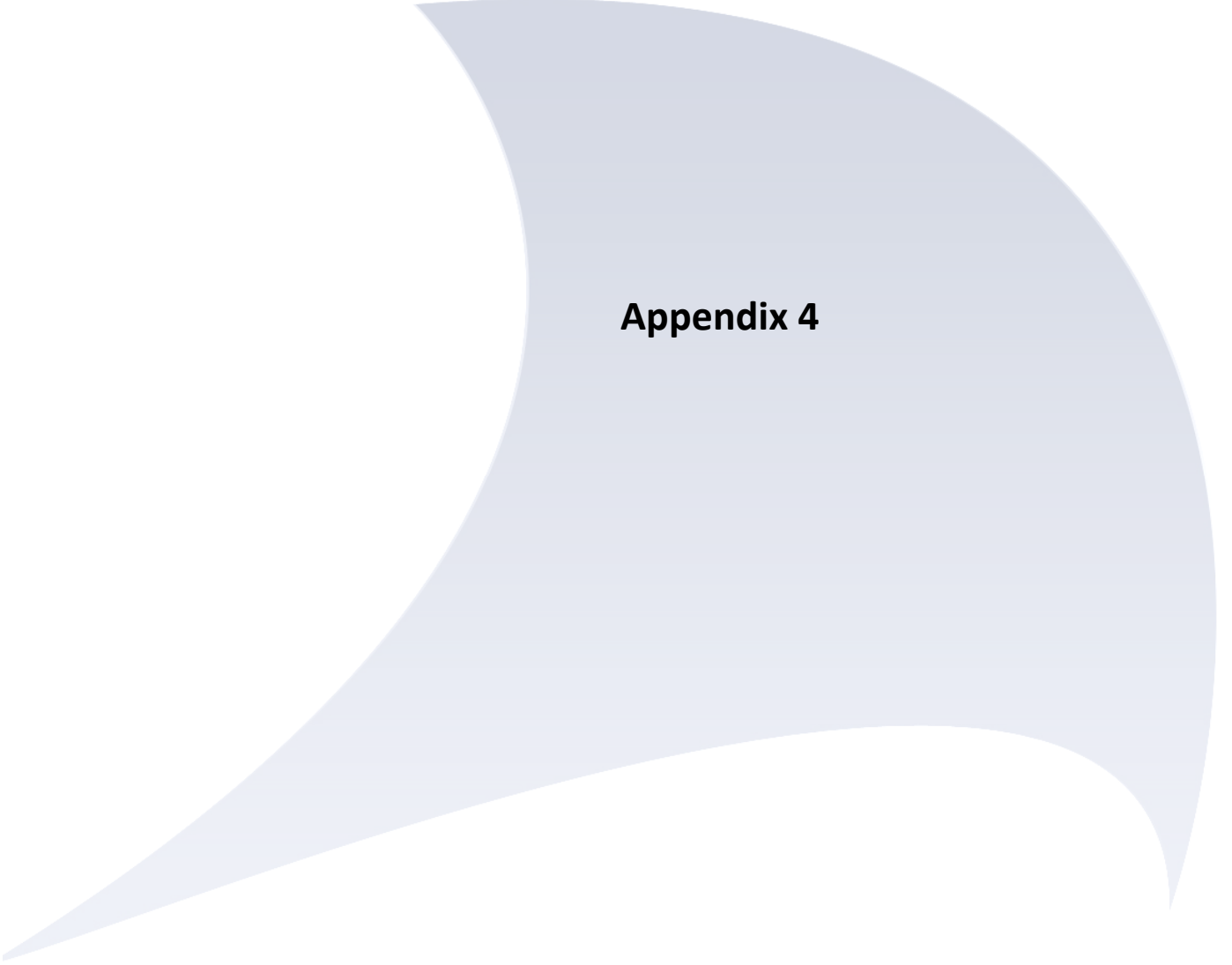
Laboratory data		GW1	GW2R	GW3	GW4R	GW5	GW6	GW7
tert-Butylbenzene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloroethene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene-d8**	%	98.3	97.6	98	99.2	98.6	98.7	98.9
trans-1,2-Dichloroethene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,3-Dichloropropene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorofluoromethane	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl chloride	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Combined Pesticides / Herbicides								
Aldrin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
alpha-HCH	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Atrazine	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Azinphos ethyl	mg/l	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
Azinphos methyl	mg/l	<0.00006	<0.00006	<0.00006	<0.00012	<0.00006	<0.00006	<0.00006
beta-HCH	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Carbophenothion	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chlorfenvinphos	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chlorothalonil	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chlorpyrifos	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chlorpyrifos-methyl	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
cis-Chlordane	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Diazinon	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dichlorvos	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dieldrin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dimethoate	mg/l	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001
Disulfoton	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Endosulphan I	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Endosulphan II	mg/l	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Endosulphan Sulphate	mg/l	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Endrin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Ethion	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Etrimphos	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Fenitrothion	mg/l	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001

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Laboratory data		GW1	GW2R	GW3	GW4R	GW5	GW6	GW7
Fenthion	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
gamma-HCH (Lindane)	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Heptachlor	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Heptachlor epoxide	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Hexachlorobenzene	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Isodrin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Malathion	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Methyl Parathion	mg/l	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001
Mevinphos	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
o,p'-DDD (TDE)	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
o,p'-DDE	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
o,p'-DDT	mg/l	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
p,p'-DDD (TDE)	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
p,p'-DDE	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
p,p'-DDT	mg/l	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
p,p'-Methoxychlor	mg/l	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Parathion	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Pendimethalin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Permethrin I	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Permethrin II	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Phosalone	mg/l	<0.00002	<0.00002	<0.00002	<0.00003	<0.00002	<0.00002	<0.00002
Pirimiphos-methyl	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Propetamphos	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Quintozone (PCNB)	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Simazine	mg/l	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	<0.00001	<0.00001
Tecnazene	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Telodrin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
trans-Chlordane	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Triadimefon	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Triallate	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Triazophos	mg/l	<0.00002	<0.00002	<0.00002	<0.00001	<0.00002	<0.00002	<0.00002
Trifluralin	mg/l	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Miscellaneous Organics								
Dibutyl tin	mg/l	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005

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Laboratory data		GW1	GW2R	GW3	GW4R	GW5	GW6	GW7
Surrogate	%	102	115	105	83.4	73.8	99.5	117
Tetrabutyl tin	mg/l	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002
Tributyl tin	mg/l	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001
Triphenyl tin	mg/l	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001



Appendix 4

APPENDIX 4 – SURFACE WATER**Table 1 – Quarterly monitoring data summary**

Sample Point		Alkalinity, Total as CaCO ₃	Ammoniacal Nitrogen as N	Ammoniacal Nitrogen as NH ₄	BOD, unfiltered	COD, unfiltered	Calcium (Tot. Unfilt.)	Chloride	Chlorine, Total (Residual)
SW4	Min	170	<0.2	<0.3	<1	13.8	75.6	24.1	<0.01
SW4	Max	245	1.59	2.04	2.01	36.3	135	181	<0.01
SW4	Ave	216	0.7	0.7	<1	22.7	115.9	74.9	<0.01
Compliance Limit		-	1	1	-	-	-	105	-
SW5	Min	95	<0.2	<0.3	<1	23.7	63.8	17.8	<0.01
SW5	Max	235	<0.2	<0.3	4.94	220	81.2	24.3	0.02
SW5	Ave	171	<0.2	<0.3	2	78.3	73.4	20.2	0.020
SW6	Min	75	<0.2	<0.3	3.12	23.7	62.4	17.4	<0.01
SW6	Max	175	<0.2	<0.3	6.64	249	73.5	24.4	0.02
SW6	Ave	125	<0.2	<0.3	4.88	136.40	68.00	20.9	0.020

Sample Point		Conductivity @ 20 deg.C	Iron (Dis.Filt)	Magnesium (Dis.Filt)	Nitrate as NO ₃	Potassium (Dis.Filt)	Sodium (Dis.Filt)	Sulphate	Total Oxidised Nitrogen as N	pH
SW4	Min	0.632	<0.019	17.3	<0.3	9.4	22.6	138	<0.1	8.03
SW4	Max	1.13	0.0828	32.9	22.7	22.6	108	192	5.16	8.47
SW4	Ave	0.843	0.036	22.00	14.4	14.5	50.9	170.0	3.3	8.18
Compliance Limit		-	-	-	-	-	-	-	-	-
SW5	Min	0.422	0.0548	13.9	<0.3	8.18	18.7	110	<0.1	7.42
SW5	Max	0.647	0.135	37.7	0.695	9.67	22.9	177	0.161	8.17
SW5	Ave	0.581	0.08520	28.2	0.4	9.12	20.9	138	<0.1	7.9
SW6	Min	0.388	0.0527	13.3	<0.3	8.03	18.4	108	<0.1	7.46
SW6	Max	0.647	0.0728	32.4	<0.3	9.47	22.9	173	<0.1	8.27
SW6	Ave	0.5180	0.06280	22.80	<0.3	8.75	20.60	140.0	<0.1	7.860



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