CAULMERT LIMITED

Engineering, Environmental & Planning
Consultancy Services

Bryn Posteg Landfill Site

Potters Waste Management

Annual Monitoring Review

January - December 2019

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DISCLAIMER

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1. INTRODUCTION

1.0 Background

1.1.1 This report has been compiled in compliance with the Environmental Permit (EP) BU7766, Variation Notice Number EPR/BU7766IC for Bryn Posteg Landfill Site, which requires that the monitoring data collected at the site is reviewed annually. The data reviewed by this report was collected from 1st January – 31st December 2019.

1.1.2 This document reports and reviews monitoring data for landfill gas, leachate, groundwater and surface water and discusses this data in relation to emission limits set in the latest EP variations. The report includes a summary of performance parameters including dust monitoring, topographic survey of the site and production and treatment figures for leachate and gas.

1.1.3 Third party information supplied by Potters Waste Management (Potters) has been used in good faith within this document. Caulmert Ltd has not attempted to verify the information.

1.1 Site Location and Surrounding Land-use

1.2.2 Bryn Posteg Landfill Site is located approximately 3 km south east of Llanidloes in Powys and is centered at National Grid Reference SN 971 822.

1.2.3 The landfill site was developed from the surface void of a former lead mine. Controlled landfilling has taken place since 1982.

1.2.4 The site is accessed via the B4518, Llanidloes to Tylwch road. The B4518 runs parallel with the western site boundary.

1.2.5 Bryn Posteg is situated amongst predominantly agricultural land. There are seven residential receptors located within approximately 450 m of the waste mass, these are:

- Valley View, 100 m to the north west;
- Rhoswen, 200 m to the east;
- Pant, 250 m to the east;
- Bryn Posteg Farm, 250 to the west;
- Penbryn Du, 300 m to the north
- Tawelfa, 300 m to the North
- Maes-Socyn, 350 m to the south-west
- Talcen-Llwydiarth, 450 m to the south-east

1.2 Environmental Context

Geology

1.2.1 According to ground investigations, the site is underlain by clay. The clay is predominantly grey, with various quantities of sand and mudstone gravel. This gravel is interpreted as being the weathering product of the underlying mudstone bedrock.

1.2.2 Geological maps indicated that the region is underlain by strata of the Upper Llandovery Groups of Silurain age. These strata comprise mudstone, slates and sandstones. There are a number of faults through the region, two of which underlie the site. One fault is oriented east-west across the north of the site and the other is oriented south-west to north-east, approximately along the stream on the south side of the site.

Hydrology

1.2.3 The site is within the catchment area of the River Severn. The Afon Dulas runs 3 km north-west of the site. Prior to development of this site the area was partly occupied by marshlands.

1.2.4 Due to the mining activities and later the landfilling activities at the site, the surface water regime around the site has been altered. Surface waters are discharged into the Nant-y-Bradnant to the east of the site and into the unnamed tributary of the Dulas on the western perimeter of the site.

Hydrogeology

1.2.5 The EA Groundwater Vulnerability Sheet No.20 indicates that the strata at the site are classified as a non-aquifer with negligible permeability. Groundwater is controlled by fracture flow within the Llandovery Mudstones.

2. LANDFILL GAS

2.1 In Waste Gas Monitoring Results

2.1.1 The gas collection system is monitored and balanced by Potters on a weekly basis. Concentrations of methane (CH_4) and carbon dioxide (CO_2) are measured alongside oxygen (O_2), carbon monoxide (CO), hydrogen sulphide (H_2S), relative pressure and atmospheric pressure are recorded at each of the 117 in waste gas collection points across the landfill. A summary table for in waste landfill gas concentrations is included in Appendix 2.

2.1.2 There were 615 occasions when the total gas detected was greater than 100 %, suggesting instrument error due to interference. The total reported gas concentration did not exceed 106%, and as such the results are considered suitable for assessment of the performance of the gas field and its management.

2.1.3 The majority of the locations had, on average, consistent methane and carbon dioxide concentrations with low oxygen, however, some locations have been identified where oxygen ingress is likely occurring. The following locations recorded an average oxygen concentrations above 5 % with fluctuations in methane and carbon dioxide: BPIW 0034, 0051, 0085, 0103, 0204, 046A, 208A and BPSP0001 (a sample point on the collection line).

2.1.4 Elevated carbon monoxide (CO) concentrations have been detected throughout the review period in several in-waste boreholes. The highest concentrations were detected in Phase 9D in the 300 series wells. Average carbon monoxide concentrations were over 100 ppm in BPIW0; 302, 303, 304, 307, 316, 317, 318, 319, 321 and 325. Concentrations were also greater than 100 ppm on average at BPIW040A, located in Phase 3B to the north of the site.

2.1.5 Carbon monoxide concentrations were discussed during a meeting with NRW previously (25th October 2018). It was agreed that the presence of high concentrations of volatile hydrocarbons may be affecting the CO detectors of the gas analyser, leading to anomalously high readings of CO. As discussed at the meeting, the LFGMP for the site proposes an action plan for verifying the CO results though checks of the other monitored parameters to confirm if the CO reading is likely to be genuine.

2.2 Perimeter Gas Monitoring Results

Overview

2.2.1 Routine landfill gas (LFG) monitoring around the site perimeter is carried out on a weekly basis at 36 boreholes. Concentrations of methane (CH_4) and carbon dioxide (CO_2) are measured alongside oxygen (O_2), carbon monoxide (CO), hydrogen sulphide (H_2S), relative pressure and atmospheric pressure, on each visit. Summary tables and time series graphs displaying landfill gas monitoring data collected during this period are included in Appendix 2.

South Western Boundary (G01 – G08)

2.2.2 Methane was detected during 2019 along the western boundary, at G01 (situated near the site entrance, furthest from the landfill), with concentrations fluctuating at similar concentrations detected here in the final quarter of 2018. A maximum methane concertation of 37.3 % was recorded on the 6th March, following which concentrations fluctuated before decreasing during June and July. Methane concentrations fluctuated for the remainder of 2019, with a final peak of 31.8 % detected on the 1st November. This location is situated near the site entrance, furthest from the landfill. Methane concentrations remained low at locations G02 – G08 along this section of the boundary during 2019, similarly to 2018.

2.2.3 Carbon dioxide concentrations fluctuated, exceeding the compliance limit of 1.5 % on occasion at each location, with the exception of G02. The highest averages were recorded at G01 and G03 (2.6 % and 1.7 % respectively). At G01 Carbon dioxide concentrations did follow the same trend as methane, however, the average concentration at G01 has increased in comparison to 2018. At G01 oxygen concentrations were also significantly lower, with an average of 5.5 % for G01 in 2019.

2.2.4 Carbon monoxide and hydrogen sulphide were mostly undetected along this boundary, with maxima of 13 ppm and 1 ppm respectively.

2.2.5 To decrease any risk of gas migration from occurring, gas extraction from the closest Phase, Phase 9D, continues to be optimized.

South Eastern and Eastern Boundaries (G09 – G18)

2.2.6 Location G12 continued to display elevated concentrations of methane and carbon dioxide during 2019. Methane fluctuated throughout the year, with the biggest ranges recorded in the final quarter of 2019. Average methane was 58.5 %, while average carbon dioxide was 4.1 %. Carbon monoxide was detected in low concentrations at G12, with a maximum of 20 ppm. Hydrogen sulphide concentrations also remained low, with a maximum concentration of 3 ppm.

2.2.7 All other locations along this boundary contained low methane concentrations, below the compliance limit. Carbon dioxide concentrations were frequently above the compliance limit at G10, G11, G12, G14, G15 and G18, and typically at background concentrations at the remaining locations throughout 2019.

2.2.8 Concentrations along this flank will be monitored alongside improvements in gas and leachate extraction from the waste mass at Phase 9B. Leachate extraction infrastructure improvements were carried out in 2019, as detailed in the CQA Report (3997-CAU-XX-XX-RP-V-0303-A0.C2). These works are anticipated to benefit both the leachate and gas extraction efficiencies in this area.

North Eastern Boundary (G19 – G25)

2.2.9 This area of the site has historically experienced elevated landfill gas concentrations in the perimeter monitoring boreholes. Average methane concentrations were above 60 % in G22. Average concentrations in the remaining boreholes ranged from 5.1 % to 57.5 % in G23 and G19 respectively. CO_2 concentrations were similarly elevated, near 20 % where methane was over 60 % and between 6.7 % and 19.2 % in the remaining boreholes.

2.2.10 Carbon monoxide was detected at these locations, however concentrations have decreased on average. The highest concentrations were detected in G20 with an average of 4ppm (11 ppm average in 2018). Hydrogen sulphide was also detected along this boundary, with the highest average (27 ppm) also at G20.

2.2.11 A cut off trench was constructed along the eastern section of Phase 1 to facilitate leachate and gas extraction to a greater capacity than the current infrastructure can support (CQA Plan reference; EXEA/Bryn Posteg/CQAP/IVT/December 2018). The perimeter landfill gas concentrations along this flank will be monitored closely to identify any trends.

Northern Boundary (G26 – G32)

2.2.12 The northern boundary perimeter boreholes had occasional compliance limit breaches, however, these were significantly lower concentrations than those recorded along the north eastern area. On average methane was highest at G29 (3.5 %) and carbon dioxide at G31 (3.6 %).

2.2.13 Carbon monoxide concentrations were low at these locations with maxima of 3 ppm detected. Hydrogen sulphide peaked at G29 on the 13th November (108 ppm). This is likely to be an anomalous reading as all other concentrations at this location were below the method limit of detection.

North Western Boundary (G33 – G42)

2.2.14 Landfill gas migration has historically been detected in this area, adjacent to the old Phase 8. On average methane was highest at G35, G36 and G38 (24.9 %, 22.7 % and 29.9 % respectively) with maximum carbon dioxide average concentrations also elevated at these locations (34.2 %, 8.6 % and 27.8 % respectively). These concentrations are comparable to those detected in 2018.

2.2.15 Methane and carbon dioxide concentrations were significantly elevated at G38 in the first half of 2019, but decreased from July 2019 and were mostly undetected until an increase in October.

2.2.16 Methane concentration at G36 increased significantly in the last quarter of 2018, a seasonal trend that also continued into 2019. Concentrations remained elevated in the first quarter of 2019 with a maximum of 49.7 % in January, decreasing during March, April and May, before increasing again to fluctuate for the remainder of the year. This borehole is in close proximity

to the weighbridge office, on the opposite side of the haul road to the nearest landfill Phase. Beyond this boundary is a field used for pasture.

2.2.17 Location G33 is situated in the field adjacent to the site, along this northern boundary. G33 was only monitored on three occasions, however no significant concentrations were detected here. Maximum methane and carbon dioxide was 0.1 % was 6.4 % respectively.

2.2.18 Carbon monoxide was also detected in low concentrations at G35 and G38, with maxima of 9 ppm and 17 ppm respectively. Hydrogen sulphide fluctuated in G38, with a maximum concentration of 13 ppm.

Summary

2.2.19 Of these exceedances, eleven perimeter locations contained average methane concentrations at a significant concentration, above 10 %, during 2019, comparable to the observations in 2018.

2.2.20 CO_2 concentrations exceeded the EP limit of 1.5 % on at least one occasion at 30 monitoring locations. Average concentrations in these boreholes ranged between 0.6 % (G18) and a 19.2 % in G22. Locations G02, G09, G13, G16, G17, G18 and G42 remained below the compliance limit throughout the review period.

2.2.21 An audit of the gas extraction system was carried out during 2019, as detailed in the Report 3913-CAU-XX-XX-RP-V-0302 A0-C2. The findings of this audit are anticipated to assist the site improve the extraction efficiency across the landfill gas field.

2.3 Trace Gas Monitoring

2.3.1 Trace gas monitoring has been carried out and results will be forwarded separately.

2.4 Engine and Flare Emission Monitoring

2.4.1 Monitoring reports of the emissions tests from the flare and landfill gas engines will be supplied to NRW directly, as soon as they become available. Monitoring has been completed at Engine 2, however Engine 1 is due to be tested on the 20th February 2020.

2.5 Landfill Gas from Capped Surfaces

2.5.1 A Flame Ionisation Detector (FID) walkover survey of the landfill was carried out on the 3rd – 4th February 2020 and the interpretive report will be submitted to NRW upon completion.

3. LEACHATE

3.1 Leachate levels

3.1.1 Replacement leachate extraction wells have been installed at Bryn Posteg in 2019, as specified in the CQA Validation Report 3997-CAU-XX-XX-RP-V-0303-A0.C2. This new infrastructure has been included in the monitoring regime and is anticipated to allow leachate levels to be managed more efficiently. Since their installation, leachate level monitoring is conducted weekly to better track the leachate dynamics across the site. A summary of the monitoring results are presented in Table 3.1 below, full results are included in Appendix 3.

Table 3.1 Leachate level above base of cell

Location	LCP1	LCP2	LCP3	LCP6	LCP7	LCP8	RMLP9A	RMLP9B West	RMLP9C	RMLP9D
min	2.73	8.86	4.20	4.29	0.62	0.81	2.93	1.67	9.61	10.82
max	8.68	13.20	10.24	7.81	6.09	7.39	10.07	12.42	19.23	23.96
average	5.78	10.52	7.31	6.57	3.04	4.25	5.49	6	15.13	18.57

3.1.2 Leachate levels were in exceedance of the compliance limit of 1 m above the base of the cell at all locations throughout the majority of 2019. Levels at LCP1, LCP2, LCP3, LCP6 and RMLP9A fluctuated through the year, but did not exhibit a net change over 2019. The levels at these locations were on average 5.78 m, 10.52 m, 7.31 m, 6.57 m and 5.49 m respectively (above the respective cell base levels).

3.1.3 Levels at LCP7 fluctuated but lower overall, with a minimum of 0.62 m above base, to a maximum of 6.09 m during 2019. LCP8 also fluctuated within a similar range, from 0.81 m to 7.39 m. There was no access to LCP8 in December due to the void area of the site being flooded.

3.1.4 A significant change in levels was observed in RMLPB West, RMLP9C and RMLP9D. These locations have typically recorded the highest leachate levels, with maxima during 2019 of 13.7 m, 19.23 m and 23.96 m (above cell base) respectively. Leachate level decreased across these locations in 2019: RMLP9B West decreased to 1.67 m by the 27th December, and RMLP9C and RMLP9D decreased to minima of 9.61 m and 10.82 m respectively. While these levels are still above the compliance limit, a significant decrease in levels of 12.1 m at RMLPB West, 9.62 m at RMLP9C and 13.14 m at RMLP9D was achieved during the second half of 2019.

3.1 Leachate Quality

3.1.1 Leachate was analysed monthly for ammoniacal nitrogen, chloride and pH at LCP1 (Sump 1), LCP2 (Sump 2), LCP3 (Sump 3), LCP6 (Sump 6), LCP7 (Sump 4), LCP8 (Sump 5), RMLP9A, RMLP9C (Sump 9c) and RMLP9D (Sump 9d). Chemical oxygen demand was also analysed in January, March, July and September.

3.1.2 Highest average ammoniacal nitrogen concentration (2107.5 mg/l) was detected in LCP2 during 2019, the same location as in 2018 and 2017. Average ammoniacal nitrogen concentrations were similar in RMLP9A, RMLP9B, RMLP9C and RMLP9D at 1660 mg/l, 1893.9 mg/l, 1020.4 mg/l and 1745.8 mg/l respectively.

3.1.3 Chloride concentration was significantly elevated in LCP2 with an average concentration of 8031.8 mg/L, an increase from the 2018 average of 6605 mg/l. Average chloride at the other monitoring locations ranged from 262.7 mg/l at LCP1 to 3480.9 mg/L in LCP3.

3.1.4 pH in the leachate ranged from a minimum of 6.5 in LCP1 to a maximum of 8.5 in LCP2.

3.1.5 Landfill leachate was analysed for a larger suite in December, to include metals, biological and chemical oxygen demand, PAHs and TPH. Cadmium was detected at LCP2, LCP3, LCP7 and RMLP9D, while chromium, copper, lead, nickel and zinc were detected at each location.

3.1.6 As part of the hazardous substances suite, 24 parameters were detected in the leachate chambers and are presented in Table 3.2 below. This is comparable to 2018 when 26 were detected.

Table 3.2: Landfill Leachate Hazardous substances suite – detected parameters

Parameters	µnits	LCP1	LCP2	LCP3	LCP6	Sample 2 - LCP6	LCP7	LCP 8	RMLP9A	RMLP9C	RMLP9D
1,2,4-Trimethylbenzene	µg/l	2.2	8.16	10.1	12.9	13.7	<1.00	6.83	6.39	-	18.1
1,3,5-Trimethylbenzene	µg/l	<1.00	<4.00	<4.00	4.04	4.16	<1.00	2.1	<4.00	-	<4.00
1,4-Dichlorobenzene	µg/l	<1.00	<4.00	4.23	8.51	<4.00	<1.00	4.03	<4.00	-	<4.00
Azinphos-methyl	µg/l	<0.008	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	0.191
Benzene	µg/l	1.87	<4.00	<4.00	2.64	6.55	<1.00	4.36	5.2	-	13.6
Chlorobenzene	µg/l	<1.00	<4.00	<4.00	<4.00	6.43	<1.00	4.7	<4.00	-	<4.00
cis-1,2-Dichloroethene	µg/l	4.3	1.19	<4.00	<4.00	<4.00	<1.00	<1.00	<4.00	-	<4.00
Cyanide, Total as CN	mg/l	<0.009	0.016	0.012	0.013	0.022	<0.009	<0.009	0.014	-	0.016
EH >C10 - C16	µg/l	66	1180	1270	757	779	<100	359	1640	849	1800
EH >C16 - C24	µg/l	<40	332	118	288	368	<100	142	514	208	717
EH >C24 - C40	µg/l	<40	110	319	203	282	<100	122	210	<100	533
EH >C6 - C8	µg/l	<40	<100	<100	<100	<100	<100	<100	<100	<100	211
EH >C8 - C10	µg/l	<40	<100	115	148	123	<100	<100	<100	177	380
Ethyl Benzene	µg/l	8.54	14.2	13.5	9.36	24.9	<1.00	10.6	10.2	-	14.8
m&p Xylene	µg/l	16.7	22.4	32.6	26.5	49.6	<1.00	15.3	16.6	-	32.1
MCPA	µg/l	0.54	<20.0	<20.0	<20.0	<20.0	<2.00	<20.0	<20.0	<20.0	<20.0
Mecoprop	µg/l	2.6	90.3	46.7	38.7	<16.0	1.85	22.2	27.9	102	37.8
Naphthalene	µg/l	<1.00	7.82	5.24	4.61	<4.00	<1.00	4.32	4.2	-	14.7
n-propylbenzene	µg/l	<1.00	<4.00	<4.00	<4.00	<4.00	<1.00	1.08	<4.00	-	<4.00
o-Xylene	µg/l	3.87	9.24	10.5	10	16.3	<1.00	6.15	7.25	-	14.4
p-isopropyltoluene	µg/l	3.86	46.5	20.2	34.3	19.1	<1.00	2.07	20.8	-	20.2
Toluene	µg/l	17.9	19.6	74.2	15	14.8	<1.00	4.92	14.4	-	59.1
Triazophos	µg/l	<0.009	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083	0.201
Vinyl Chloride	µg/l	1.33	<2.00	<2.00	<2.00	<2.00	<0.500	<0.500	<2.00	-	<2.00

3.2 Treated Leachate

3.2.1 Approximately 30,042 m^3 of leachate was discharged, under discharge consent to Severn Trent for further treatment between the 1st of January and the 31st of December 2019.

3.2.2 Additionally to the leachate processed on site at the leachate treatment plant, 10,837 m^3 of leachate was tankered off site during 2019 to maximize extraction from the site and lower leachate levels. This is a significant increase from the 5,142 m^3 removed by tanker during 2018.

3.2.3 Potters undertake daily in-situ testing of treated leachate in order to assess its suitability for discharge. Treated leachate is not discharged if compliance level exceedances are recorded (in accordance with action plans and methods described in the LMP; 3428-CAU-XX-XX-RP-V-0304-A0-C3). A summary of this data is included in Table 3.3 below as requested by NRW:

Table 3.3: Treated leachate daily monitoring summary (January - December 2019)

Daily On Site Tests	pH (METER)	Ammoniacal Nitrogen (mg/l)	pH (STRIP)	Dissolved Oxygen (mg/l)	Temperature (°C)	COD (mg/l)
Min	4.91	0.45	6.30	0.13	12.30	7.56
Max	9.97	208.00	6.90	10.15	24.80	991.00
Average	7.03	71.67	6.80	3.07	17.37	631.00
Count	249	249	249	249	249	249

3.2.4 Treated leachate is also sampled for monthly laboratory analysis. Concentrations of COD, sulphate and suspended did not exceeded the EP limits in 2019.

3.2.5 pH was briefly below the compliance limit's range (6 – 10) during February, June and October at 5.6, 4.8 and 5.8 respectively in the pH meter tests. The recorded values on the pH strip, however, did not vary significantly and remained within the compliance limit.

3.2.6 Ammonical nitrogen was above the compliance limit (150 mg/l) on one occasion in January at 1 mg/l.

3.2.7 The concentration of suspended solids within the treated leachate was 108 mg/l on average during 2019, significantly reduced from the 2018 average of 1510 mg/l. Average COD concentration was 493 mg/l in 2019, also significantly reduced from the 2018 average of 785.8 mg/l.

3.2.8 TPH was detected on all of the monitoring rounds. Concentrations ranged between 285 µg/l and 8330 µg/l. As detailed in the LMP, the discharge consent refers to visible oils, which Severn Trent tests by visible checks for the presence of free product over the sample. These tests are also conducted on site prior to discharge and reported no visible oil, in compliance with the discharge consent.

3.2.9 During June and November the Final Discharge was analysed for a 6 monthly suite to include hazardous substances. Table 3.4 below displays the detected parameters from the 6 monthly analysis.

Table 3.4: Treated Leachate Hazardous substances suite – detected parameters

Sample Matrix	unit	Treated Leachate (23/06/2019)	Treated Leachate (29/11/2019)
Chromium , Total as Cr	mg/l	0.14	0.03
Cyanide, Total as CN	mg/l	0.031	0.243
Dicamba	µg/l	0.33	<20.0
EH >C6 - C8	µg/l	<100	1690
EH >C10 - C16	µg/l	157	1540
EH >C16 - C24	µg/l	128	147
MCPA	µg/l	1.63	<20.0
Mecoprop	µg/l	2.71	<16.0

4. GROUNDWATER

4.0 Groundwater Levels

4.0.1 Groundwater levels are recorded weekly. Levels remained stable throughout the year, as displayed in the time series graphs, presented in Appendix 3.

4.1 Groundwater Quality

4.1.1 Groundwater is sampled at locations W1 – W9 as required by Table S4.5 in the EP. W10 was sampled in December 2019 following remediation. Groundwater samples are analysed monthly for ammoniacal nitrogen, chloride, cyanide, pH, electrical conductivity and sulphate. In March, June and September, groundwater samples were analysed for the monthly and quarterly suites. In December, samples were also analysed for an additional annual suite. Summaries of the monitoring data are included in Appendix 3.

4.1.2 Ammoniacal nitrogen concentrations were above the 2 mg/l EP limit on occasion in W3 and W9 only during 2019. No ammoniacal nitrogen was detected at W3 from January to June, however, concentrations increased from July to a maximum of 15 mg/l in November. The exceedance detected at W9 (2.93 mg/l) was an isolated peak, with no other concentrations above the detection limit during 2019.

4.1.3 Chloride concentrations were higher than the EP limit of 69 mg/l throughout the review period at W1. The average chloride concentration in W1 was 306 mg/l, comparable to the average in 2019 (332 mg/l). Chloride concentration within W1 reduced over the review period to a minimum of 179 mg/l during September.

4.1.4 pH ranged from a minimum of 5.8 in W3, to a maximum of 8.0 in W8. Electrical conductivity ranged between a minimum of 54.4 µS/cm in W6 and a maximum of 1460 µS/cm in W1. Sulphate concentrations ranged between <4.4 mg/l in, W2, W3 and W6 to 45.1 mg/l in W3.

4.1.5 W1 is situated very close to the B4518 Llanidloes to Tylwch Road. In previous annual reviews it was noted that the groundwater quality within this borehole may be influenced by the application of road salt during the winter months. The chloride concentration within W1 shows no correlation to ammonical nitrogen, but does show strong correlation to sodium concentration. This was investigated in the Caulmert letter report 3033-CAU-XX-XX-CO-V-9101.A0-C1 which was submitted to NRW on the 24th April 2017. The results of this investigation suggest that the chloride concentrations at W1 are not related to landfill, but are instead reflective of a localised source of salt.

4.1.6 No 2, 4 –D, ethyl benzene or xylenes were detected in any of the groundwater monitoring locations during the quarterly suites.

4.1.7 Mecoprop was detected above the compliance limit at W4 and W5 during the second, third and fourth quarters with maximum concentrations of 0.13 µg/l and 0.16 µg/l respectively.

Toluene was also detected above the compliance limit at W3 on one occasion, with an elevated concentration of 38.3 µg/l in Q3. Concentrations reduced to 2.7 µg/l by Q4, below the compliance limit (4 µg/l).

4.1.8 Concentrations of metals cadmium, nickel and zinc remained below their respective EP limits in all locations, throughout the review period.

4.1.9 In December, a full annual suite was undertaken, including a hazardous substances suite. No PAHs were detected. TPH were detected in GW3, GW5, GW6, GW7 and GW8, summarized in Table 4.1 below. The concentrations are consistent with occasional instances of detection of these substances in groundwater around the site historically (for example in 2016), and likely reflect variations in groundwater quality around the site. Full annual suite results are included in Appendix 3.

Table 4.1: Annual Groundwater Hazardous substances suite – detected parameters

Parameter	Units	GW 3	GW 5	GW 6	GW 7	GW 8
EH >C10 - C16	µg/l	168	<10	23	<20	<10
EH >C16 - C24	µg/l	611	32	<10	<20	<10
EH >C24 - C40	µg/l	961	140	12	58	149
EH >C6 - C40	µg/l	1740	172	35	58	149

5. SURFACE WATER

5.1 Surface Water Quality

5.1.1 Surface water samples were collected at SW1 (P1) and SW2 (P2) during the review period. Surface water monitoring data and time series graphs are included in Appendix 5.

5.1.2 Concentrations of ammoniacal nitrogen did not exceed the compliance limit of 0.25 mg/l in SW1 in 2019. In SW2 concentrations of ammoniacal nitrogen reached a maximum of 1.51 mg/l in January 2019. The average ammoniacal nitrogen in SW2 was 0.24 mg/l.

5.1.3 Suspended solids concentration exceeded the compliance limit in July at SW1 with a concentration of 69 mg/l, lower than the previous year, when the maximum was 200 mg/l. Suspended solids concentrations were also above the compliance limit at SW2 during November at 99 mg/L.

5.1.4 The pH remained within the EP limit range of 6 – 9 at SW1 and SW2 throughout the review.

5.1.5 No hazardous substances were detected in the surface water locations as part of the suites in June and December, with the exception of cadmium at SW1, which was detected at the detection limit of 0.0006 mg/L.

6. DUST

6.1 Monitoring

6.1.1 Dust monitoring at the site was carried out on 4 occasions in 2019. The results are summarized below in Table 5, and the individual lab reports are included in Appendix 6.

Table 5: Dust Monitoring Results

Dust	Concentration (mg/m^2/day)
Period	16/12/18 - 26/01/19
BP 1	<10
BP 2	11
BP 3	15
Period	29/04/19 - 23/05/19
BP 1	<10
BP 2	21
BP 3	30
Period	23/06/2019 - 28/07/2019
BP 1	34
BP 2	39
BP 3	17
Period	29/09/2019 - 31/10/19
BP 1	88
BP 2	12
BP 3	14

6.1.2 Dust concentrations remained below the EP limit of 200 mg/m^2/day at all locations during 2019.

7. ANNUAL PRODUCTION / TREATMENT

7.1 Introduction

7.1.1 Annual production/treatment at Bryn Posteg during the period 1st January to 31st December 2019 is reported in accordance with Table S5.2 in the EP, see Table 7 below:

Table 6: Annual Production/Treatment

Annual production/treatment	
Leachate:	**Cubic metres/year:**
Disposed of off-site (sewer);	30,042
Disposed of to any offsite effluent treatment plant;	10,837
Recirculated into the waste mass.	Nil
Surface water and/or groundwater:	**Cubic metres/year:**
Disposed of off-site;	Nil
Disposed of to any onsite effluent treatment plant.	Nil
Landfill gas:	**Normalised cubic metres/year:**
Combustion in flares & gas engines;	5.3 million*
Other methods of gas utilisation.	Nil

* estimated

8. PERFORMANCE PARAMETERS

8.1 Introduction

8.1.1 Performance parameters are reported in line with requirements in the EP. Data is presented in Table 7 below, which is a reproduction of Table S5.3 in the permit.

Table 7: Performance Parameters

Parameter	Frequency of assessment	Annual total	Unit
Energy Used (including for leachate treatment)	Annually	834	MWh of Electricity

* estimated

9. TOPOGRAPHICAL SURVEY

9.0.1 A topographical survey was completed on the 5th- 6th February 2020 and will be submitted to NRW separately when it becomes available. The net volumetric difference between this survey and the February 2019 survey will be calculated, along with the net settlement figure.

10. SUMMARY

10.1 Landfill Gas

10.1.1 Methane concentrations exceeded the EP limit of 1.0 %[1] on at least one occasion at 16 monitoring locations.

10.1.2 CO_2 concentrations exceeded the EP limit of 1.5 % on at least one occasion at 31 monitoring locations.

10.1.3 Landfill gas concentrations detected in the perimeter boreholes in this review period are similar to those detected in 2018.

10.2 Leachate

10.2.1 Leachate levels were above the compliance limit of 1 m above the cell base at all monitoring locations. Significant reductions of leachate levels were, however, achieved at RMLP9B West, RMLP9C and RMLP9D in the second half of 2019.

10.2.2 Highest ammoniacal nitrogen concentrations were detected in LCP2 during 2019. Twenty four parameters were detected in the annual hazardous substances suite.

10.2.3 In the final discharge (treated leachate) quality data, isolated exceedances of the EP limits for ammoniacal nitrogen and pH were recorded. Treated leachate is not discharged if EP limit exceedances are recorded. A total of eight parameters from the hazardous substances suite were detected during 2019.

10.2.4 Approximately 30,042 m^3 of treated leachate was discharged to sewer (under discharge consent). Approximately half of this volume was treated in the final quarter of 2019, indicating a significant increase in the amount of leachate extracted and treated at the site. In addition, 10,837 m^3 of leachate was tankered off site for treatment. This is a significant increase from the 5,142 m^3 removed by tanker during 2018.

10.3 Groundwater

10.3.1 Groundwater levels remained stable throughout the review period in all locations

10.3.2 The EP limit for chloride was exceeded in location W1 throughout the review period. It is likely that this locations is influenced by road salt, used on the B4518 during the winter months, which would explain the seasonality seen in the results.

10.3.3 Ammoniacal nitrogen concentrations were above the 2 mg/l EP limit on occasion in W3 and W9 during 2019.

10.3.4 TPH were detected in the groundwater annual suite in low concentrations. Mecoprop was detected above the compliance limit at W4 and W5. Toluene was also detected above the compliance limit at W3 on one occasion.

10.4 Surface Water

10.4.1 Concentrations of all parameters remained below their respective EP limits in the monthly and quarterly analysis, except ammoniacal nitrogen and suspended solids.

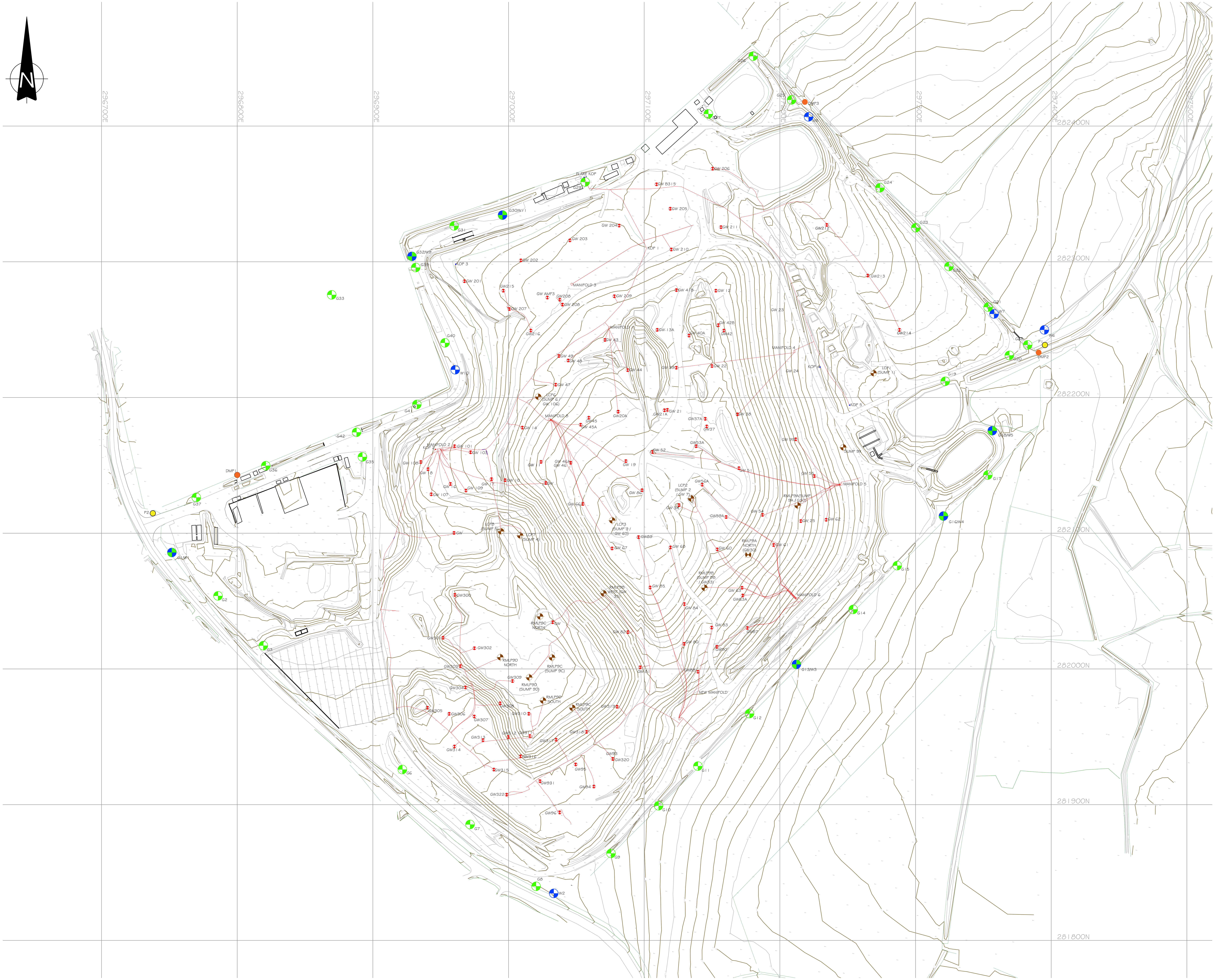
10.4.2 Ammoniacal nitrogen concentration did not exceeded the EP limit during 2019 at SW1, however two exceedances were detected at SW2. Suspended solids concentrations exceeded the EP limit on one occasion in SW1 and SW2.

10.4.3 No hazardous substances were detected in SW1 or SW2 with the exception of cadmium in SW1 during Q2.

10.5 Dust

10.5.1 Dust concentrations remained below the EP limit at all locations during 2019.

Appendix 1



NOTE

1. DO NOT SCALE FROM THIS DRAWING, WORK FROM FIGURED DIMENSIONS ONLY. ALL DIMENSIONS ARE IN MILLIMETRES AND ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM U.N.O.

2. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING WILL BE ALLOWED WITHOUT THE PRIOR PERMISSION IN WRITING.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALIST DRAWINGS AND SPECIFICATIONS.

4. MAXIMUM SURCHARGE LOAD ON 50.0m FLOOR 20KN/m2 UNLESS OTHERWISE STATED.

LEGEND

- IN WASTE GAS WELL
- LEACHATE COLLECTION / MONITORING POINT
- PERIMETER GAS MONITORING BOREHOLE
- PERIMETER GROUNDWATER MONITORING BOREHOLE
- PERIMETER GAS & GROUNDWATER MONITORING BOREHOLE
- SURFACE WATER MONITORING LOCATION
- DUST MONITORING POINT

REV	MODIFICATIONS	BY	RE	AP	DATE
C2	GAS MONITORING LOCATIONS NAME CHANGE	DA	SO	SO	09.05.19
C1	BOREHOLE NAME CHANGE	DA	HC	HC	16.10.18
P3	MINOR AMENDMENTS	DA	SO	SO	31.05.18
P2	MINOR AMENDMENTS	DA	SO	SO	29.05.18
P1	ISSUED FOR COMMENT	RWG	SO	SO	04.05.18

POTTERS WASTE MANAGEMENT

PROJECT:

BRYN POSTEG LANDFILL SITE

TITLE:

GAS EXTRACTION AND MONITORING INFRASTRUCTURE PLAN

DRAWN BY: RWG	DATE: 04.05.2018	
REVIEWED BY: SO	SCALE @ A1: 1:1250	JOB REF: 3376
AUTHORISED BY: SO	ISSUE: S1	REVISION: C2

DRAWING NUMBER: 3376-CAU-XX-XX-DR-V-1801

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Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319

NOTE

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2. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING WILL BE ALLOWED WITHOUT THE PRIOR PERMISSION IN WRITING.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALIST DRAWINGS AND SPECIFICATIONS.

4. LOCATIONS OF PEGS TAKEN FROM NRG DRAWING : Bryn Posteg_Proposed Drilling Locations_May2019 : 1284/TP/14 : 01

LEGEND

- IN WASTE GAS WELL
- OLD, REPLACED LEACHATE WELL
- NEW, REPLACEMENT LEACHATE WELL
- LEACHATE COLLECTION/MONITORING POINT
- NEW IN WASTE GAS WELL

REV	MODIFICATIONS	BY	RE	AP	DATE
X	AS BUILT	AAR	SO	DB	18.07.19

PURPOSE OF ISSUE: AS BUILT
STATUS: CR

CLIENT: PotterGroup

PROJECT:
BRYN
POSTEG
LANDFILL

TITLE:
AS BUILT
REPLACEMENT
LEACHATE WELLS

DRAWN BY	REVIEWED BY	AUTHORISED BY	SCALE @ A1
AAR	SO	DB	1:1250

DATE	JOB REF:	REVISION
18.07.2019	3997	X

DRAWING NUMBER
3997-CAU-XX-XX-DR-V-1804

Caulmert
engineering environmental planning
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Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319

DISSOLVED AIR FLOTATION SYSTEM

BIOMASS CHP SYSTEM

LANDFILL GAS UTILISATION PLANT

STORAGE

LEACHATE TREATMENT PLANT

INACTIVE CAPPED LANDFILL

SURFACE WATER COLLECTION PONDS

WHEEL WASH

OFFICE & WEIGHBRIDGE

SITE ENTRANCE

SITE CANTEEN & OFFICE

ACTIVE LANDFILL

GREEN WASTE COMPOST SLAB (SEPARATE PERMIT)

1

2

3

4

282400N

282300N

282200N

282100N

282000N

281900N

281800N

296700E

296800E

296900E

297000E

297100E

297200E

297300E

297400E

297500E

NOTE

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2. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING WILL BE ALLOWED WITHOUT THE PRIOR PERMISSION IN WRITING.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALIST DRAWINGS AND SPECIFICATIONS.

- SITE BOUNDARY
- MRF PERMIT ACTIVITY
- LANDFILL PERMIT / GENERAL SITE ACTIVITY
- GREEN WASTE COMPOSTING PERMIT ACTIVITY
- CAPPED LANDFILL

1. MBT COMPOST (MRF PERMIT)
2. WASTE RECPETION (MRF PERMIT)
3. TYRE STORAGE & BAILING (MRF PERMIT)
4. TROMMEL (LANDFILL PERMIT)

REV	MODIFICATIONS	BY	RE	AP	DATE
C1	APPROVED AND ISSUED	EJD	SB	SB	19/12/17
P1	ISSUED FOR COMMENT	EJD	SB	SB	20/11/17

POTTERS WASTE MANAGEMENT

PROJECT:

BRYN POSTEG LANDFILL SITE

TITLE:

ENVIRONMENTAL MONITORING PLAN

DRAWN BY	DATE	
EJD	20/11/2017	
REVIEWED BY	SCALE @ A1	JOB REF:
SB	1:1250	3033
AUTHORISED BY	ISSUE	REVISION
SB	A0	C1

DRAWING NUMBER: 3033-CAU-XX-XX-DR-S-1800

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Appendix 2

APPENDIX 2 – LANDFILL GAS

Table 1: In Waste Landfill Gas monitoring data; Methane, Carbon Dioxide, Oxygen (% v/v)

	Methane (% v/v)			Carbon Dioxide (% v/v)			Oxygen (%v/v)			
ID	Min	Max	Ave	Min	Max	Ave	Min	Max	Ave	Count
BPIW0007	38.8	67.4	56.6	31.2	41.0	37.3	0.1	3.4	1.3	12
BPIW0011	36.2	61.9	56.3	23.0	43.7	39.8	0.0	8.2	0.9	12
BPIW0014	57.3	65.8	63.1	35.8	41.3	39.4	0.0	1.3	0.2	11
BPIW0015	41.8	74.5	64.3	18.1	39.4	27.9	0.1	8.6	2.2	11
BPIW0016	52.0	64.5	59.5	33.9	41.0	38.5	0.1	1.6	0.5	13
BPIW0017	48.3	63.5	59.4	34.9	41.7	39.2	0.2	2.4	0.7	12
BPIW0018	20.0	64.2	55.1	24.2	43.1	35.1	0.0	2.6	0.5	12
BPIW0019	47.3	62.7	56.1	32.5	41.2	37.0	0.0	1.0	0.2	12
BPIW0021	1.3	69.0	60.0	11.0	41.1	36.0	0.1	18.5	1.7	13
BPIW0022	57.9	67.5	64.1	34.8	41.7	38.6	0.1	1.7	0.4	13
BPIW0024	48.9	73.0	63.4	28.5	35.5	32.9	0.1	2.4	0.8	12
BPIW0025	49.4	65.6	61.6	30.9	40.4	37.5	0.0	4.9	1.0	12
BPIW0030	54.8	66.4	62.2	34.1	41.1	38.3	0.1	1.5	0.5	12
BPIW0032	31.8	65.2	56.9	20.4	41.9	38.2	0.0	9.8	1.2	12
BPIW0033	38.1	64.1	51.6	26.5	42.7	36.4	0.1	7.0	2.7	12
BPIW0034	20.0	64.0	46.9	13.1	40.2	30.4	0.2	14.2	5.3	8
BPIW0035	21.4	65.8	51.7	16.5	43.2	36.0	0.0	13.4	2.5	12
BPIW0037	56.1	68.3	64.4	34.4	40.5	37.4	0.0	1.1	0.4	12
BPIW0038	30.1	66.7	57.6	17.4	41.0	34.4	0.1	12.2	1.7	12
BPIW0039	49.0	65.2	60.9	35.2	41.6	38.4	0.0	0.4	0.1	12
BPIW0043	15.9	63.9	48.0	22.3	40.9	33.5	0.0	2.3	0.9	12
BPIW0044	24.1	68.1	56.0	16.3	39.3	33.1	0.1	12.9	2.8	12
BPIW0045	57.9	69.6	61.5	32.0	42.6	40.7	0.0	0.7	0.3	12
BPIW0047	45.4	63.7	55.0	35.4	40.7	38.2	0.0	1.1	0.3	10
BPIW0048	41.2	66.2	58.2	31.6	40.6	36.7	0.0	1.0	0.3	12
BPIW0049	32.8	73.3	58.6	25.4	36.7	30.6	0.1	3.7	0.9	12
BPIW0051	0.1	63.3	21.3	1.2	39.4	13.9	0.1	21.5	14.0	12
BPIW0052	41.0	61.0	55.1	33.7	43.4	37.8	0.0	1.1	0.5	12
BPIW0054	43.5	63.8	56.7	34.3	41.0	37.0	0.0	0.8	0.3	12
BPIW0055	44.4	66.0	59.9	25.1	39.7	36.3	0.1	2.0	0.5	13
BPIW0061	34.8	63.5	54.9	30.9	40.7	36.5	0.1	2.9	0.9	12
BPIW0062	56.8	71.5	64.2	32.2	40.2	37.7	0.1	2.7	0.5	13
BPIW0063	47.5	65.5	61.2	34.7	41.1	38.9	0.0	1.3	0.4	12
BPIW0066	0.3	61.7	41.0	3.8	44.2	34.5	0.1	18.7	1.7	13
BPIW0067	28.5	61.0	41.5	26.9	41.8	33.4	0.1	3.0	0.9	10
BPIW0068	4.1	62.3	47.2	3.1	45.0	33.1	0.0	19.9	4.6	13
BPIW0069	46.3	62.8	54.3	34.2	44.8	40.1	0.0	2.6	0.9	12
BPIW0082	30.8	64.8	48.6	30.9	42.9	36.7	0.1	2.4	0.5	12
BPIW0083	36.5	62.0	47.8	31.9	39.4	34.7	0.0	4.4	0.7	12
BPIW0084	40.4	60.6	55.4	34.5	46.3	40.4	0.1	2.2	0.5	12
BPIW0085	19.2	59.4	40.0	15.8	41.2	29.2	0.9	12.7	5.8	5
BPIW0086	0.2	61.9	51.7	1.9	45.5	36.5	0.1	20.9	2.4	11
BPIW0087	50.4	66.1	62.4	27.7	40.7	38.3	0.0	6.2	0.7	12
BPIW0088	42.5	65.5	59.0	30.4	41.0	38.2	0.0	2.1	0.5	12
BPIW0089	49.7	62.2	55.9	31.2	40.2	37.1	0.4	3.2	1.4	5
BPIW0090	0.0	64.0	44.5	1.0	42.9	33.2	0.1	21.2	3.5	12
BPIW0093	8.6	66.5	56.5	12.1	43.2	36.0	0.1	15.4	2.4	12
BPIW0094	44.5	64.8	60.4	30.5	42.1	39.6	0.1	5.9	0.9	10
BPIW0095	0.3	66.4	51.3	4.7	40.9	31.9	0.0	20.8	4.1	12
BPIW0099	51.9	68.1	61.9	34.6	40.5	38.5	0.1	1.2	0.4	12
BPIW0102	59.5	59.5	59.5	36.5	36.5	36.5	0.6	0.6	0.6	1
BPIW0103	4.2	60.1	39.1	5.5	31.9	24.6	1.5	19.9	6.4	4
BPIW0104	56.4	66.4	61.7	37.1	40.6	39.3	0.0	1.1	0.2	7

ID	Methane (% v/v)			Carbon Dioxide (% v/v)			Oxygen (%v/v)			
	Min	Max	Ave	Min	Max	Ave	Min	Max	Ave	Count
BPIW0105	56.8	56.8	56.8	35.5	35.5	35.5	0.3	0.3	0.3	1
BPIW0106	38.0	64.1	53.2	28.1	40.9	35.0	0.2	6.6	1.9	11
BPIW0107	55.7	55.7	55.7	36.1	36.1	36.1	0.1	0.1	0.1	1
BPIW0108	66.1	66.1	66.1	37.5	37.5	37.5	0.3	0.3	0.3	1
BPIW011A	28.0	62.3	49.1	28.2	40.9	35.9	0.0	0.8	0.3	12
BPIW013A	51.8	70.3	65.1	27.1	39.9	33.8	0.1	5.3	1.0	12
BPIW0202	20.9	66.5	47.4	11.4	32.4	25.6	0.0	13.2	1.3	12
BPIW0203	34.1	68.2	53.1	18.7	31.5	27.1	0.0	0.6	0.2	12
BPIW0204	0.1	86.2	52.9	2.2	33.1	12.2	0.1	21.6	7.1	14
BPIW0206	24.1	62.1	48.3	9.6	37.6	25.9	0.2	14.8	4.6	12
BPIW0207	42.0	74.5	58.8	24.7	36.9	32.3	0.1	4.6	0.8	12
BPIW0208	42.0	65.3	58.6	27.9	37.3	33.4	0.2	3.7	1.1	12
BPIW0209	31.2	77.8	67.0	21.1	40.7	27.6	0.1	1.5	0.4	12
BPIW020A	59.4	64.8	62.3	36.8	43.4	40.7	0.0	0.4	0.2	12
BPIW0211	46.5	72.4	63.8	18.2	35.1	28.7	0.1	7.3	0.9	14
BPIW0212	41.7	71.8	60.3	21.6	36.9	31.2	0.1	7.3	2.6	11
BPIW0213	55.8	70.5	65.2	29.6	34.9	32.6	0.3	3.6	1.2	11
BPIW0214	6.2	75.0	65.3	3.2	33.8	29.2	0.1	20.9	2.1	11
BPIW0215	36.1	67.0	57.2	26.8	37.2	32.0	0.0	1.7	0.4	12
BPIW0216	19.1	68.3	55.4	13.9	39.1	32.6	0.0	13.6	1.7	12
BPIW021A	58.7	67.4	64.7	35.7	41.2	38.7	0.1	0.7	0.2	13
BPIW0300	53.0	65.6	59.7	33.0	45.2	40.7	0.1	2.1	0.8	14
BPIW0301	34.9	63.8	56.5	19.3	43.6	38.4	0.1	9.8	1.8	12
BPIW0302	2.0	65.8	44.9	35.5	50.3	42.1	0.0	9.2	3.2	4
BPIW0303	54.6	59.3	57.8	42.6	45.5	44.5	0.0	0.3	0.1	6
BPIW0304	56.9	61.1	59.3	39.8	46.1	43.7	0.1	0.6	0.3	12
BPIW0305	0.4	63.8	47.5	6.1	45.1	34.7	0.0	19.0	1.8	13
BPIW0306	27.0	64.1	51.7	17.2	43.7	33.5	0.1	12.0	3.7	12
BPIW0307	56.4	61.5	58.7	42.5	46.3	44.4	0.1	0.8	0.3	11
BPIW0308	0.4	58.3	42.8	6.1	45.6	35.0	0.1	19.0	4.1	8
BPIW0309	2.0	57.7	33.1	37.5	59.3	48.8	0.0	9.0	3.2	7
BPIW0310	27.0	63.3	54.0	17.2	45.1	37.4	0.1	12.0	2.5	10
BPIW0311	49.6	64.7	59.0	36.6	45.4	42.8	0.0	0.8	0.2	11
BPIW0312	41.2	59.9	53.8	33.6	45.5	40.8	0.1	3.5	0.5	11
BPIW0313	43.8	62.6	54.8	36.4	46.5	42.1	0.1	0.4	0.2	11
BPIW0314	50.7	63.7	59.1	34.0	44.0	39.4	0.1	3.8	1.1	12
BPIW0315	43.2	63.3	54.4	32.2	45.0	38.9	0.0	2.9	0.6	12
BPIW0316	31.3	60.6	52.0	25.8	45.2	38.9	0.1	9.2	1.9	13
BPIW0317	35.1	61.9	55.4	26.8	46.8	40.8	0.1	8.3	1.6	13
BPIW0318	49.5	63.7	58.9	32.0	42.9	40.6	0.1	3.9	0.8	11
BPIW0319	41.1	63.8	52.0	30.0	43.6	37.4	0.1	1.9	0.5	12
BPIW0320	47.7	66.2	61.8	36.3	42.4	39.7	0.1	3.4	0.6	12
BPIW0321	17.1	67.5	56.1	11.7	42.0	36.0	0.0	15.0	2.4	12
BPIW0322	1.5	64.2	55.0	9.5	41.1	34.6	0.1	17.6	1.9	13
BPIW0323	0.1	65.8	57.9	0.1	39.5	34.3	0.1	21.4	2.5	13
BPIW0325	58.0	62.6	59.7	39.6	44.8	43.1	0.0	0.5	0.2	7
BPIW0326	48.2	62.4	55.7	37.0	41.3	39.3	0.0	1.5	0.4	7
BPIW0327	56.8	61.5	58.6	40.3	46.7	44.3	0.0	0.2	0.1	7
BPIW037A	36.9	67.0	61.2	20.7	40.3	35.7	0.1	10.5	1.5	12
BPIW040A	31.5	62.2	51.5	28.9	39.1	34.5	0.0	1.2	0.2	12
BPIW041B	37.4	70.0	63.0	27.7	39.5	33.1	0.0	1.4	0.3	12
BPIW042B	26.6	65.8	53.3	27.3	40.3	35.1	0.0	0.7	0.2	12
BPIW045A	27.8	64.2	49.9	21.9	42.9	34.1	0.0	6.5	2.4	12
BPIW046A	0.0	62.3	35.8	3.6	47.2	27.8	0.2	21.8	8.8	5
BPIW053A	11.7	65.8	44.4	21.9	41.2	33.1	0.0	1.2	0.2	12
BPIW056A	45.6	63.7	56.6	36.5	41.8	38.7	0.0	2.4	0.4	11

ID	Methane (% v/v)			Carbon Dioxide (% v/v)			Oxygen (%v/v)			
	Min	Max	Ave	Min	Max	Ave	Min	Max	Ave	Count
BPIW059A	48.8	64.6	58.2	33.4	45.4	39.6	0.0	4.5	1.1	12
BPIW063A	46.9	63.5	58.8	32.6	41.2	37.6	0.1	4.4	1.4	12
BPIW208A	1.4	66.0	43.2	4.6	40.6	26.6	0.2	19.1	6.9	12
BPSP0001	0.1	61.1	37.5	0.1	40.0	25.5	0.5	21.6	7.1	17
BPSP0002	42.5	62.2	53.4	32.7	40.8	35.6	0.2	2.7	1.6	12
BPSP0003	44.8	70.1	61.1	31.7	39.0	34.9	0.2	2.2	0.8	13
BPSP0004	43.9	57.3	51.7	34.6	41.1	37.4	0.5	2.4	1.2	12
BPSP0005	36.0	62.8	51.2	25.8	38.6	29.5	0.2	1.8	0.7	12

Table 2: In Waste Landfill Gas monitoring data; Carbon Monoxide, Hydrogen Sulphide (% v/v)

ID	Carbon Monoxide (ppm)			Hydrogen Sulphide (ppm)		
	Min	Max	Ave	Min	Max	Ave
BPIW0007	0	144	37	0	27	2
BPIW0011	1	91	33	0	30	3
BPIW0014	2	158	30	0	37	3
BPIW0015	0	18	5	0	2	0
BPIW0016	0	163	42	0	2	0
BPIW0017	1	44	21	0	6	1
BPIW0018	1	128	35	0	0	0
BPIW0019	1	74	27	0	24	2
BPIW0021	0	87	31	0	22	2
BPIW0022	0	53	17	0	53	4
BPIW0024	2	139	17	0	2	0
BPIW0025	0	61	11	0	59	5
BPIW0030	0	39	11	0	2	0
BPIW0032	0	15	6	0	85	7
BPIW0033	1	241	47	0	1	0
BPIW0034	1	94	35	0	39	5
BPIW0035	1	50	18	0	1	0
BPIW0037	1	71	25	0	18	2
BPIW0038	0	48	16	0	50	4
BPIW0039	2	338	96	0	12	1
BPIW0043	0	133	15	0	1	0
BPIW0044	1	115	18	0	0	0
BPIW0045	1	109	40	0	84	7
BPIW0047	3	220	46	0	6	1
BPIW0048	2	28	16	0	3	0
BPIW0049	0	87	11	0	16	1
BPIW0051	0	66	12	0	1	0
BPIW0052	2	82	33	0	47	4
BPIW0054	2	13	7	0	27	3
BPIW0055	1	50	10	0	6	0
BPIW0061	2	9	5	0	10	1
BPIW0062	1	5	3	0	247	19
BPIW0063	2	13	7	0	0	0
BPIW0066	1	125	46	0	185	14
BPIW0067	1	107	33	0	0	0
BPIW0068	1	111	42	0	0	0
BPIW0069	2	70	40	0	1	0
BPIW0082	2	20	9	0	23	2
BPIW0083	0	7	4	0	5	1
BPIW0084	1	99	40	0	0	0
BPIW0085	2	92	31	0	1	0
BPIW0086	0	104	28	0	54	5
BPIW0087	5	248	73	0	5	1

ID	Carbon Monoxide (ppm)			Hydrogen Sulphide (ppm)		
	Min	Max	Ave	Min	Max	Ave
BPIW0088	1	16	8	0	31	3
BPIW0089	0	134	57	0	110	22
BPIW0090	0	292	49	0	37	3
BPIW0093	3	48	26	0	71	6
BPIW0094	3	39	22	0	28	3
BPIW0095	0	43	17	0	32	3
BPIW0099	3	71	37	0	2	0
BPIW0102	58	58	58	0	0	0
BPIW0103	1	52	20	0	0	0
BPIW0104	3	220	41	0	0	0
BPIW0105	12	12	12	0	0	0
BPIW0106	1	133	20	0	1	0
BPIW0107	8	8	8	0	0	0
BPIW0108	1	1	1	0	0	0
BPIW011A	1	69	18	0	200	17
BPIW013A	0	52	17	0	4	0
BPIW0202	0	11	4	0	0	0
BPIW0203	0	21	4	0	1	0
BPIW0204	0	13	5	0	0	0
BPIW0206	0	14	4	0	0	0
BPIW0207	1	13	6	0	4	0
BPIW0208	0	15	7	0	2	0
BPIW0209	0	127	15	0	0	0
BPIW020A	0	99	35	0	53	4
BPIW0211	0	6	2	0	4	0
BPIW0212	1	28	7	0	4	0
BPIW0213	3	30	9	0	4	0
BPIW0214	1	17	8	0	8	1
BPIW0215	1	49	11	0	5	0
BPIW0216	1	21	6	0	0	0
BPIW021A	0	76	26	0	67	5
BPIW0300	4	141	65	0	344	25
BPIW0301	2	39	22	0	87	8
BPIW0302	9	522	184	0	75	19
BPIW0303	13	278	156	0	2	1
BPIW0304	22	498	165	0	302	34
BPIW0305	0	57	17	0	191	16
BPIW0306	0	21	8	0	6	1
BPIW0307	14	287	149	0	9	2
BPIW0308	8	234	99	0	202	27
BPIW0309	15	46	31	0	111	39
BPIW0310	0	29	12	0	11	2
BPIW0311	0	208	78	0	7	1
BPIW0312	5	84	47	0	428	40
BPIW0313	4	95	55	0	404	38
BPIW0314	3	511	97	0	378	33
BPIW0315	2	436	87	0	54	5
BPIW0316	6	442	108	0	2	0
BPIW0317	2	480	141	0	201	21
BPIW0318	3	523	104	0	18	2
BPIW0319	3	408	109	0	302	42
BPIW0320	1	357	95	0	74	7
BPIW0321	3	428	108	0	240	20
BPIW0322	2	279	72	0	2	0
BPIW0323	1	222	60	0	80	6
BPIW0325	13	476	169	0	9	4

ID	Carbon Monoxide (ppm)			Hydrogen Sulphide (ppm)		
	Min	Max	Ave	Min	Max	Ave
BPIW0326	0	363	71	0	2	0
BPIW0327	5	153	57	0	1	0
BPIW037A	0	76	22	0	43	4
BPIW040A	3	251	112	0	38	3
BPIW041B	0	87	33	0	1	0
BPIW042B	2	214	94	0	2	0
BPIW045A	2	40	12	0	1	0
BPIW046A	1	117	28	0	19	4
BPIW053A	1	58	22	0	1	0
BPIW056A	1	210	53	0	15	1
BPIW059A	2	179	55	0	27	2
BPIW063A	1	14	7	0	31	3
BPIW208A	0	26	8	0	0	0
BPSP0001	0	150	46	0	152	19
BPSP0002	3	66	31	0	32	3
BPSP0003	1	267	36	0	7	1
BPSP0004	7	263	107	0	92	8
BPSP0005	0	256	28	0	2	0

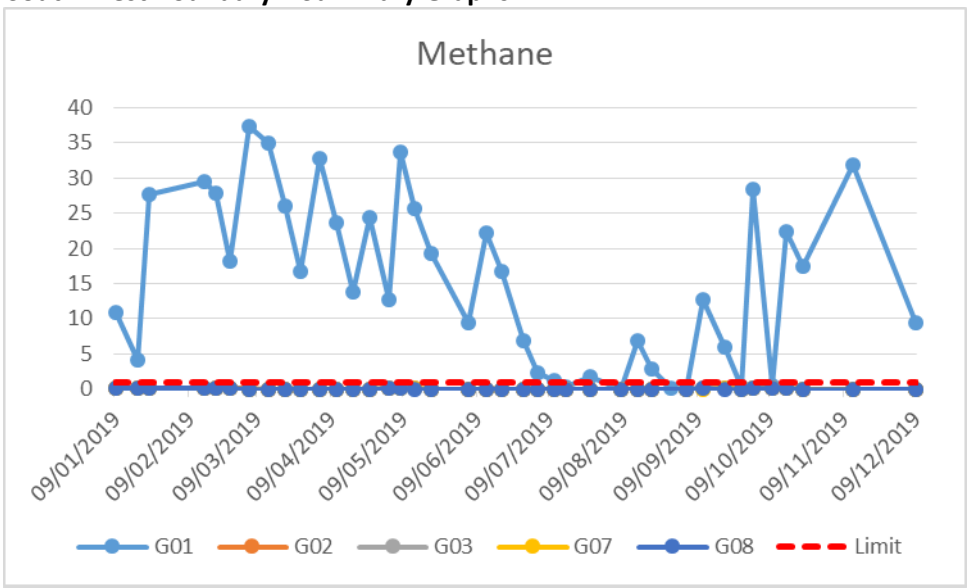
Table 3: Perimeter Landfill Gas monitoring data; Methane, Carbon Dioxide, Oxygen (% v/v)

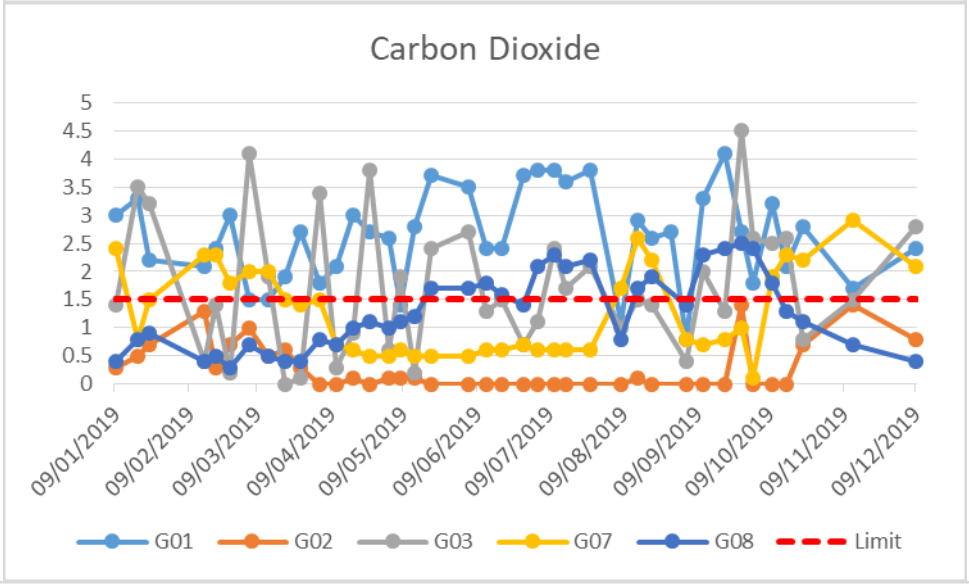
Area	ID	Methane (% v/v)			Carbon Dioxide (% v/v)			Oxygen (%v/v)			
		Min	Max	Ave	Min	Max	Ave	Min	Max	Ave	Count
South West boundary	G01	0.0	37.3	15.1	0.0	4.1	2.6	0.2	20.7	5.5	41
	G02	0.0	0.3	0.1	0.0	1.4	0.3	19.9	21.4	20.6	39
	G03	0.0	0.2	0.1	0.0	4.5	1.7	5.8	21.0	15.9	39
	G07	0.0	0.2	0.1	0.1	2.9	1.3	18.8	21.8	20.2	39
	G08	0.0	0.2	0.0	0.0	2.5	1.3	12.2	21.0	17.1	41
South East Boundary	G09	0.0	0.3	0.1	0.0	0.9	0.1	20.1	22.6	21.2	40
	G10	0.0	0.2	0.1	0.1	5.0	2.6	16.5	21.2	19.4	39
	G11	0.0	0.2	0.0	0.0	2.5	0.6	17.5	22.5	20.8	36
	G12	0.0	77.3	58.5	0.0	5.9	4.1	0.3	22.0	5.2	42
	G13	0.0	0.2	0.1	0.0	0.3	0.0	20.5	23.1	21.6	37
	G14	0.0	0.2	0.0	0.0	4.3	1.7	17.9	23.9	20.2	39
	G15	0.0	0.2	0.0	0.1	4.5	1.3	11.4	21.0	19.1	38
	G16	0.0	0.2	0.0	0.0	1.2	0.0	18.6	23.5	21.6	41
	G17	0.0	0.2	0.0	0.0	0.8	0.1	20.5	23.2	21.6	37
	G18	0.0	0.2	0.0	0.0	2.5	0.6	20.0	23.3	21.4	39
North East Boundary	G19	0.0	78.4	57.1	0.0	33.6	17.8	0.2	22.8	5.0	37
	G20	0.0	89.6	52.9	0.5	30.7	11.3	0.2	19.9	4.2	40
	G21	0.0	72.5	40.8	0.0	21.6	13.1	0.1	22.9	5.4	41
	G22	0.1	80.5	69.7	0.0	25.3	19.2	0.1	22.8	1.5	41
	G23	0.0	31.7	5.1	0.0	13.8	7.2	0.1	22.9	6.4	41
	G24	0.0	70.0	15.5	0.0	31.3	6.7	0.2	22.7	16.3	40
	G25	1.3	47.6	18.6	2.3	25.6	12.5	0.2	19.0	7.6	40
North Boundary	G26	0.0	0.7	0.1	0.0	5.3	2.7	12.9	21.4	18.0	40
	G27	0.0	0.2	0.1	0.0	1.8	0.1	20.2	22.8	21.6	41
	G29	0.0	49.2	3.5	0.0	6.2	0.6	1.0	22.9	20.2	40
	G30	0.0	23.9	3.7	0.0	4.7	1.1	5.4	22.2	18.5	39
	G31	0.0	0.2	0.0	0.0	8.8	3.6	11.9	22.1	17.8	40
	G32	0.0	0.2	0.0	0.0	2.4	0.5	19.5	22.7	21.3	40
North West Boundary	G33	0.0	0.1	0.0	0.0	6.4	2.5	16.2	21.3	19.5	5
	G35	0.1	61.7	24.9	0.0	34.2	15.8	0.4	22.2	8.1	41
	G36	0.0	49.7	22.7	0.1	8.6	4.2	1.3	22.3	12.0	39
	G37	0.0	0.4	0.1	0.1	2.1	0.7	20.0	22.3	21.2	38
	G38	0.0	69.1	29.9	0.0	27.8	14.2	0.1	22.8	8.1	39
	G39	0.0	0.3	0.0	0.0	4.0	1.0	18.5	22.4	20.6	39
	G40	0.0	47.7	5.7	0.0	15.9	4.6	0.4	23.4	14.6	43
	G41	0.0	8.1	0.7	0.0	5.3	1.5	12.8	23.0	19.4	39
	G42	0.0	0.3	0.1	0.0	0.9	0.1	20.2	22.7	21.6	39

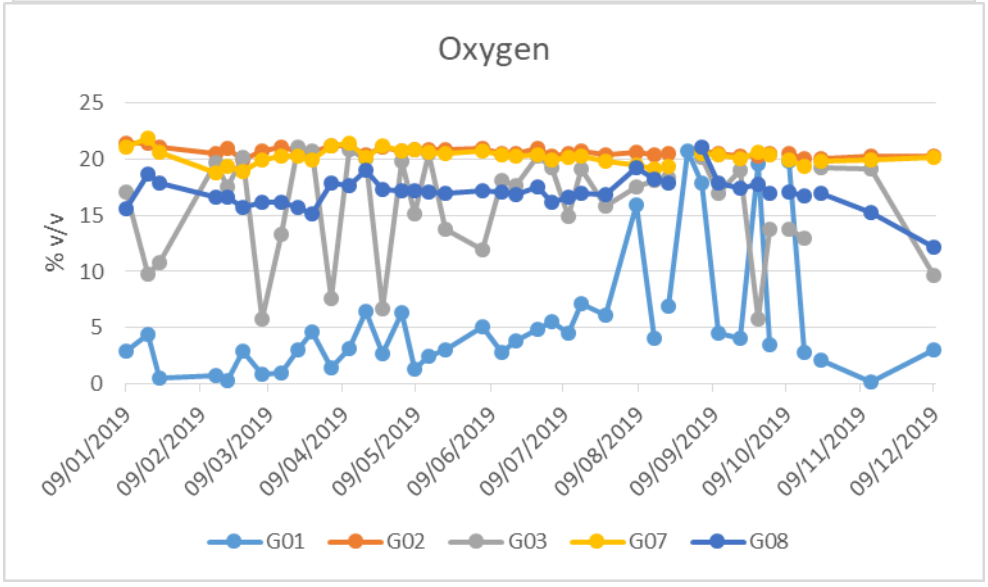
Table 4: Perimeter Landfill Gas monitoring data; Carbon Monoxide, Hydrogen Sulphide (% v/v)

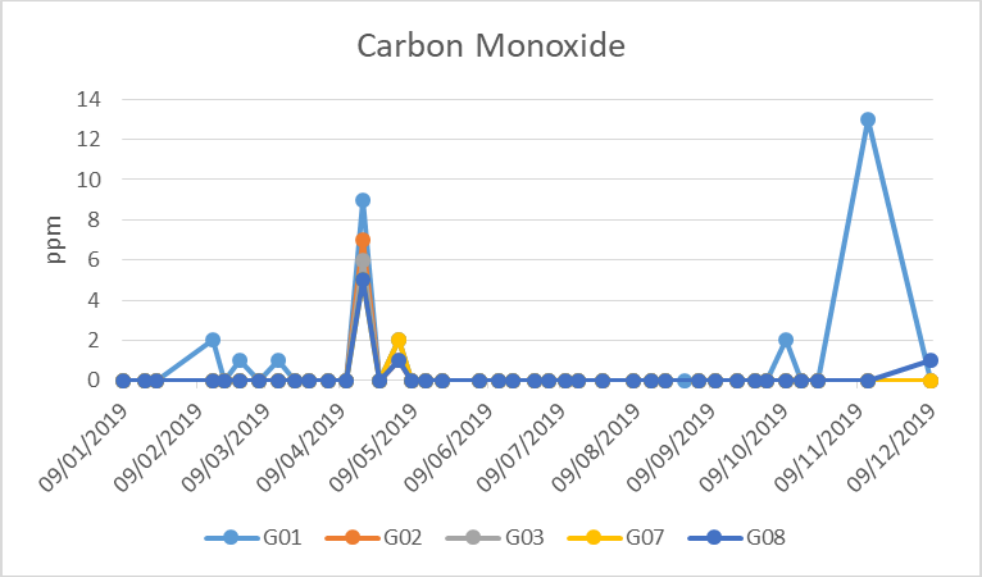
	Carbon Monoxide (ppm)			Hydrogen Sulphide (ppm)		
	Min	Max	Ave	Min	Max	Ave
G01	0	13	1	0	1	0
G02	0	7	0	0	0	0
G03	0	6	0	0	0	0
G07	0	5	0	0	0	0
G08	0	5	0	0	0	0
G09	0	4	0	0	0	0
G10	0	4	0	0	0	0
G11	0	4	0	0	0	0
G12	0	20	7	0	3	0
G13	0	5	0	0	0	0
G14	0	4	0	0	0	0
G15	0	3	0	0	0	0
G16	0	3	0	0	0	0
G17	0	3	0	0	1	0
G18	0	3	0	0	0	0
G19	0	6	0	0	13	2
G20	0	45	5	0	202	27
G21	0	20	7	0	3	1
G22	0	8	1	0	6	2
G23	0	7	1	0	9	1
G24	0	3	0	0	1	0
G25	0	3	0	0	0	0
G26	0	3	0	0	1	0
G27	0	3	0	0	1	0
G29	0	3	0	0	108	5
G30	0	3	0	0	1	0
G31	0	2	0	0	2	0
G32	0	3	0	0	1	0
G33	0	0	0	0	0	0
G35	0	3	0	0	58	1
G36	0	9	1	0	1	0
G37	0	3	0	0	1	0
G38	0	17	3	0	13	3
G39	0	2	0	0	1	0
G40	0	5	0	0	1	0
G41	0	3	0	0	1	0
G42	0	3	0	0	1	0

South West Boundary – Summary Graphs





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8
6
4
2
0
ppm
09/01/2019
09/02/2019
09/03/2019
09/04/2019
09/05/2019
09/06/2019
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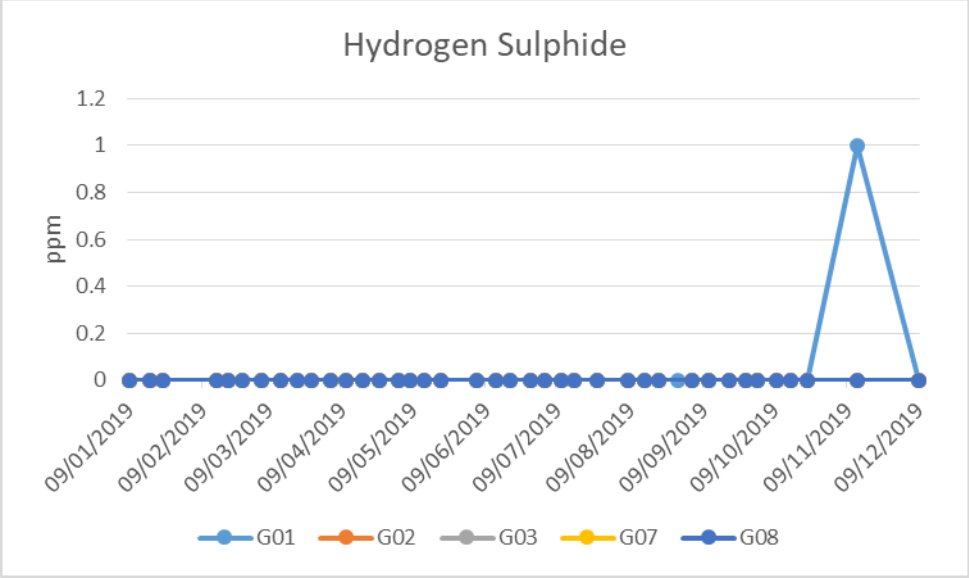
09/12/2019
G01
G02
G03
G07
G08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1
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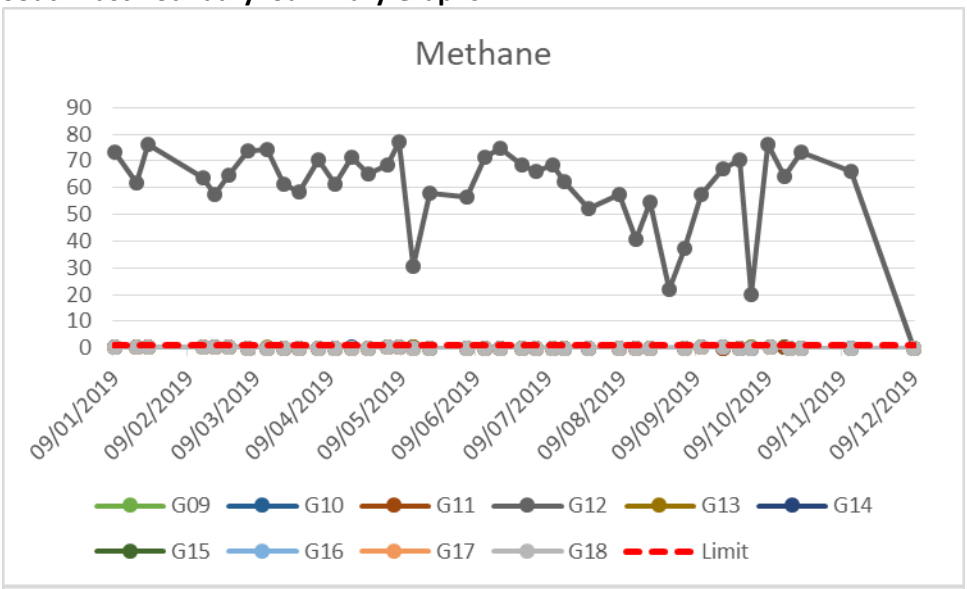
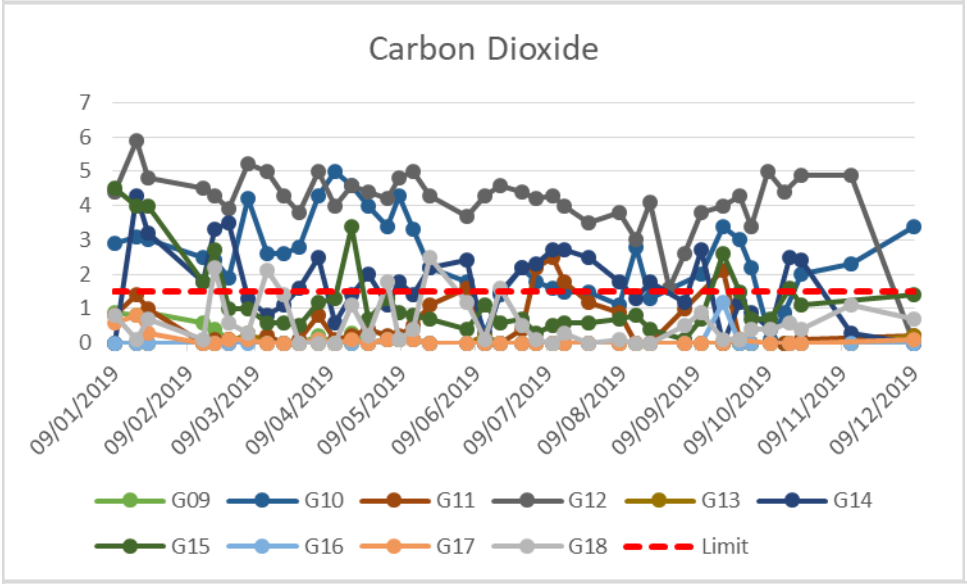
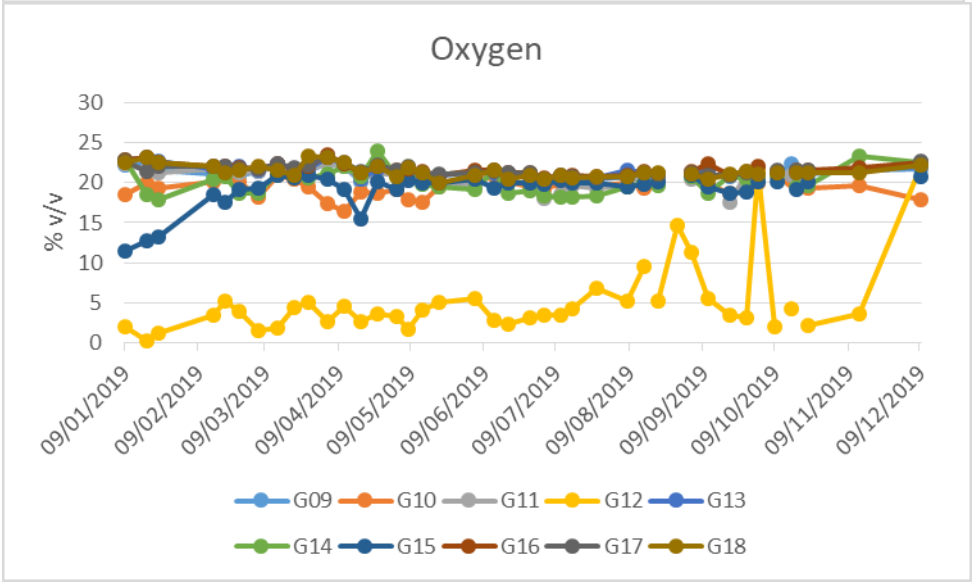
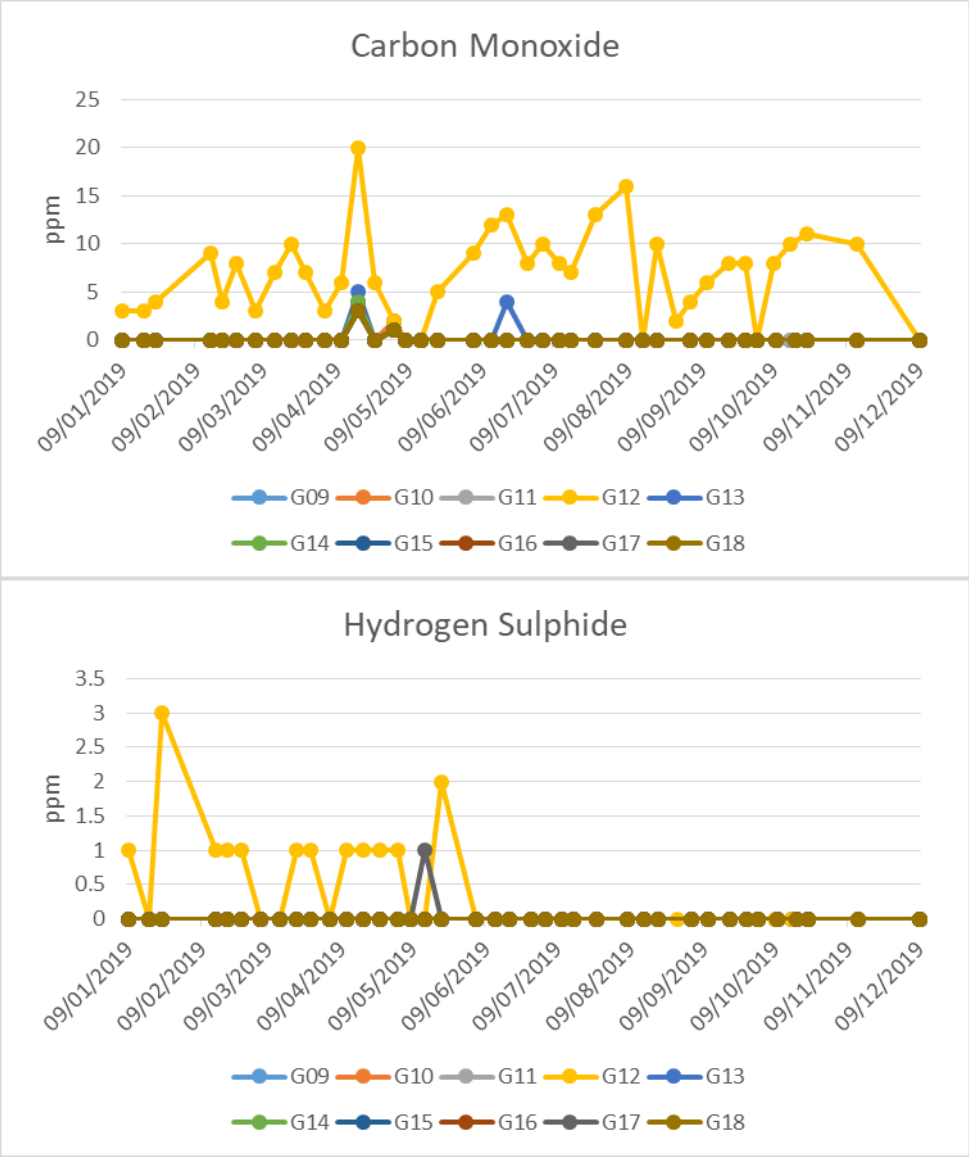
0.6
0.4
0.2
0
ppm
09/01/2019
09/02/2019
09/03/2019
09/04/2019
09/05/2019
09/06/2019
09/07/2019
09/08/2019
09/09/2019
09/10/2019
09/11/2019
09/12/2019
G01
G02
G03
G07
G08

South East Boundary- Summary Graphs





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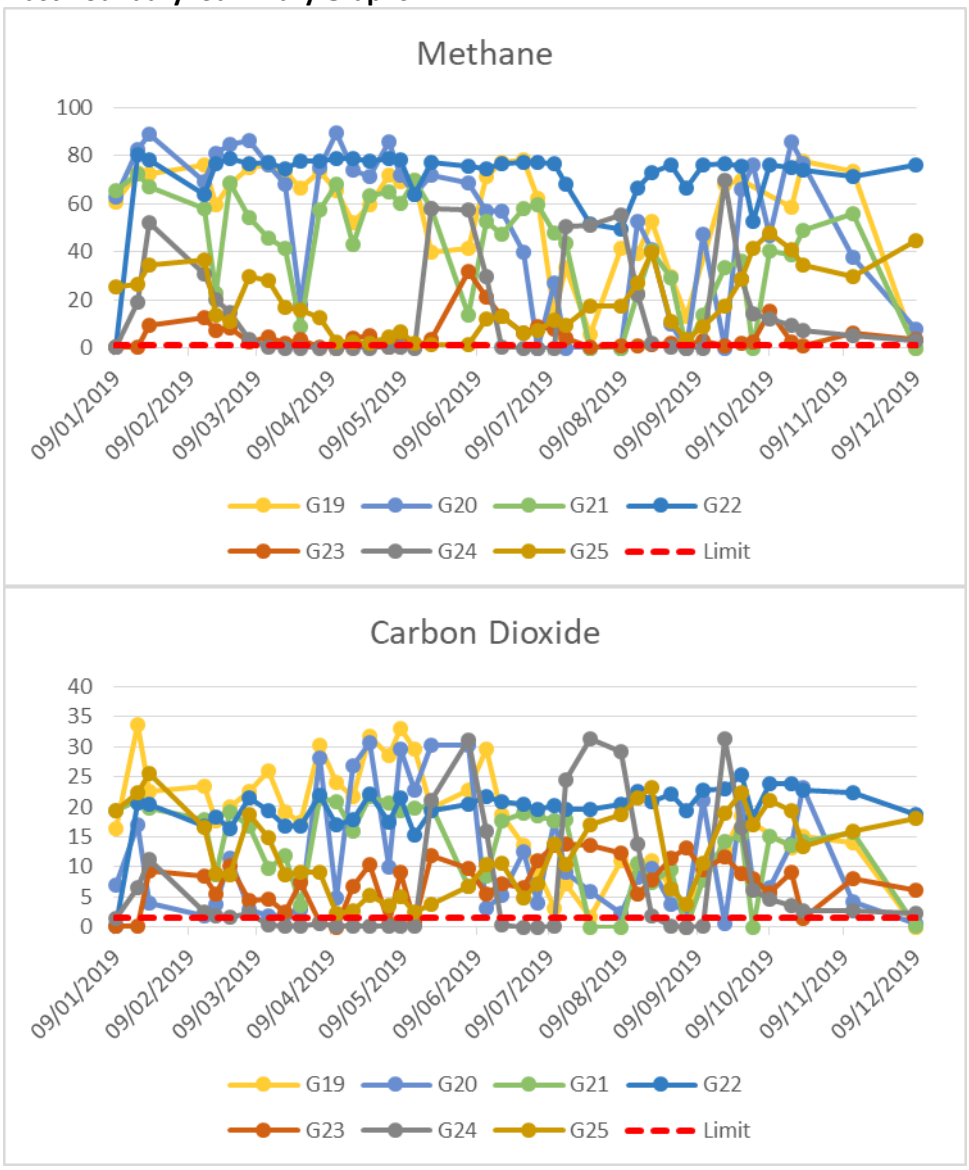
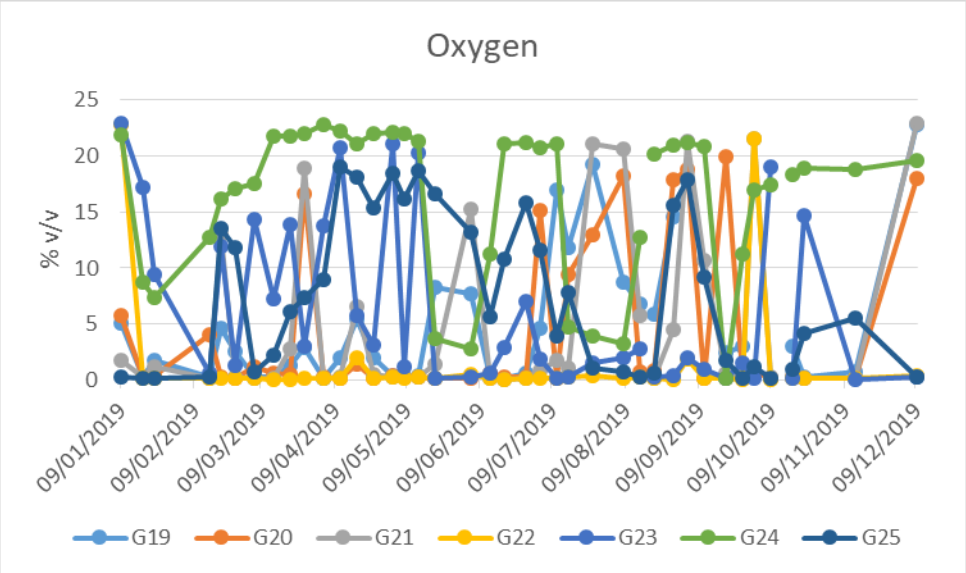
20
15
10
5
0
09/01/2019
09/02/2019
09/03/2019
09/04/2019
09/05/2019
09/06/2019
09/07/2019
09/08/2019
09/09/2019
09/10/2019
09/11/2019
09/12/2019
G09 G10 G11 G12 G13
G14 G15 G16 G17 G18
Hydrogen Sulphide
ppm
3.5
3
2.5
2
1.5
1
0.5
0
09/01/2019
09/02/2019
09/03/2019
09/04/2019
09/05/2019
09/06/2019
09/07/2019
09/08/2019
09/09/2019
09/10/2019
09/11/2019
09/12/2019
G09 G10 G11 G12 G13
G14 G15 G16 G17 G18

North East Boundary- Summary Graphs




Oxygen
% v/v
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20
15
10
5
0
09/01/2019
09/02/2019
09/03/2019
09/04/2019
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09/06/2019
09/07/2019
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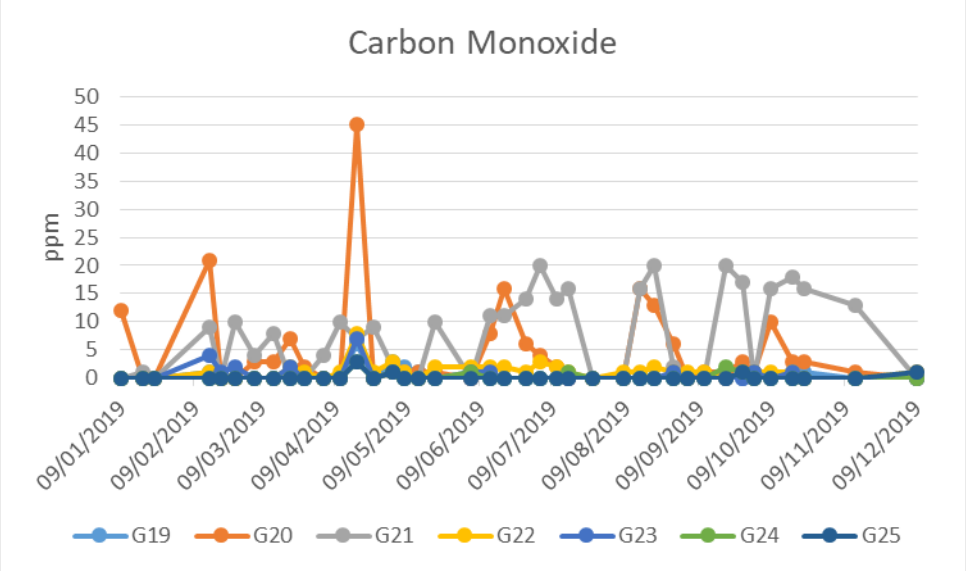
G19
G20
G21
G22
G23
G24
G25


Carbon Monoxide
ppm
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45
40
35
30
25
20
15
10
5
0
09/01/2019
09/02/2019
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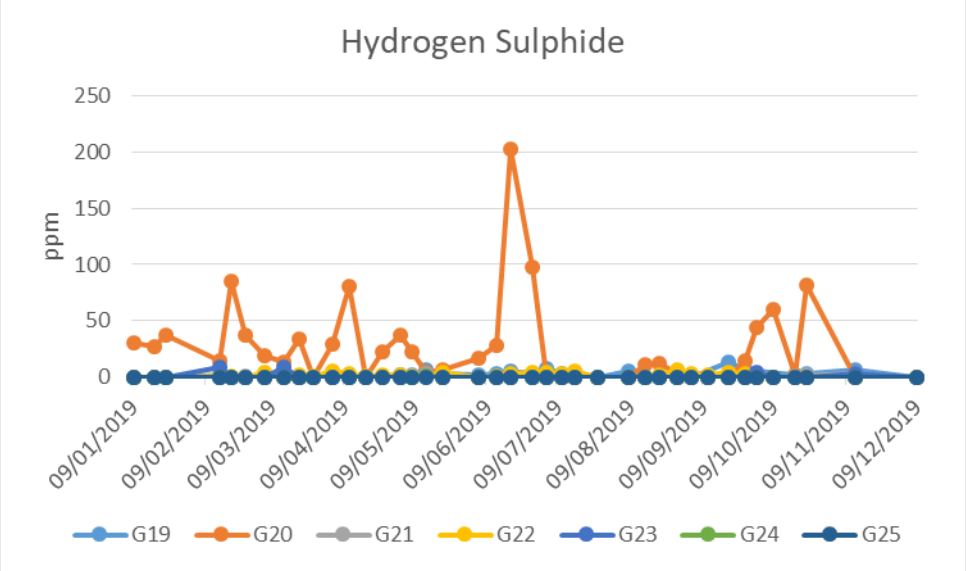
09/04/2019
09/05/2019
09/06/2019
09/07/2019
09/08/2019
09/09/2019
09/10/2019
09/11/2019
09/12/2019
G19
G20
G21
G22
G23
G24
G25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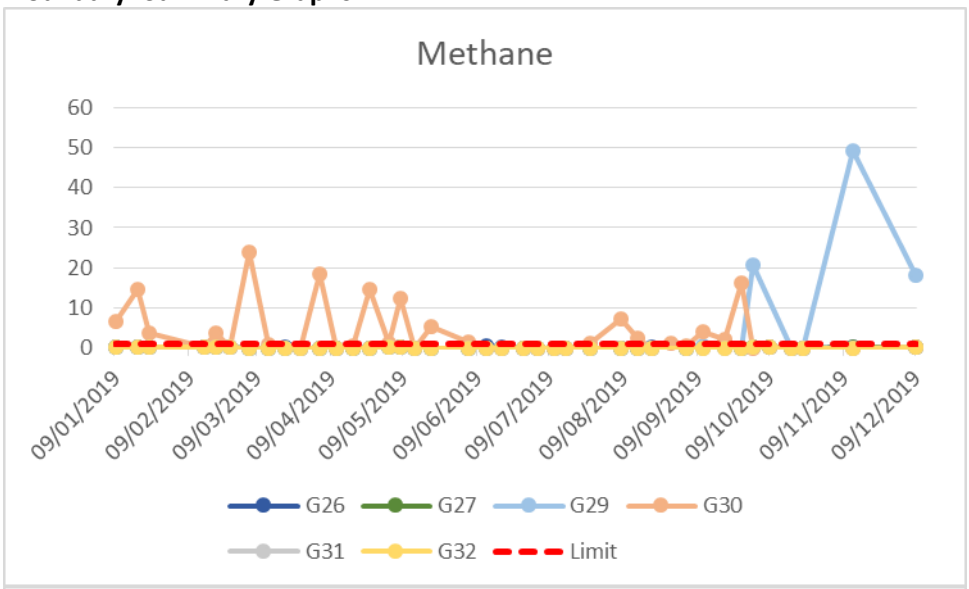
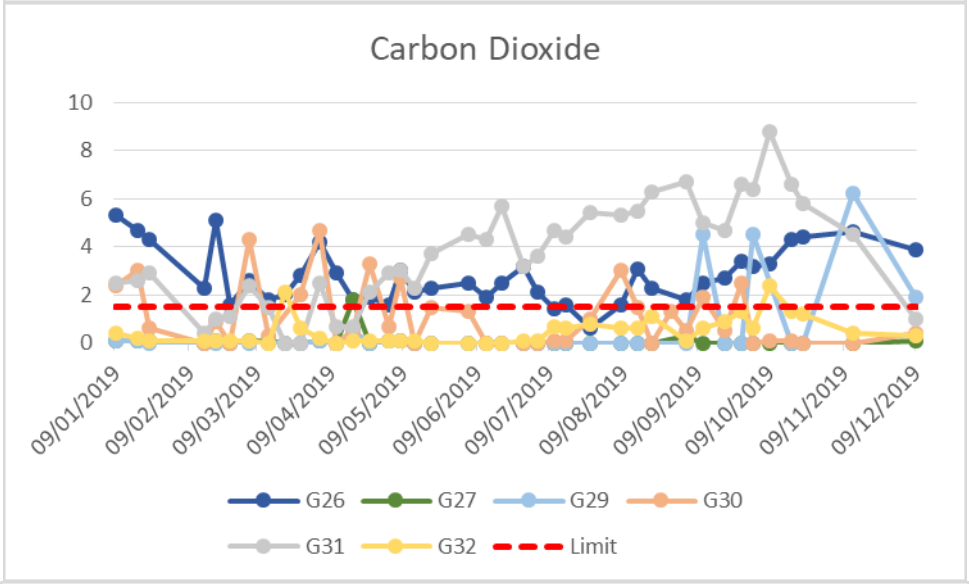
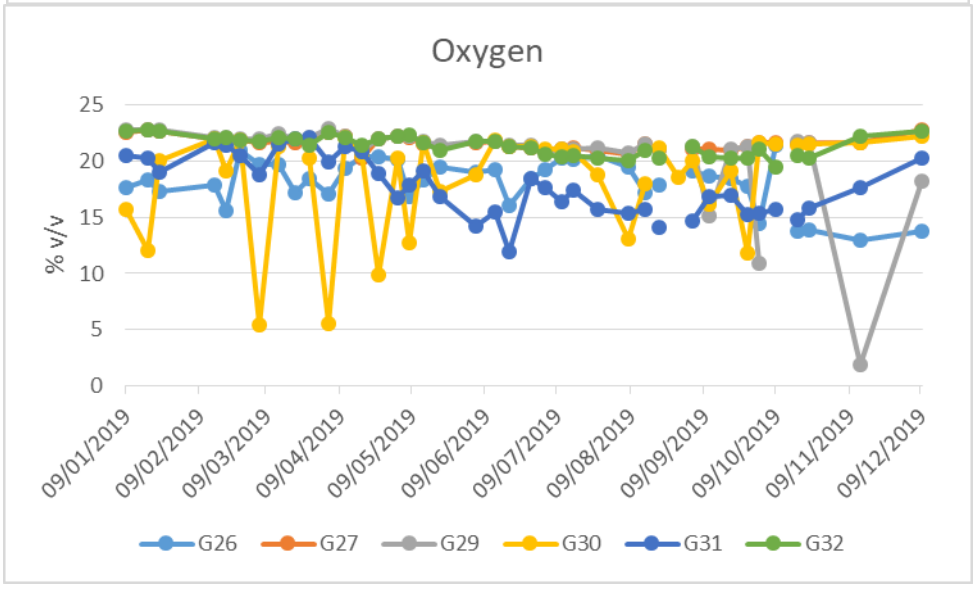
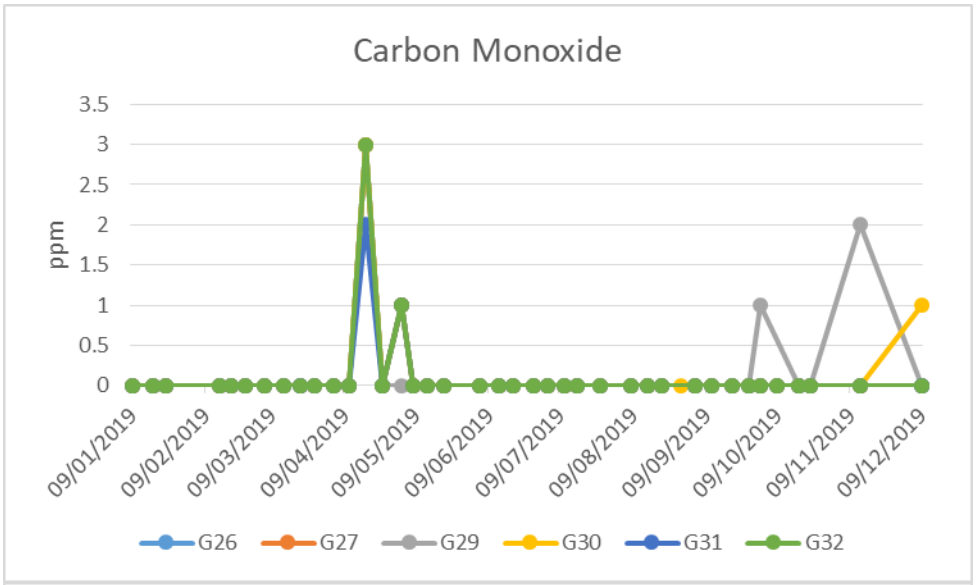
09/06/2019
09/07/2019
09/08/2019
09/09/2019
09/10/2019
09/11/2019
09/12/2019
G19
G20
G21
G22
G23
G24
G25

North Boundary- Summary Graphs





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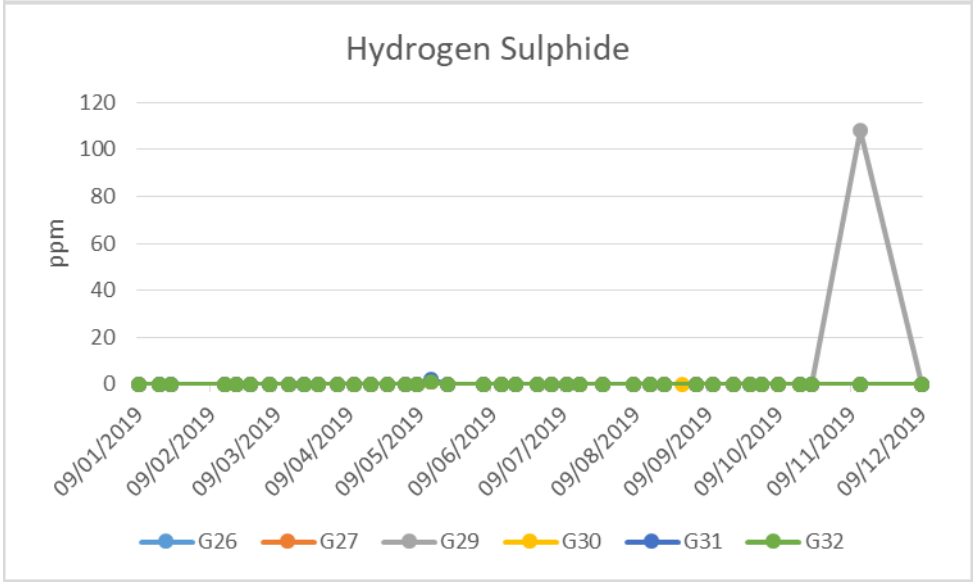
G26
G27
G29
G30
G31
G32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09/06/2019
09/07/2019
09/08/2019
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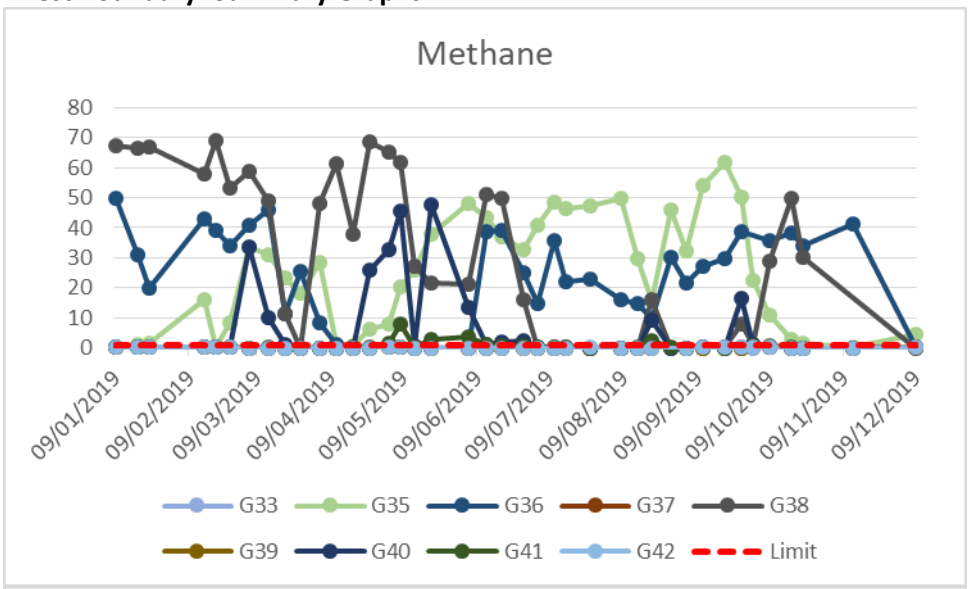
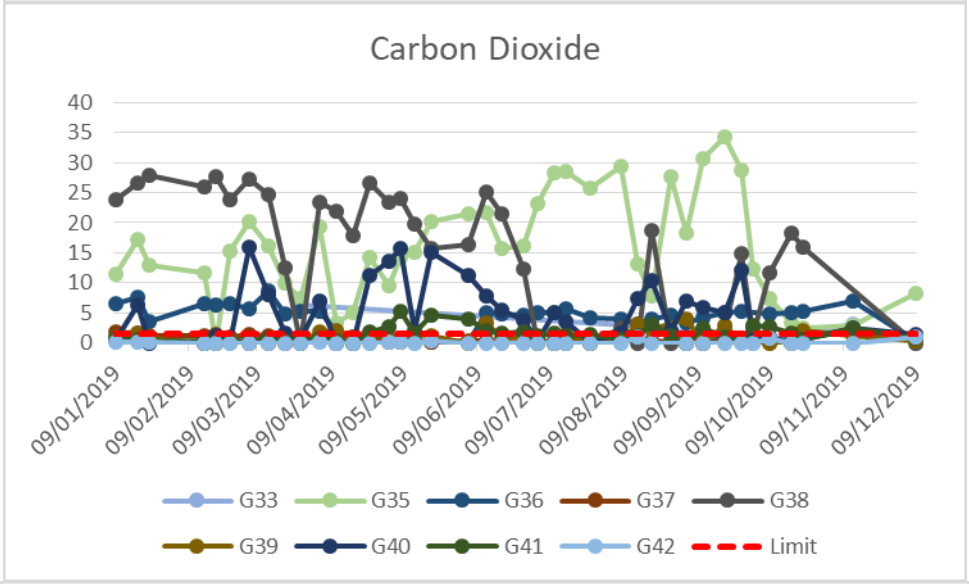
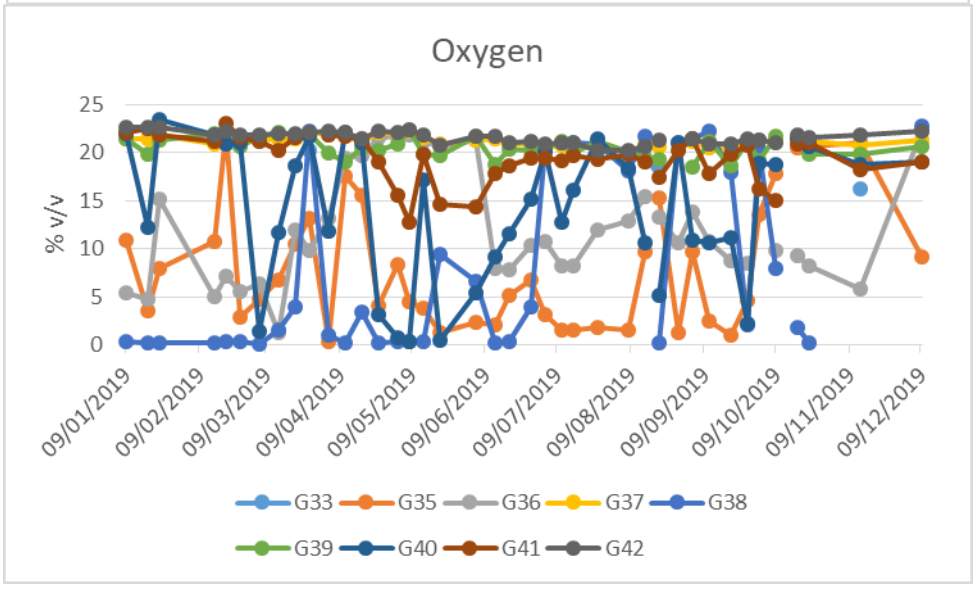
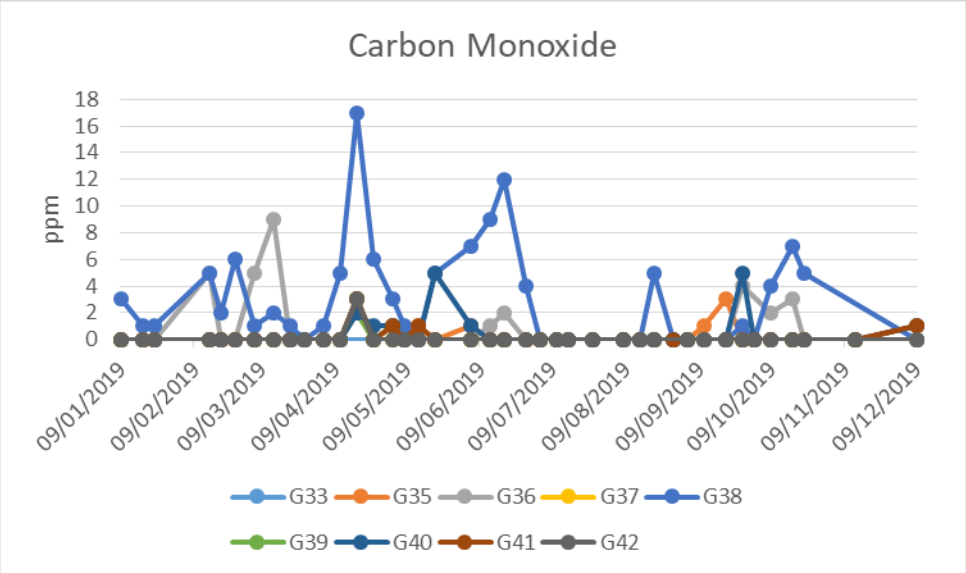
09/11/2019
09/12/2019
G26
G27
G29
G30
G31
G32

North West Boundary- Summary Graphs





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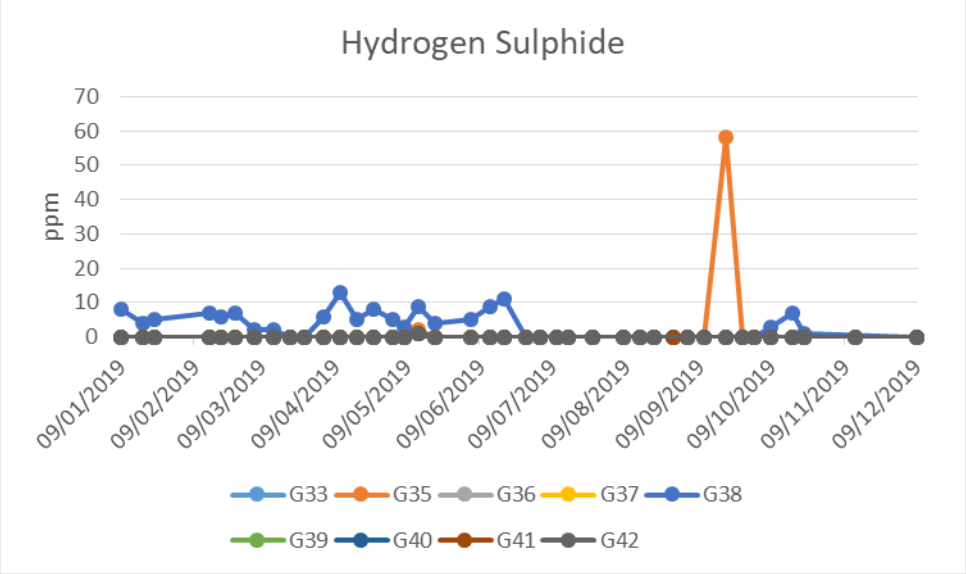
09/02/2019
09/03/2019
09/04/2019
09/05/2019
09/06/2019
09/07/2019
09/08/2019
09/09/2019
09/10/2019
09/11/2019
09/12/2019
G33 G35 G36 G37 G38
G39 G40 G41 G42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09/02/2019
09/03/2019
09/04/2019
09/05/2019
09/06/2019
09/07/2019
09/08/2019
09/09/2019
09/10/2019
09/11/2019
09/12/2019
G33 G35 G36 G37 G38
G39 G40 G41 G42

Appendix 3

APPENDIX 3 – LEACHATE

Table 1 –Leachate Level Data

Location	LCP1			LCP2			LCP3			LCP6			LCP7		
	Cover Level (mAOD)		318.91	Cover Level (mAOD)		348.51	Cover Level (mAOD)		350	Cover Level (mAOD)		339.26	Cover Level (mAOD)		327.12
	Base		310	Base		311	Base		311	Base		310	Base		310
	(mAOD)			(mAOD)			(mAOD)			(mAOD)			(mAOD)		
Date	Dip (mBGL)	Level (mAOD)	Leachate Head (m)	Dip (mBGL)	Level (mAOD)	Leachate Head (m)	Dip (mBGL)	Level (mAOD)	Leachate Head (m)	Dip (mBGL)	Level (mAOD)	Leachate Head (m)	Dip (mBGL)	Level (mAOD)	Leachate Head (m)
27/02/2019	6.18	312.73	2.73	-	-	-	-	-	-	-	-	-	-	-	-
20/03/2019	3.05	315.86	5.86	28.65	319.86	8.86	34.80	315.20	4.20	24.97	314.29	4.29	16.50	310.62	0.62
13/05/2019	-	-	-	27.63	320.88	9.88	-	-	-	-	-	-	-	-	-
24/05/2019	-	-	-	-	-	-	-	-	-	22.77	316.49	6.49	-	-	-
08/08/2019	5.22	313.69	3.69	26.01	322.50	11.50	33.10	316.90	5.90	23.00	316.26	6.26	15.70	311.42	1.42
22/08/2019	2.09	316.82	6.82	28.48	320.03	9.03	30.17	319.83	8.83	21.45	317.81	7.81	12.26	314.86	4.86
29/08/2019	5.68	313.23	3.23	26.70	321.81	10.81	28.76	321.24	10.24	22.70	316.56	6.56	13.00	314.12	4.12
04/09/2019	3.57	315.34	5.34	25.32	323.19	12.19	30.34	319.66	8.66	21.97	317.29	7.29	12.58	314.54	4.54
09/09/2019	4.53	314.38	4.38	25.93	322.58	11.58	30.51	319.49	8.49	23.40	315.86	5.86	15.30	311.82	1.82
11/09/2019	5.72	313.19	3.19	27.36	321.15	10.15	31.43	318.57	7.57	21.89	317.37	7.37	16.50	310.62	0.62
18/09/2019	2.20	316.71	6.71	28.38	320.13	9.13	32.00	318.00	7.00	22.01	317.25	7.25	16.30	310.82	0.82
03/10/2019	1.33	317.58	7.58	24.31	324.20	13.20	29.57	320.43	9.43	21.48	317.78	7.78	11.80	315.32	5.32
09/10/2019	0.23	318.68	8.68	24.66	323.85	12.85	29.25	320.75	9.75	22.76	316.50	6.50	11.03	316.09	6.09
30/10/2019	0.82	318.09	8.09	27.57	320.94	9.94	31.94	318.06	7.06	22.17	317.09	7.09	12.65	314.47	4.47
06/11/2019	3.48	315.43	5.43	27.51	321.00	10.00	32.19	317.81	6.81	22.54	316.72	6.72	13.48	313.64	3.64
13/11/2019	4.89	314.02	4.02	27.56	320.95	9.95	32.87	317.13	6.13	22.99	316.27	6.27	14.22	312.90	2.90
05/12/2019	1.37	317.54	7.54	28.42	320.09	9.09	32.95	317.05	6.05	22.82	316.44	6.44	15.40	311.72	1.72
09/12/2019	1.68	317.23	7.23	27.35	321.16	10.16	32.85	317.15	6.15	22.90	316.36	6.36	15.10	312.02	2.02
18/12/2019	2.40	316.51	6.51	26.90	321.61	10.61	33.05	316.95	5.95	23.14	316.12	6.12	14.90	312.22	2.22
27/12/2019	1.90	317.01	7.01	27.17	321.34	10.34	32.91	317.09	6.09	23.45	315.81	5.81	12.70	314.42	4.42
EP Limit			1			1			1			1			1

Location	LCP8			RMLP9A			RMLP9B West			RMLP9C			RMLP9D		
	Cover Level (mAOD)		323.69	Cover Level (mAOD)		335.17	Cover Level (mAOD)		340.1	Cover Level (mAOD)		334.11	Cover Level (mAOD)		334.62
	Base		310	Base		307.54	Base		307.83	Base		307	Base		307
	(mAOD)			(mAOD)			(mAOD)			(mAOD)			(mAOD)		
Date	Dip (mBGL)	Level (mAOD)	Leachate Head (m)	Dip (mBGL)	Level (mAOD)	Leachate Head (m)	Dip (mBGL)	Level (mAOD)	Leachate Head (m)	Dip (mBGL)	Level (mAOD)	Leachate Head (m)	Dip (mBGL)	Level (mAOD)	Leachate Head (m)
27/02/2019	11.19	312.50	2.50	-	-	-	-	-	-	-	-	-	-	-	-
20/03/2019	12.88	310.81	0.81	23.31	311.86	4.32	-	-	-	11.41	322.70	15.70	15.30	319.32	12.32
29/05/2019	-	-	-	-	-	-	-	-	-	9.89	324.22	17.22	-	-	-
12/06/2019	-	-	-	17.56	317.61	10.07	-	-	-	-	-	-	-	-	-
03/07/2019	-	-	-	-	-	-	19.85	320.25	12.42	9.15	324.96	17.96	6.12	328.50	21.50
15/07/2019	-	-	-	-	-	-	21.69	318.41	10.58	9.60	324.51	17.51	8.40	326.22	19.22
19/07/2019	-	-	-	-	-	-	23.49	316.61	8.78	10.13	323.98	16.98	8.78	325.84	18.84
08/08/2019	11.34	312.35	2.35	23.35	311.82	4.28	28.73	311.37	3.54	11.14	322.97	15.97	9.20	325.42	18.42
22/08/2019	8.65	315.04	5.04	23.23	311.94	4.40	23.32	316.78	8.95	7.88	326.23	19.23	5.04	329.58	22.58
29/08/2019	9.20	314.49	4.49	23.77	311.40	3.86	21.75	318.35	10.52	8.04	326.07	19.07	4.89	329.73	22.73
04/09/2019	8.74	314.95	4.95	22.60	312.57	5.03	23.52	316.58	8.75	7.98	326.13	19.13	4.92	329.70	22.70
09/09/2019	9.90	313.79	3.79	22.90	312.27	4.73	-	-	-	-	-	-	-	-	-
11/09/2019	10.06	313.63	3.63	22.36	312.81	5.27	27.35	312.75	4.92	13.25	320.86	13.86	6.29	328.33	21.33
18/09/2019	10.50	313.19	3.19	24.70	310.47	2.93	28.86	311.24	3.41	14.10	320.01	13.01	7.89	326.73	19.73
03/10/2019	7.60	316.09	6.09	22.58	312.59	5.05	23.16	316.94	9.11	8.13	325.98	18.98	4.86	329.76	22.76
09/10/2019	6.30	317.39	7.39	21.91	313.26	5.72	22.04	318.06	10.23	9.02	325.09	18.09	3.66	330.96	23.96
30/10/2019	8.19	315.50	5.50	22.60	312.57	5.03	27.75	312.35	4.52	14.81	319.30	12.30	4.91	329.71	22.71
06/11/2019	9.25	314.44	4.44	22.54	312.63	5.09	28.19	311.91	4.08	15.62	318.49	11.49	4.56	330.06	23.06
13/11/2019	10.01	313.68	3.68	22.37	312.80	5.26	28.97	311.13	3.30	16.04	318.07	11.07	4.87	329.75	22.75
27/11/2019	-	-	-	20.50	314.67	7.13	18.50	321.60	3.77	-	-	-	14.50	320.12	13.12
05/12/2019	7.80	315.89	5.89	22.18	312.99	5.45	30.36	309.74	1.91	13.30	320.81	13.81	16.50	318.12	11.12
09/12/2019	-	-	-	21.70	313.47	5.93	30.40	309.70	1.87	15.90	318.21	11.21	16.80	317.82	10.82
18/12/2019	-	-	-	20.95	314.22	6.68	30.60	309.50	1.67	17.50	316.61	9.61	16.70	317.92	10.92
27/12/2019	-	-	-	19.60	315.57	8.03	30.60	309.50	1.67	16.80	317.31	10.31	16.80	317.82	10.82
EP Limit			1			1			1			1			1

Table 2 – Monthly Leachate Extraction Wells Monitoring Data

Location		Ammoniacal Nitrogen	Chloride as Cl	COD (Total)	pH
		mg/l	mg/l	mg/l	pH units
LCP1	Min	32.1	83.5	126.0	6.5
	Max	479.0	533.0	472.0	8.0
	Average	156.7	262.7	302.0	7.2
	Count	12	11	4	12
LCP2	Min	1910.0	7520.0	2870.0	7.9
	Max	2240.0	8640.0	3300.0	8.5
	Average	2107.5	8031.8	3072.5	8.1
	Count	12.0	11	4	12.0
LCP3	Min	1900.0	2520.0	3120.0	7.7
	Max	2290.0	4540.0	4550.0	8.1
	Average	2078.3	3480.9	3827.5	7.9
	Count	12	11	4	12
LCP6	Min	1030.0	1720.0	2610.0	7.7
	Max	1950.0	2440.0	3170.0	8.1
	Average	1475.0	2110.0	2820.0	7.9
	Count	12	11	4	12
LCP7	Min	101.0	241.0	484.0	7.5
	Max	969.0	1550.0	1370.0	8.4
	Average	711.7	1126.5	1041.0	7.8
	Count	12	11	4	12
LCP8	Min	86.4	178.0	1350.0	7.5
	Max	1340.0	2780.0	2140.0	8.1
	Average	957.5	1980.7	1707.5	7.7
	Count	12	11	4	12
RMLP9A	Min	1370.0	1690.0	1990.0	7.6
	Max	1920.0	3270.0	3900.0	8.3
	Average	1660.0	2563.6	2937.5	8.0
	Count	12	11	4	12
RMLP9B	Min	697.0	1770.0	3130.0	7.8
	Max	2530.0	7190.0	5110.0	8.3
	Average	1893.9	3042.7	4272.5	8.1

Location		Ammoniacal Nitrogen	Chloride as Cl	COD (Total)	pH
		mg/l	mg/l	mg/l	pH units
	Count	12	11	4	12
RMLP9C	Min	353.0	359.0	1380.0	7.5
	Max	1720.0	2060.0	3750.0	8.3
	Average	1020.4	1227.9	2080.0	7.9
	Count	12	11	4	12
RMLP9D	Min	1100.0	1370.0	3870.0	7.5
	Max	3640.0	4000.0	57200.0	8.3
	Average	1745.8	2003.6	19125.0	8.1
	Count	12	11	4	12

Table 3: Leachate Extraction Wells annual monitoring data

Parameters	µnits	LCP1 (Leachate 1)	LCP2 (Leachate 2)	LCP3 (Leachate 3)	LCP7 (Leachate 4)	LCP 8 (Leachate 5)	LCP6 (Leachate 6)	Sample 2 - LCP6 (Leachate 6)	RMLP9A (Leachate 7)	RMLP9C (Leachate 9)	RMLP9D (Leachate 10)
1,1,1,2-Tetrachloroethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,1,1-Trichloroethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,1,2,2-Tetrachloroethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,1,2-Trichloroethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,1-Dichloroethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,1-Dichloroethene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,1-Dichloropropene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,2,3-Trichlorobenzene	ng/l	<10	<86	<86	<86	<86	<86	<86	<86	<86	<170
1,2,3-Trichlorobenzene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,2,3-Trichloropropane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,2,4-Trichlorobenzene	ng/l	<10	<68	<68	<68	<68	<68	<68	<68	<68	<134
1,2,4-Trichlorobenzene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,2,4-Trimethylbenzene	µg/l	2.2	8.16	10.1	<1.00	6.83	12.9	13.7	6.39	-	18.1
1,2-Dibromo-3-chloropropane	µg/l	<2.00	<8.00	<8.00	<2.00	<2.00	<8.00	<8.00	<8.00	-	<8.00
1,2-Dibromoethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,2-Dichlorobenzene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,2-Dichloroethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00

Parameters	µnits	LCP1 (Leachate 1)	LCP2 (Leachate 2)	LCP3 (Leachate 3)	LCP7 (Leachate 4)	LCP 8 (Leachate 5)	LCP6 (Leachate 6)	Sample 2 - LCP6 (Leachate 6)	RMLP9A (Leachate 7)	RMLP9C (Leachate 9)	RMLP9D (Leachate 10)
1,2-Dichloropropane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,3,5-Trichlorobenzene	ng/l	<12	<114	<114	<114	<114	<114	<114	<114	<114	<226
1,3,5-Trimethylbenzene	µg/l	<1.00	<4.00	<4.00	<1.00	2.1	4.04	4.16	<4.00	-	<4.00
1,3-Dichlorobenzene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,3-Dichloropropane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
1,4-Dichlorobenzene	µg/l	<1.00	<4.00	4.23	<1.00	4.03	8.51	<4.00	<4.00	-	<4.00
2,2-Dichloropropane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
2,3,6 - TBA	µg/l	<0.10	<20.0	<20.0	<2.00	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
2,4 - D	µg/l	<0.10	<20.0	<20.0	<2.00	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
2,4 - DB	µg/l	<0.10	<20.0	<20.0	<2.00	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
2,4,5 - T	µg/l	<0.10	<20.0	<20.0	<2.00	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
2-Chlorotoluene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
4-Chlorotoluene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Aldrin	ng/l	<11	<101	<101	<101	<101	<101	<101	<101	<101	<200
alpha-Chlordane	ng/l	<13	<121	<121	<121	<121	<121	<121	<121	<121	<241
alpha-Endosulphan	ng/l	<18	<169	<169	<169	<169	<169	<169	<169	<169	<338
alpha-HCH	ng/l	<9	<85	<85	<85	<85	<85	<85	<85	<85	<169
Azinphos-ethyl	µg/l	<0.009	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.169
Azinphos-methyl	µg/l	<0.008	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	0.191
Benzene	µg/l	1.87	<4.00	<4.00	<1.00	4.36	2.64	6.55	5.2	-	13.6
beta-Endosulphan	ng/l	<13	<126	<126	<126	<126	<126	<126	<126	<126	<251
beta-HCH	ng/l	<9	<76	<76	<76	<76	<76	<76	<76	<76	<152
Bromobenzene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Bromochloromethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Bromodichloromethane	µg/l	<1.00	<1.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Bromoform	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Bromomethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Bromoxynil	µg/l	<0.10	<20.0	<20.0	<2.00	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Cadmium , Total as Cd	mg/l	<0.0006	0.0007	0.0008	0.0008	<0.0006	<0.0006	<0.0006	<0.0060	<0.0006	0.0007
Carbon Tetrachloride	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Carbophenothion	µg/l	<0.014	<0.132	<0.132	<0.132	<0.132	<0.132	<0.132	<0.132	<0.132	<0.263
Chlorfenvinphos	µg/l	<0.010	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.174
Chlorobenzene	µg/l	<1.00	<4.00	<4.00	<1.00	4.7	<4.00	6.43	<4.00	-	<4.00

Parameters	µnits	LCP1 (Leachate 1)	LCP2 (Leachate 2)	LCP3 (Leachate 3)	LCP7 (Leachate 4)	LCP 8 (Leachate 5)	LCP6 (Leachate 6)	Sample 2 - LCP6 (Leachate 6)	RMLP9A (Leachate 7)	RMLP9C (Leachate 9)	RMLP9D (Leachate 10)
Chloroethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Chloroform	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Chloromethane	µg/l	<2.00	<8.00	<8.00	<2.00	<2.00	<8.00	<8.00	<8.00	-	<8.00
Chlorotoluron	µg/l	<0.50	<1.00	<1.00	<0.50	<0.50	<0.50	<0.50	<1.00	<1.00	<1.00
Chlorpyriphos	µg/l	<0.007	<0.064	<0.064	<0.064	<0.064	<0.064	<0.064	<0.064	<0.064	<0.126
Chromium , Total as Cr	mg/l	0.004	0.132	0.31	0.038	0.073	0.122	0.155	0.264	0.44	0.247
cis-1,2-Dichloroethene	µg/l	4.3	1.19	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
cis-1,3-Dichloropropene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Copper, Total as Cu	mg/l	0.84	0.485	1.12	0.137	0.1	0.342	0.029	0.544	0.519	1.01
Cyanide, Total as CN	mg/l	<0.009	0.016	0.012	<0.009	<0.009	0.013	0.022	0.014	-	0.016
Diazinon	µg/l	<0.012	<0.109	<0.109	<0.109	<0.109	<0.109	<0.109	<0.109	<0.109	<0.217
Dibromochloromethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Dibromomethane	µg/l	<1.00	<1.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Dicamba	µg/l	<0.10	<20.0	<20.0	<2.00	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Dichlobenil	ng/l	<9	<83	<83	<83	<83	<83	<83	<83	<83	212
Dichlorodifluoromethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Dichloromethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Dichlorprop	µg/l	<0.10	<20.0	<20.0	<2.00	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Dichlorvos	µg/l	<0.006	<0.049	<0.049	<0.049	<0.049	<0.049	<0.049	<0.049	<0.049	<0.097
Dieldrin	ng/l	<12	<108	<108	<108	<108	<108	<108	<108	<108	<215
Dimethoate	µg/l	<0.02	<0.139	<0.139	<0.139	<0.139	<0.139	<0.139	<0.139	<0.139	<0.276
Diuron	µg/l	<0.50	<1.00	<1.00	<0.50	<0.50	<0.50	<0.50	<1.00	<1.00	<1.00
EH >C10 - C16	µg/l	66	1180	1270	<100	359	757	779	1640	849	1800
EH >C16 - C24	µg/l	<40	332	118	<100	142	288	368	514	208	717
EH >C24 - C40	µg/l	<40	110	319	<100	122	203	282	210	<100	533
EH >C6 - C40	µg/l	66	1620	1820	<100	624	1400	1550	2370	1230	3640
EH >C6 - C8	µg/l	<40	<100	<100	<100	<100	<100	<100	<100	<100	211
EH >C8 - C10	µg/l	<40	<100	115	<100	<100	148	123	<100	177	380
Endrin	ng/l	<14	<128	<128	<128	<128	<128	<128	<128	<128	<255
Ethyl Benzene	µg/l	8.54	14.2	13.5	<1.00	10.6	9.36	24.9	10.2	-	14.8
Fenitrothion	µg/l	<0.010	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.176
Fenthion	µg/l	<0.011	<0.097	<0.097	<0.097	<0.097	<0.097	<0.097	<0.097	<0.097	<0.192
gamma-Chlordane	ng/l	<13	<120	<120	<120	<120	<120	<120	<120	<120	<239

Parameters	µnits	LCP1 (Leachate 1)	LCP2 (Leachate 2)	LCP3 (Leachate 3)	LCP7 (Leachate 4)	LCP 8 (Leachate 5)	LCP6 (Leachate 6)	Sample 2 - LCP6 (Leachate 6)	RMLP9A (Leachate 7)	RMLP9C (Leachate 9)	RMLP9D (Leachate 10)
gamma-HCH	ng/l	<9.3	<83.5	<83.5	<83.5	<83.5	<83.5	<83.5	<83.5	<83.5	<166.0
Heptachlor Epoxide	ng/l	<14	<136	<136	<136	<136	<136	<136	<136	<136	<271
Hexachlorobenzene	ng/l	<9	<78	<78	<78	<78	<78	<78	<78	<78	<155
Hexachlorobutadiene	ng/l	<7	<67	<67	<67	<67	<67	<67	<67	<67	<132
Hexachlorobutadiene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Ioxynil	µg/l	<0.10	<20.0	<20.0	<2.00	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Isodrin	ng/l	<13	<124	<124	<124	<124	<124	<124	<124	<124	<247
iso-Propylbenzene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Isoproturon	µg/l	<0.50	<1.00	<1.00	<0.50	<0.50	<0.50	<0.50	<1.00	<1.00	<1.00
Lead , Total as Pb	mg/l	0.048	0.015	0.13	0.03	0.006	0.028	0.007	0.495	0.037	0.07
Linuron	µg/l	<0.50	<1.00	<1.00	<0.50	<0.50	<0.50	<0.50	<1.00	<1.00	<1.00
m&p Xylene	µg/l	16.7	22.4	32.6	<1.00	15.3	26.5	49.6	16.6	-	32.1
Malathion	µg/l	<0.011	<0.096	<0.096	<0.096	<0.096	<0.096	<0.096	<0.096	<0.096	<0.192
MCPA	µg/l	0.54	<20.0	<20.0	<2.00	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
MCPB	µg/l	<0.10	<20.0	<20.0	<2.00	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Mecoprop	µg/l	2.6	90.3	46.7	1.85	22.2	38.7	<16.0	27.9	102	37.8
Mercury, Total as Hg	mg/l	<0.00010	-	-	<0.00010	-	-	-	-	-	-
Methabenzthiazuron	µg/l	<0.50	<1.00	<1.00	<0.50	<0.50	<0.50	<0.50	<1.00	<1.00	<1.00
Mevinphos	µg/l	<0.020	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083	<0.165
Monolinuron	µg/l	<0.50	<1.00	<1.00	<0.50	<0.50	<0.50	<0.50	<1.00	<1.00	<1.00
Monuron	µg/l	<0.50	<1.00	<1.00	<0.50	<0.50	<0.50	<0.50	<1.00	<1.00	<1.00
MTBE	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Naphthalene	µg/l	<1.00	7.82	5.24	<1.00	4.32	4.61	<4.00	4.2	-	14.7
n-butylbenzene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Nickel, Total as Ni	mg/l	0.032	0.266	0.504	0.059	0.083	0.271	0.074	0.273	0.174	0.105
n-propylbenzene	µg/l	<1.00	<4.00	<4.00	<1.00	1.08	<4.00	<4.00	<4.00	-	<4.00
o,p - DDE	ng/l	<9	<78	<78	<78	<78	<78	<78	<78	<78	<155
o,p - DDT	ng/l	<10	<90	<90	<90	<90	<90	<90	<90	<90	<179
o,p - TDE	ng/l	<9	<86	<86	<86	<86	<86	<86	<86	<86	<171
o-Xylene	µg/l	3.87	9.24	10.5	<1.00	6.15	10	16.3	7.25	-	14.4
p,p - DDE	ng/l	<10	<86	<86	<86	<86	<86	<86	<86	<86	<172
p,p - DDT	ng/l	<14	<129	<129	<129	<129	<129	<129	<129	<129	<257
p,p - TDE	ng/l	<9	<78	<78	<78	<78	<78	<78	<78	<78	<155

Parameters	µnits	LCP1 (Leachate 1)	LCP2 (Leachate 2)	LCP3 (Leachate 3)	LCP7 (Leachate 4)	LCP 8 (Leachate 5)	LCP6 (Leachate 6)	Sample 2 - LCP6 (Leachate 6)	RMLP9A (Leachate 7)	RMLP9C (Leachate 9)	RMLP9D (Leachate 10)
Parathion-ethyl	µg/l	<0.009	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.169
Parathion-methyl	µg/l	<0.008	<0.076	<0.076	<0.076	<0.076	<0.076	<0.076	<0.076	<0.076	<0.151
Phorate	µg/l	<0.013	<0.120	<0.120	<0.120	<0.120	<0.120	<0.120	<0.120	<0.120	<0.238
Phosalone	µg/l	<0.016	<0.147	<0.147	<0.147	<0.147	<0.147	<0.147	<0.147	<0.147	<0.294
Pirimiphos-methyl	µg/l	<0.010	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.178
p-isopropyltoluene	µg/l	3.86	46.5	20.2	<1.00	2.07	34.3	19.1	20.8	-	20.2
Propetamphos	µg/l	<0.008	<0.069	<0.069	<0.069	<0.069	<0.069	<0.069	<0.069	<0.069	<0.137
sec-butylbenzene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Styrene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Tecnazene	ng/l	<34	<334	<334	<334	<334	<334	<334	<334	<334	<667
tert-Butylbenzene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Tetrachloroethene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Toluene	µg/l	17.9	19.6	74.2	<1.00	4.92	15	14.8	14.4	-	59.1
trans-1,2-Dichloroethene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
trans-1,3-Dichloropropene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Triallate	ng/l	<42	<411	<411	<411	<411	<411	<411	<411	<411	<820
Triazophos	µg/l	<0.009	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083	<0.083	0.201
Tributyl Tin	µg/l	<3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Trichloroethene	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Trichlorofluoromethane	µg/l	<1.00	<4.00	<4.00	<1.00	<1.00	<4.00	<4.00	<4.00	-	<4.00
Trifluralin	ng/l	<37	<359	<359	<359	<359	<359	<359	<359	<359	<718
Triphenyl Tin	µg/l	<3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Vinyl Chloride	µg/l	1.33	<2.00	<2.00	<0.500	<0.500	<2.00	<2.00	<2.00	-	<2.00
Xylene, Total	µg/l	20.5	31.7	43.1	<1.00	21.4	36.5	65.9	23.8	-	46.5
Zinc, Total as Zn	mg/l	0.233	0.31	1.74	0.312	0.08	0.238	0.275	1.32	1.16	1.07

Table 4: Final discharge monthly monitoring data (EP exceedances highlighted)

LOCATION	DATE	Ammoniacal Nitrogen as N	BOD + ATU (20 day)	BOD + ATU (5 day)	COD (1 hr settled)	COD (Filtered)	COD (Total)	Total TPH (EH>C6 - C40)	Dissolved Methane	pH	Sulphate as SO4	Suspended Solids
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	µg/l	mg/l	pH	mg/l	mg/l
Compliance Limit		**150**			**1000**			**-**	**N/A**	**6 - 10**	**1000**	**500**
Treated Leachate	**26/01/2019**	166	95	8	432	424	450	6970	0.015	6.3	74	370
	24/02/2019	134	110	8	553	505	590	1250	0.010	5.6	79	30
	24/03/2019	3	99	29	618	599	719	2350	0.010	7.2	93	131
	29/04/2019	94	63	8	406	377	426	2840	0.010	6.8	52	20
	23/05/2019	78	88	25	518	511	553	1870	0.068	6.9	65	39
	23/06/2019	33	31	9	339	249	726	285	0.010	4.8	82	500
	28/07/2019	112	78	24	649	611	672	8330	0.029	6.8	75	32
	29/08/2019	43.1	34	9	474	437	483	2170	0.010	6.7	83.4	4
	29/09/2019	50	96	10	435	427	461	2180	0.010	6.6	58	17
	31/10/2019	88.7	302	44	360	349	441	1030	0.011	5.8	82	86
	29/11/2019	66.5	-	-	497	-	-	-	0.010	6.1	-	51
	15/12/2019	59.3	191	13	636	601	633	1370	0.010	6.2	41.4	18
	MIN	3.1	31	8	339	249	426	285	0.010	4.8	41.4	4
	MAX	166.0	302	44	649	611	726	8330	0.068	7.2	92.8	500
	AVRG	77.3	108	17	493	463	559	2786	0.017	6.3	71.2	108

Table 5: Final discharge six monthly monitoring data, June

Sample Matrix	unit	Treated Leachate
1,1,1,2-Tetrachloroethane	ug/l	<1.00
1,1,1-Trichloroethane	ug/l	<1.00
1,1,2,2-Tetrachloroethane	ug/l	<1.00
1,1,2-Trichloroethane	ug/l	<1.00
1,1-Dichloroethane	ug/l	<1.00
1,1-Dichloroethene	ug/l	<1.00
1,1-Dichloropropene	ug/l	<1.00
1,2,3-Trichlorobenzene	ug/l	<1.00
1,2,3-Trichloropropane	ug/l	<1.00
1,2,4-Trichlorobenzene	ug/l	<1.00
1,2,4-Trimethylbenzene	ug/l	<1.00
1,2-Dibromo-3-chloropropane	ug/l	<2.00
1,2-Dibromoethane	ug/l	<1.00
1,2-Dichlorobenzene	ug/l	<1.00
1,2-Dichloroethane	ug/l	<1.00
1,2-Dichloropropane	ug/l	<1.00
1,3,5-Trimethylbenzene	ug/l	<1.00
1,3-Dichlorobenzene	ug/l	<1.00
1,3-Dichloropropane	ug/l	<1.00
1,4-Dichlorobenzene	ug/l	<1.00
2,2-Dichloropropane	ug/l	<1.00
2,3,6 - TBA	ug/l	<0.10
2,4 - D	ug/l	<0.10
2,4 - DB	ug/l	<0.10
2,4,5 - T	ug/l	<0.10
2-Chlorotoluene	ug/l	<1.00
4-Chlorotoluene	ug/l	<1.00
Benzene	ug/l	<1.00
Bromobenzene	ug/l	<1.00
Bromochloromethane	ug/l	<1.00
Bromodichloromethane	ug/l	<1.00
Bromoform	ug/l	<1.00
Bromomethane	ug/l	<1.00
Bromoxynil	ug/l	<0.10
Cadmium , Total as Cd	mg/l	<0.0006
Carbon Tetrachloride	ug/l	<1.00
Chlorobenzene	ug/l	<1.00
Chloroethane	ug/l	<1.00
Chloroform	ug/l	<1.00
Chloromethane	ug/l	<2.00
Chromium , Total as Cr	mg/l	0.14
cis-1,2-Dichloroethene	ug/l	<1.00
cis-1,3-Dichloropropene	ug/l	<1.00
Copper, Total as Cu	mg/l	0.054
Cyanide, Total as CN	mg/l	0.031
Dibromochloromethane	ug/l	<1.00
Dibromomethane	ug/l	<1.00
Dicamba	ug/l	0.33
Dichlorodifluoromethane	ug/l	<1.00
Dichloromethane	ug/l	<1.00
Dichlorprop	ug/l	<0.10
EH >C10 - C16	ug/l	157
EH >C16 - C24	ug/l	128
EH >C24 - C40	ug/l	<100
EH >C6 - C8	ug/l	<100

Sample Matrix	unit	Treated Leachate
EH >C8 - C10	ug/l	<100
Ethyl Benzene	ug/l	<1.00
Hexachlorobutadiene	ug/l	<1.00
Ioxynil	ug/l	<0.10
iso-Propylbenzene	ug/l	<1.00
Lead , Total as Pb	mg/l	0.012
m&p Xylene	ug/l	<1.00
MCPA	ug/l	1.63
MCPB	ug/l	<0.10
Mecoprop	ug/l	2.71
Mercury, Total as Hg	mg/l	<0.00020
MTBE	ug/l	<1.00
Naphthalene	ug/l	<1.00
n-butylbenzene	ug/l	<1.00
Nickel, Total as Ni	mg/l	0.072
n-propylbenzene	ug/l	<1.00
o-Xylene	ug/l	<1.00
p-isopropyltoluene	ug/l	<1.00
sec-butylbenzene	ug/l	<1.00
Styrene	ug/l	<1.00
tert-Butylbenzene	ug/l	<1.00
Tetrachloroethene	ug/l	<1.00
Toluene	ug/l	<1.00
trans-1,2-Dichloroethene	ug/l	<1.00
trans-1,3-Dichloropropene	ug/l	<1.00
Trichloroethene	ug/l	<1.00
Trichlorofluoromethane	ug/l	<1.00
Vinyl Chloride	ug/l	<0.500
Xylene, Total	ug/l	<1.00
Zinc, Total as Zn	mg/l	0.17

Table 6: Final discharge six monthly monitoring data, November

Sample Matrix	unit	Treated Leachate
1,1,1,2-Tetrachloroethane	µg/l	<1.00
1,1,1-Trichloroethane	µg/l	<1.00
1,1,2,2-Tetrachloroethane	µg/l	<1.00
1,1,2-Trichloroethane	µg/l	<1.00
1,1-Dichloroethane	µg/l	<1.00
1,1-Dichloroethene	µg/l	<1.00
1,1-Dichloropropene	µg/l	<1.00
1,2,3-Trichlorobenzene	µg/l	<1.00
1,2,3-Trichloropropane	µg/l	<1.00
1,2,4-Trichlorobenzene	µg/l	<1.00
1,2,4-Trimethylbenzene	µg/l	<1.00
1,2-Dibromo-3-chloropropane	µg/l	<2.00
1,2-Dibromoethane	µg/l	<1.00
1,2-Dichlorobenzene	µg/l	<1.00
1,2-Dichloroethane	µg/l	<1.00
1,2-Dichloropropane	µg/l	<1.00
1,3,5-Trimethylbenzene	µg/l	<1.00
1,3-Dichlorobenzene	µg/l	<1.00
1,3-Dichloropropane	µg/l	<1.00
1,4-Dichlorobenzene	µg/l	<1.00
2,2-Dichloropropane	µg/l	<1.00
2,3,6 - TBA	µg/l	<20.0

2,4 - D	µg/l	<20.0
2,4 - DB	µg/l	<20.0
2,4,5 - T	µg/l	<20.0
2-Chlorotoluene	µg/l	<1.00
4-Chlorotoluene	µg/l	<1.00
Benzene	µg/l	<1.00
Bromobenzene	µg/l	<1.00
Bromochloromethane	µg/l	<1.00
Bromodichloromethane	µg/l	<1.00
Bromoform	µg/l	<1.00
Bromomethane	µg/l	<1.00
Bromoxynil	µg/l	<20.0
Cadmium , Total as Cd	mg/l	<0.0006
Carbon Tetrachloride	µg/l	<1.00
Chlorobenzene	µg/l	<1.00
Chloroethane	µg/l	<1.00
Chloroform	µg/l	<1.00
Chloromethane	µg/l	<2.00
Chromium , Total as Cr	mg/l	0.03
cis-1,2-Dichloroethene	µg/l	<1.00
cis-1,3-Dichloropropene	µg/l	<1.00
Copper, Total as Cu	mg/l	0.035
Cyanide, Total as CN	mg/l	0.243
Dibromochloromethane	µg/l	<1.00
Dibromomethane	µg/l	<1.00
Dicamba	µg/l	<20.0
Dichlorodifluoromethane	µg/l	<1.00
Dichloromethane	µg/l	<1.00
Dichlorprop	µg/l	<20.0
EH >C10 - C16	µg/l	1540
EH >C16 - C24	µg/l	147
EH >C24 - C40	µg/l	<100
EH >C6 - C40	µg/l	1690
EH >C6 - C8	µg/l	<100
EH >C8 - C10	µg/l	<100
Ethyl Benzene	µg/l	<1.00
Fenthion	µg/l	<0.192
Hexachlorobenzene	µg/l	<155
Hexachlorobutadiene	µg/l	<1.00
Ioxynil	µg/l	<20.0
iso-Propylbenzene	µg/l	<1.00
Lead , Total as Pb	mg/l	<0.006
m&p Xylene	µg/l	<1.00
MCPA	µg/l	<20.0
MCPB	µg/l	<20.0
Mecoprop	µg/l	<16.0
Mercury, Total as Hg	mg/l	<0.00020
MTBE	µg/l	<1.00
Naphthalene	µg/l	<1.00
n-butylbenzene	µg/l	<1.00
Nickel, Total as Ni	mg/l	0.046
n-propylbenzene	µg/l	<1.00
o-Xylene	µg/l	<1.00
p-isopropyltoluene	µg/l	<1.00
sec-butylbenzene	µg/l	<1.00
Styrene	µg/l	<1.00
Sulphate as SO4, High Level	mg/l	50.4
tert-Butylbenzene	µg/l	<1.00

Tetrachloroethene	µg/l	<1.00
Toluene	µg/l	<1.00
trans-1,2-Dichloroethene	µg/l	<1.00
trans-1,3-Dichloropropene	µg/l	<1.00
Trichloroethene	µg/l	<1.00
Trichlorofluoromethane	µg/l	<1.00
Vinyl Chloride	µg/l	<0.500
Xylene, Total	µg/l	<1.00
Zinc, Total as Zn	mg/l	0.148

Table 6: Daily leachate monitoring from lagoon, January – December 2019

DATE	PH METER	AMM	PH STRIP	DO	TEMP	COD	AIR PRODUCTS	AP Hrs Run	Discharge Allowed	OUFLOW	Actual Discharge
02/01/2019	6.49	10	6.7	7.73	22.2	900	0	0	1600.0	169454	225
03/01/2019	6.48	5	6.9	7.71	21.9	896	0	0	3200.0	169681	227
04/01/2019	6.49	5	6.9	7.98	21.5	860	0	0	3200.0	169925	244
07/01/2019	6.49	50	6.3	6.24	20	829	0	0	320.0	170375	450
08/01/2019	6.61	60	6.3	6.3	19.7	870	0	0	266.7	170515	140
09/01/2019	7.04	90	6.8	6.12	19.1	980	0	0	177.8	170695	180
10/01/2019	7.24	85	6.4	6.85	18.7	977	0	0	188.2	170924	229
11/01/2019	7.7	130	6.7	7.39	17.4	954	0	0	123.1	170943	19
14/01/2019	7.81	150	6.7	7.67	16.2	990	0	0	106.7	170943	0
15/01/2019	7.93	150	6.5	8.61	15.7	969	0	0	106.7	170943	0
16/01/2019	8.05	193	6.5	8.99	15.7	969	0	0	82.9	170943	0
17/01/2019	8.07	183	6.5	8.99	15.5	969	0	0	87.4	170943	0
18/01/2019	8.06	160	6.9	8.93	14.8	969	0	0	100.0	170943	0
21/01/2019	8.73	190	6.8	8.79	13.8	967	0	0	84.2	170943	
22/01/2019	8.78	208	6.7	8.65	13.1	954	0	0	76.9	170943	
23/01/2019	8.85	182	6.7	8.33	12.8	966	0	0	87.9	170943	
24/01/2019	8.86	150	6.9	8.47	13	518	0	0	106.7	423	
25/01/2019	8.77	150	6.9	8.15	13.2	495	0	0	106.7	481	58
28/01/2019	8.61	135	6.7	7.29	13	353	0	0	118.5	509	28
29/01/2019	8.51	140	6.9	7.08	13.1	434	0	0	114.3	606	97
30/01/2019	8.4	150	6.9	7.19	12.6	329	0	0	106.7	746	140
31/01/2019	8.03	130	6.8	7.36	12.4	329	0	0	123.1	806	60
01/02/2019	7.93	135	6.8	7.12	12.3	329	0	0	118.5	806	0
04/02/2019	7.78	150	6.8	8.02	12.6	499	0	0	106.7	806	0
05/02/2019	7.72	144	6.7	9.16	12.8	428	0	0	111.1	912	106
06/02/2019	7.69	144	6.8	8.86	13.2	540	0	0	111.1	1011	99
07/02/2019	7.65	149	6.7	7.16	13.2	439	0	0	107.4	1117	106
08/02/2019	7.64	145	6.9	7.39	13.3	530	0	0	110.3	1249	132
09/02/2019										1436	187
10/02/2019										1571	135
11/02/2019	7.57	115	6.9	9	12.7	629	0	0	139.1	1676	427
12/02/2019	7.56	130	6.8	0.67	12.6	419	0	0	123.1	1802	126
13/02/2019	7.55	130	6.9	7.48	13.8	429	0	0	123.1	1929	127

DATE	PH METER	AMM	PH STRIP	DO	TEMP	COD	AIR PRODUCTS	AP Hrs Run	Discharge Allowed	OUFLOW	Actual Discharge
14/02/2019	7.4	120	6.9	7.23	13.6	548	0	0	133.3	2106	177
15/02/2019	7.52	145	6.7	6.29	14	799	0	0	110.3	2310	204
18/02/2019	7.48	158	6.8	6.73	16	629	0	0	101.3	2600	290
19/02/2019	7.47	150	6.9	7.27	16.3	977	0	0	106.7	2740	140
20/02/2019	7.47	150	6.8	0.93	16	539	0	0	106.7	2784	44
21/02/2019	7.46	150	6.9	0.42	15.9	519	0	0	106.7	2884	100
22/02/2019	7.3	120	6.9	2.37	16.7	419	0	0	133.3	3000	116
25/02/2019	7.41	130	6.9	8.78	17.5	816	0	0	123.1	3200	200
26/02/2019	7.42	140	6.9	7.17	18.5	888	0	0	114.3	3318	118
27/02/2019	7.39	140	6.8	6.82	19.1	909	0	0	114.3	3428	110
28/02/2019	7.37	140	6.9	6.11	19.8	779	0	0	114.3	3557	129
01/03/2019	7.37	140	6.9	6.5	20.1	630	0	0	114.3	3580	23
04/03/2019	7.39	144	6.9	5.32	19.6	727	0	0	111.1	3930	350
05/03/2019	7.39	150	6.8	7.55	18.6	905	0	0	106.7	4082	152
06/03/2019	7.39	150	6.9	3.34	18.6	974	0	0	106.7	4275	193
07/03/2019	7.38	150	6.8	6.11	18.1	728	0	0	106.7	4466	191
08/03/2019	5.99	150	6.8	6.66	17.4	712	0	0	106.7	4698	232
11/03/2019	6.68	140	6.8	5.95	16.5	619	0	0	114.3	5279	581
12/03/2019	5.91	140	6.8	6.23	16.4	610	0	0	114.3	5465	186
13/03/2019	6.34	140	6.8	4.25	16.1	622	0	0	114.3	5662	197
14/03/2019	7.1	140	6.8	4.33	15.8	624	0	0	114.3	5844	182
15/03/2019	5.33	140	6.8	8.25	16.1	624	0	0	114.3	5844	0
18/03/2019	5.04	70	6.8	10.15	16.6	681	0	0	228.6	5893	49
19/03/2019	6.61	65	6.8	2.54	17.9	583	0	0	246.2	5893	0
20/03/2019	5.91	50	6.8	4.12	18.8	601	0	0	320.0	5893	0
21/03/2019	6.11	35	6.8	2	19.9	539	0	0	457.1	5893	0
22/03/2019	5.87	13	6.8	5.67	20.5	659	0	0	1230.8	5893	0
25/03/2019	6.07	4	6.8	3.09	22	433	0	0	4000.0	5893	0
26/03/2019	6.13	1.53	6.8	3.35	22.4	456	0	0	10457.5	5893	0
27/03/2019	5.92	2.91	6.8	2.92	23.1	463	0	0	5498.3	5893	0
28/03/2019	5.97	0.85	6.8	7.93	22.7	482	0	0	18823.5	5893	0
29/03/2019	6.54	19.8	6.8	0.78	23.2	767	0	0	808.1	5893	0
01/04/2019	6	1.4	6.8	3.96	24	643	0	0	11428.6	5893	0
02/04/2019	6.51	0.45	6.8	6.65	23.8	509	0	0	35555.6	5893	0
03/04/2019	6.26	0.68	6.8	6.99	23.4	449	0	0	23529.4	5893	0

DATE	PH METER	AMM	PH STRIP	DO	TEMP	COD	AIR PRODUCTS	AP Hrs Run	Discharge Allowed	OUFLOW	Actual Discharge
04/04/2019	6.53	0.54	6.8	6.14	23.2	450	0	0	29629.6	5893	0
05/04/2019	6.43	0.46	6.8	6.75	22.5	432	0	0	34782.6	5893	0
08/04/2019	6.79	24.4	6.8	0.8	21.4	340	0	0	655.7	5893	0
09/04/2019	6.18	1.06	6.8	7.98	21.1	348	0	0	15094.3	5893	0
10/04/2019	6.37	1.54	6.8	5.08	20.9	338	0	0	10389.6	5893	0
11/04/2019	6.16	4.44	6.8	7.14	20.9	441	0	0	3603.6	5983	90
15/04/2019	6.52	30.9	6.8	0.82	21.4	635	0	0	517.8	5983	0
16/04/2019	5.55	17.7	6.8	0.26	21.4	630	0	0	904.0	5983	0
17/04/2019	4.91	16.6	6.8	7.25	21.7	780	0	0	963.9	5983	0
18/04/2019	5.43	49.4	6.8	0.65	23.1	526	0	0	323.9	5983	0
23/04/2019	7.45	134.00	6.8	0.13	24.8	549	0	0	119.4	5983	0
24/04/2019	7.53	104.00	6.8	1.17	22.6	749	0	0	153.8	5983	0
25/04/2019	7.86	150.00	6.8	0.71	20.6	748	0	0	106.7	5983	0
26/04/2019	7.76	134.00	6.8	0.17	18.2	651	0	0	119.4	5983	0
29/04/2019	7.42	71.00	6.8	0.17	14.9	570	0	0	225.4	5983	0
30/04/2019	5.52	28.80	6.8	8.98	14.8	518	0	0	555.6	5983	0
01/05/2019	6.03	25.00	6.8	4.49	14.6	670	0	0	640.0	5983	0
02/05/2019	7.16	76.00	6.9	0.17	15	840	0	0	210.5	5983	0
03/05/2019	7.27	109.00	6.9	0.17	14.7	604	0	0	146.8	5983	0
07/05/2019	6.43	38.50	6.8	2.16	12.9	536	0	0	415.6	5983	0
08/05/2019	7.20	95.70	6.8	0.2	13.4	539	0	0	167.2	5983	0
09/05/2019	7.10	76.70	6.8	0.18	13.1	566	0	0	208.6	5983	0
10/05/2019	6.83	52.80	6.8	0.18	12.7	489	0	0	303.0	5983	0
13/05/2019	6.04	56.50	6.7	0.18	13.3	552	0	0	283.2	5983	0
14/05/2019	6.72	35.60	6.8	4.89	13.2	459	0	0	449.4	5983	0
15/05/2019	7.20	35.50	6.8	3.15	14.1	405	0	0	450.7	5983	0
16/05/2019	7.20	46.40	6.8	1.26	14.8	400	0	0	344.8	5983	0
17/05/2019	7.10	51.80	6.8	3.27	14.8	369	0	0	308.9	5983	0
20/05/2019	7.24	34.00	6.8	0.17	14.3	760	0	0	470.6	5983	0
21/05/2019	7.32	63.90	6.8	0.65	14.7	470	0	0	250.4	5983	0
22/05/2019	6.69	56.10	6.9	0.18	14.7	495	0	0	285.2	5983	0
23/05/2019	6.82	57.30	6.9	0.17	14.7	566	0	0	279.2	5983	0
24/05/2019	6.68	60.30	6.9	0.17	15.2	598	0	0	265.3	5983	0
28/05/2019	6.36	33.00	6.9	7.73	15.4	569	0	0	484.8	5983	0
29/05/2019	7.66	146.00	6.8	0.16	15.2	934	0	0	109.6	5983	0

DATE	PH METER	AMM	PH STRIP	DO	TEMP	COD	AIR PRODUCTS	AP Hrs Run	Discharge Allowed	OUFLOW	Actual Discharge
30/05/2019	7.46	122.00	6.9	0.16	15.5	871	0	0	131.1	5983	0
31/05/2019	7.48	132.00	6.9	0.16	17.1	670	0	0	121.2	5983	0
03/06/2019	7.35	106.00	6.9	0.16	18.6	670	0	0	150.9	5983	0
04/06/2019	6.67	60.00	6.8	2.13	17.8	789	0	0	266.7	5983	0
05/06/2019	6.44	57.50	6.8	7.51	17.3	784	0	0	278.3	5983	0
06/06/2019	7.24	75.30	6.8	0.17	17.1	906	0	0	212.5	5983	0
07/06/2019	7.40	130.00	6.8	0.15	18.6	991	0	0	123.1	5983	0
10/06/2019	6.53	53.50	6.8	7.88	15.9	912	0	0	299.1	5983	0
11/06/2019	6.43	56.70	6.8	6.28	16.6	831	0	0	282.2	5983	0
12/06/2019	7.52	128.00	6.8	0.67	17.1	937	0	0	125.0	5983	0
13/06/2019	7.50	99.90	6.8	0.16	16.4	867	0	0	160.2	5983	0
14/06/2019	7.23	37.60	6.8	7.09	15.9	890	0	0	425.5	5983	0
17/06/2019	7.04	35.60	6.8	2.1	18	570	0	0	449.4	5983	0
18/06/2019	7.15	55.60	6.8	0.15	19	794	0	0	287.8	5983	0
19/06/2019	6.28	39.90	6.8	0.15	19	987	0	0	401.0	5983	0
20/06/2019	6.80	36.70	6.8	0.14	19.7	990	0	0	436.0	5983	0
21/06/2019	6.69	33.60	6.8	0.15	19.3	780	0	0	476.2	5983	0
24/06/2019	7.45	56.80	6.8	0.14	21.2	670	0	0	281.7	5983	0
25/06/2019	7.41	47.90	6.8	0.14	21.9	518	0	0	334.0	5983	0
26/06/2019	7.36	49.20	6.8	0.14	21.3	654	0	0	325.2	5983	0
27/06/2019	6.92	60.20	6.8	0.14	21.6	678	0	0	265.8	5983	0
28/06/2019	7.57	66.00	6.8	0.13	22.8	708	0	0	242.4	5983	0
01/07/2019	6.51	22.00	6.8	6.97	20.7	565	0	0	727.3	5983	0
02/07/2019	6.8	0.45	6.8	0.57	19.4	600	0	0	35555.6	5983	0
03/07/2019	7.29	2.18	6.8	6.62	18.3	575	0	0	7339.4	5983	0
04/07/2019	7.56	66.80	6.8	0.14	20.6	920	0	0	239.5	5983	0
05/07/2019	7.63	95.70	6.8	0.14	20.8	595	0	0	167.2	5983	0
08/07/2019	7.37	42.60	6.8	0.15	19.1	596	0	0	375.6	5983	0
09/07/2019	7.71	110.00	6.8	0.15	20.1	620	0	0	145.5	5983	0
10/07/2019	7.54	97.60	6.8	0.15	19.6	595	0	0	163.9	5983	0
11/07/2019	7.3	65.00	6.8	0.15	19.4	532	0	0	246.2	5983	0
15/07/2019	7.53	84.10	6.8	0.15	20	511	0	0	190.2	57769	
16/07/2019	7.14	48.40	6.8	0.15	19.9	644	0	0	330.6	58035	266
17/07/2019	7.7	100.00	6.8	0.15	19.8	560	0	0	160.0	58267	232
18/07/2019	7.72	101.00	6.8	0.15	19.8	540	0	0	158.4	58283	16

DATE	PH METER	AMM	PH STRIP	DO	TEMP	COD	AIR PRODUCTS	AP Hrs Run	Discharge Allowed	OUFLOW	Actual Discharge
19/07/2019	7.4	87.90	6.8	0.15	19.1	640	0	0	182.0	58344	61
22/07/2019	6.44	24.60	6.8	0.16	18.7	970	0	0	650.4	58667	323
23/07/2019	7.37	56.60	6.8	0.15	19.5	760	0	0	282.7	58816	149
24/07/2019	5.9	9.66	6.8	0.15	20.5	670	0	0	1656.3	58933	117
25/07/2019	7.56	111.00	6.8	0.17	21	790	0	0	144.1	59071	138
26/07/2019	7.22	60.90	6.8	0.15	21.2	680	0	0	262.7	59153	82
29/07/2019	7.93	181.00	6.8	0.16	19.7	720	0	0	88.4	59451	298
30/07/2019	7.42	181.00	6.8	0.16	18.9	620	0	0	88.4	59451	0
31/07/2019	6.67	172.00	6.8	0.18	18.4	640	0	0	93.0	59452	1
01/08/2019	5.45	30.00	6.8	3.08	17.9	680	0	0	533.3	59591	139
02/08/2019	7.72	101.00	6.8	0.34	18.7	720	0	0	158.4	59767	176
05/08/2019	7.62	115.00	6.8	0.34	19	740	0	0	139.1	60105	338
06/08/2019	6.58	40.00	6.8	0.47	18.4	711	0	0	400.0	60261	156
07/08/2019	7.79	126.00	6.8	0.32	18.5	921	0	0	127.0	60321	60
08/08/2019	7.34	74.40	6.8	0.43	18.4	711	0	0	215.1	60488	167
09/08/2019	7.46	90.70	6.8	0.37	19.2	685	0	0	176.4	60638	150
12/08/2019	7.48	74.50	6.8	0.32	18.5	920	0	0	214.8	60694	56
13/08/2019	6.99	57.30	6.8	0.24	18.3	720	0	0	279.2	60841	147
14/08/2019	7.22	89.40	6.8	0.46	19.1	760	0	0	179.0	60935	94
15/08/2019	5.91	50.40	6.8	1.07	18.8	680	0	0	317.5	60989	54
16/08/2019	5.32	17.10	6.8	7.39	18.6	650	0	0	935.7	61059	70
19/08/2019	6.35	2.74	6.8	4.33	18	910	0	0	5839.4	61163	104
20/08/2019	7.75	40.40	6.8	0.35	18.4	990	0	0	396.0	61300	137
21/08/2019	7.52	38.90	6.8	0.52	18.5	990	0	0	411.3	61334	34
23/08/2019	7.16	0.57	6.8	5.23	18.2	638	0	0	28070.2	61512	131
27/08/2019	7.53	39.00	6.8	0.4	20	641	0	0	410.3	61769	257
28/08/2019	7.07	40.70	6.8	0.5	19.6	683	0	0	393.1	61854	85
29/08/2019	7.47	55.40	6.8	0.6	18.2	721	0	0	288.8	62024	170
30/08/2019	7.2	60.00	6.8	0.6	18.3	658	0	0	266.7	62165	141
02/09/2019	7.68	40.00	6.8	0.58	18.7	621	0	0	400.0	62593	428
03/09/2019	7.62	77.00	6.8	0.54	18.6	705	0	0	207.8	62730	137
04/09/2019	7.1	43.00	6.8	0.53	18.3	461	0	0	372.1	62874	144
05/09/2019	7.77	70.00	6.8	0.44	19.4	461	0	0	228.6	63015	141
06/09/2019	7.58	63.60	6.8	0.53	18.6	580	0	0	251.6	63114	99
09/09/2019	7.2	25.70	6.8	0.7	17	600	0	0	622.6	63236	122

DATE	PH METER	AMM	PH STRIP	DO	TEMP	COD	AIR PRODUCTS	AP Hrs Run	Discharge Allowed	OUFLOW	Actual Discharge
10/09/2019	7.68	77.00	6.8	0.18	18.2	731	0	0	207.8	63357	121
11/09/2019	7.1	41.10	6.8	0.19	17.8	769	0	0	389.3	63417	60
12/09/2019	7.1	33.50	6.8	0.2	19.6	610	0	0	477.6	63580	163
13/09/2019	7.1	23.30	6.8	0.17	19.4	610	0	0	686.7	63701	121
16/09/2019	7.85	111.00	6.8	0.23	20.9	821	0	0	144.1	64136	435
17/09/2019	8.04	128.00	6.8	0.17	19.5	766	0	0	125.0	64208	72
18/09/2019	7.35	55.80	6.8	0.18	18.9	694	0	0	286.7	64284	76
19/09/2019	7.6	63.50	6.8	0.16	20.5	521	0	0	252.0	64366	82
20/09/2019	7.35	72.80	6.8	0.14	20.1	540	0	0	219.8	64401	35
23/09/2019	7.12	52.90	6.8	0.18	20	634	0	0	302.5	64720	319
24/09/2019	6.3	36.40	6.8	0.19	19.7	720	0	0	439.6	64742	22
25/09/2019	6.15	6.99	6.8	0.2	19.4	491	0	0	2289.0	64833	91
26/09/2019	7.19	19.50	6.8	0.17	20	521	0	0	820.5	64942	109
27/09/2019	7.34	19.10	6.8	0.18	19.2	520	0	0	837.7	65056	114
30/09/2019	7.39	5.95	6.8	0.19	17.5	610	0	0	2689.1	65390	334
01/10/2019	7.79	49.20	6.8	0.19	17.4	630	0	0	325.2	65487	97
02/10/2019	6.99	7.13	6.8	0.21	16.2	621	0	0	2244.0	65592	105
03/10/2019	6.87	3.52	6.8	0.21	15.2	488	0	0	4545.5	65700	108
04/10/2019	6.69	0.62	6.8	6.12	15	520	0	0	25806.5	65805	105
07/10/2019	6.58	2.61	6.8	3.07	14.9	744	0	0	6130.3	66114	309
08/10/2019	6.87	0.87	6.8	5.62	14.8	421	0	0	18390.8	66207	93
09/10/2019	6.42	0.89	6.8	5.28	14.5	471	0	0	17977.5	66304	97
10/10/2019	6.83	7.62	6.8	0.3	14	507	0	0	2099.7	66417	113
11/10/2019	9.97	3.03	6.8	0.26	14.1	498	0	0	5280.5	66575	158
14/10/2019	7.37	31.5	6.8	0.28	15.2	421	0	0	507.9	67045	470
15/10/2019	7.68	48.8	6.8	0.28	16.7	487	0	0	327.9	67251	206
16/10/2019	7.12	54.4	6.8	1.12	16.9	507	0	0	294.1	67374	123
17/10/2019	5.73	32.17	6.8	8.18	16.8	577	0	0	497.4	67535	161
18/10/2019	6.84	42.8	6.8	0.99	17.4	421	0	0	373.8	67713	178
21/10/2019	6.23	8.57	6.8	5	15.9	407	0	0	1867.0	68215	502
22/10/2019	5.5	13.4	6.8	5.82	16.6	456	0	0	1194.0	68391	176
23/10/2019	7.14	27.2	6.8	0.4	16.5	427	0	0	588.2	68452	61
24/10/2019	7.01	18.8	6.8	1.4	16.5	466	0	0	851.1	68670	218
25/10/2019	7.01	32.3	6.8	0.73	16.3	329	0	0	495.4	68812	142
28/10/2019	7.42	92.4	6.8	0.82	17.4	445	0	0	173.2	69379	567

DATE	PH METER	AMM	PH STRIP	DO	TEMP	COD	AIR PRODUCTS	AP Hrs Run	Discharge Allowed	OUFLOW	Actual Discharge
29/10/2019	7.46	95.1	6.8	0.87	17.1	421	0	0	168.2	69572	193
30/10/2019	7.37	92.4	6.8	0.79	16.8	456	0	0	173.2	69756	184
31/10/2019	7.27	89.6	6.8	0.86	17.2	602	0	0	178.6	69951	195
01/11/2019	6.79	71.9	6.8	0.78	17.9	623	0	0	222.5	70126	175
04/11/2019	5.95	44.2	6.8	3.23	17.1	587	0	0	362.0	70701	575
05/11/2019	5.94	35.1	6.8	3.82	16.5	596	0	0	455.8	70879	178
06/11/2019	6.83	44.1	6.8	0.53	16.6	564	0	0	362.8	71066	187
07/11/2019	6.95	57.3	6.8	0.4	15.9	509	0	0	279.2	71232	166
08/11/2019	6.45	53.4	6.8	0.99	15.2	588	0	0	299.6	71435	203
11/11/2019	6.34	28.8	6.8	0.63	16	247	0	0	555.6	71839	404
12/11/2019	6.1	48	6.8	0.55	16.4	266	0	0	333.3	71994	155
13/11/2019	7.24	69.6	6.8	0.36	16.9	307	0	0	229.9	72182	188
14/11/2019	6.4	40.8	6.8	0.51	16	321	0	0	392.2	72353	171
15/11/2019	5.14	19.3	6.8	9.96	16	390	0	0	829.0	72537	184
18/11/2019	7.12	64.9	6.8	0.77	14.6	406	0	0	246.5	73149	612
19/11/2019	7.53	105	6.8	0.62	14	468	0	0	152.4	73344	195
20/11/2019	7.19	71.7	6.8	1.11	13.1	455	0	0	223.2	73519	175
21/11/2019	7.41	94.8	6.8	2.31	13.4	450	0	0	168.8	73744	225
22/11/2019	7.43	81.5	6.8	1.6	13.7	446	0	0	196.3	73930	186
25/11/2019	5.88	51.9	6.8	9.78	14.1	490	0	0	308.3	74437	507
26/11/2019	7.46	95.6	6.8	2.05	15.4	471	0	0	167.4	74583	146
27/11/2019	6	59.2	6.8	6.98	14.7	488	0	0	270.3	74726	143
28/11/2019	6.04	53.5	6.8	7.87	14.8	498	0	0	299.1	74877	151
29/11/2019	6	50.8	6.8	8.24	14.6	507	0	0	315.0	75038	161
02/12/2019	6.48	64.7	6.8	3.34	16.7	461	0	0	247.3	75547	509
03/12/2019	7.14	80.9	6.8	1.5	17.4	660	0	0	197.8	75706	159
04/12/2019	6.32	56	6.8	7.37	16.1	590	0	0	285.7	75879	173
05/12/2019	6.39	54.1	6.8	6.6	16	563	0	0	295.7	76044	165
06/12/2019	6.12	36.9	6.8	3.1	15.7	552	0	0	433.6	76178	134
09/12/2019	7.23	103	6.8	1.47	17.1	742	0	0	155.3	76688	510
10/12/2019	6.16	51.7	6.8	7.58	15.7	709	0	0	309.5	76880	192
11/12/2019	7.27	83.1	6.8	1.25	16.2	721	0	0	192.5	77089	209
12/12/2019	7.18	68.6	6.8	1.47	15.6	751	0	0	233.2	77269	180
13/12/2019	6.96	54.5	6.8	1.46	15.4	745	0	0	293.6	77457	188
16/12/2019	6.49	48.9	6.8	4.41	13.5	709	0	0	327.2	78005	548

DATE	PH METER	AMM	PH STRIP	DO	TEMP	COD	AIR PRODUCTS	AP Hrs Run	Discharge Allowed	OUFLOW	Actual Discharge
17/12/2019	6.88	56.9	6.8	2.09	13.9	766	0	0	281.2	78179	174
18/12/2019	6.91	62.8	6.8	1.77	13.5	778	0	0	254.8	78357	178
19/12/2019	6.06	50.5	6.8	9.55	13.6	7.56	0	0	316.8	78560	203
20/12/2019	7.28	72.3	6.8	2.36	14.4	701	0	0	221.3	78788	228
23/12/2019	7.3	45.8	6.8	1.09	14.9	646	0	0	349.3	79156	368
27/12/2019	7.09	27.4	6.8	1.77	13.9	690	0	0	583.9	79861	533
30/12/2019	7.23	45.9	6.8	1.99	13.4	620	0	0	348.6	80293	432
31/12/2019	7.21	56.1	6.8	1.43	13.7	677	0	0	285.2	80434	141

Appendix 4

APPENDIX 4 – GROUNDWATER

Table 1 – Weekly level data (measured as metres above ordinance datum)

ID	W1 (mAOD)	W2 (mAOD)	W3 (mAOD)	W4 (mAOD)	W5 (mAOD)	W6 (mAOD)	W7 (mAOD)	W8 (mAOD)	W9 (mAOD)
min	309.43	326.61	299.15	298.19	312.25	309.75	293.35	278.32	319.16
max	311.37	329.76	300.53	301.24	313.20	310.36	298.13	279.41	320.04
av	310.04	329.33	299.56	299.11	312.79	310.05	296.41	278.67	319.57

Figure 1 – Groundwater Level Graph 2019

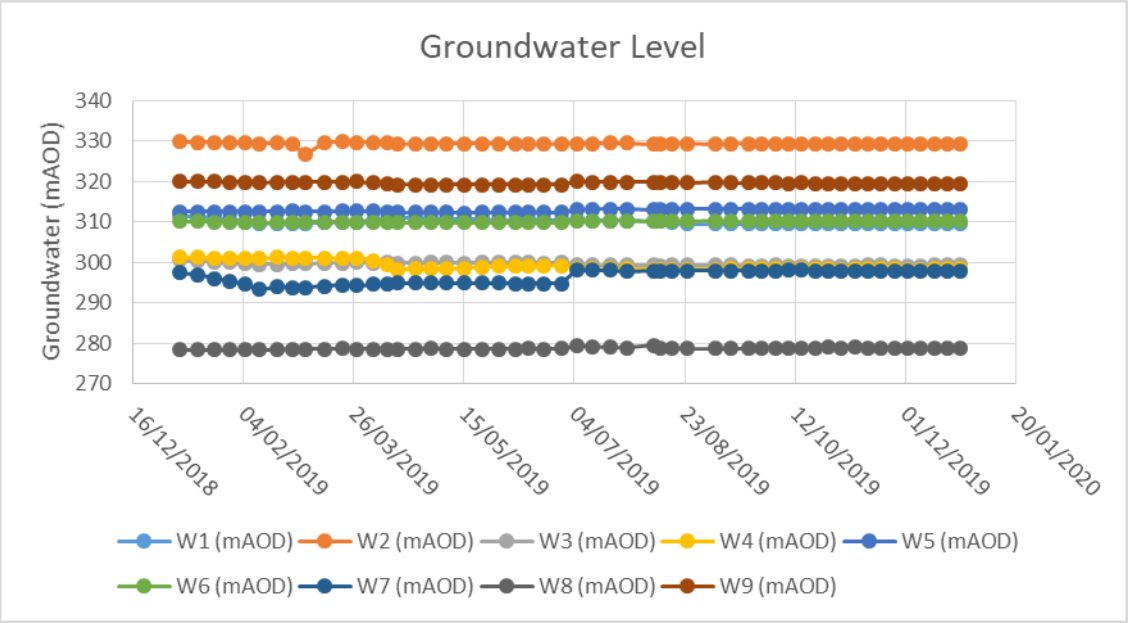


Table 2: Groundwater Monthly monitoring data

LOCATION	DATE	Ammoniacal Nitrogen	Chloride	Electrical Conductivity	Cyanide	pH	Sulphate
		2	69	-	-	-	-
		mg/l	mg/l	µS/cm	mg/l	pH	mg/l
W1	MIN	<0.41	179.0	632.00	<0.009	6.0	7.30
	MAX	<0.41	484.0	1460.00	<0.009	7.4	25.90
	AV	<0.41	305.5	967.18	<0.009	6.4	17.86
W2	MIN	<0.41	28.5	174.00	<0.009	6.7	<4.4
	MAX	0.50	35.0	192.00	<0.009	7.9	<4.4
	AV	0.42	32.9	180.83	<0.009	7.5	<4.4
W3	MIN	<0.41	3.7	120.00	<0.009	5.8	<4.4
	MAX	15.10	14.4	275.00	<0.009	7.6	45.10
	AV	3.13	10.8	184.08	<0.009	6.7	22.78
W4	MIN	0.99	18.4	303.00	<0.009	6.8	26.40
	MAX	1.53	23.7	322.00	<0.009	7.8	38.10
	AV	1.31	21.8	311.83	<0.009	7.1	33.88
W5	MIN	<0.41	16.5	175.00	<0.009	6.0	24.30
	MAX	1.24	24.6	206.00	0.051	7.5	42.00
	AV	0.65	21.2	192.42	0.013	6.5	34.65
W6	MIN	<0.41	8.7	54.40	<0.009	6.2	<4.4
	MAX	<0.41	20.8	167.00	<0.009	7.1	6.60
	AV	<0.41	14.0	106.08	<0.009	6.5	4.92
W7	MIN	<0.41	12.5	270.00	<0.009	7.2	9.00
	MAX	<0.41	18.3	326.00	<0.009	7.9	33.00
	AV	<0.41	15.5	310.92	<0.009	7.6	24.63
W8	MIN	<0.41	13.6	266.00	<0.009	6.9	20.30
	MAX	<0.41	23.1	314.00	<0.009	8.0	29.00
	AV	<0.41	17.7	279.17	<0.009	7.3	24.53
W9	MIN	<0.41	16.9	168.00	<0.009	6.3	23.10
	MAX	2.93	27.4	194.00	<0.009	7.7	38.20
	AV	0.62	20.0	177.58	<0.009	6.8	29.25

Table 3: Groundwater Quarterly monitoring data (EP limit exceedances highlighted)

Reference	Unit	Trigger	Quarter	W1	W2	W3	W4	W5	W6	W7	W8	W9
2,4 - D	µg/l	0.1	Q1	<0.05	<0.05	<0.05	<0.20	<0.10	<2.00	<0.05	<0.05	<0.20
	µg/l	0.1	Q2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	µg/l	0.1	Q3	N/S	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	µg/l	0.1	Q4	<0.05	<0.05	<2.00	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05
Cadmium , Total as Cd	mg/l	0.0056	Q1	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
	mg/l	0.0056	Q2	<0.0006	0.0008	0.001	<0.0006	<0.0006	0.0006	<0.0006	<0.0006	0.0008
	mg/l	0.0056	Q3	<0.0006	<0.0006	0.0008	<0.0006	<0.0006	0.0012	0.0006	0.0006	<0.0006
	mg/l	0.0056	Q4	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Ethyl Benzene	µg/l	1	Q1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	µg/l	1	Q2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	µg/l	1	Q3	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	µg/l	1	Q4	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Mecoprop	µg/l	0.1	Q1	<0.04	<0.04	<0.04	<0.16	<0.08	<1.60	<0.04	<0.04	<0.16
	µg/l	0.1	Q2	<0.04	<0.04	<0.04	0.11	0.13	<0.04	<0.04	<0.04	<0.04
	µg/l	0.1	Q3	N/S	<0.04	<0.04	0.13	0.16	<0.04	<0.04	<0.04	<0.04
	µg/l	0.1	Q4	<0.04	<0.04	<1.60	0.12	0.15	<0.04	<0.04	<0.04	<0.04
Nickel , Total as Ni	mg/l	0.12	Q1	0.005	<0.003	<0.003	0.007	0.014	0.005	<0.003	<0.003	<0.003
	mg/l	0.12	Q2	0.005	<0.003	0.004	0.005	0.014	0.007	<0.003	<0.003	0.003
	mg/l	0.12	Q3	0.008	<0.003	0.003	<0.003	0.018	0.01	<0.003	<0.003	0.004
	mg/l	0.12	Q4	<0.003	<0.003	0.01	0.004	0.008	0.016	<0.003	<0.003	<0.003
Toluene	µg/l	4	Q1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	µg/l	4	Q2	<0.10	0.14	0.19	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	µg/l	4	Q3	<0.10	0.14	38.3	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	µg/l	4	Q4	<1.00	<1.00	2.7	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Total Xylenes	µg/l	3	Q1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	µg/l	3	Q2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	µg/l	3	Q3	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	µg/l	3	Q4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Zinc, Total as Zn	mg/l	0.85	Q1	0.03	<0.018	<0.018	<0.018	0.07	0.06	<0.018	0.03	0.108
	mg/l	0.85	Q2	<0.018	<0.018	0.02	<0.018	0.07	0.137	<0.018	<0.018	0.06
	mg/l	0.85	Q3	0.04	<0.018	0.04	<0.018	0.09	0.181	<0.018	<0.018	0.05
	mg/l	0.85	Q4	0.02	0.06	0.105	0.02	0.15	0.05	0.09	<0.018	0.11

Table 4: Groundwater Quarterly monitoring data (No EP Limits), Quarter 1

Reference	Unit	W1	W2	W3	W4	W5	W6	W7	W8	W9
Acenaphthene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Alkalinity as CaCO3	mg/l	13.6	46.6	8.6	95	26.2	40.4	127	112	10.2
Anthracene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Antimony Ultra Low Total as Sb	mg/l	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	0.0014	<0.0012
Arsenic, Ultra Low Total as As	mg/l	0.0017	<0.0010	<0.0010	0.009	0.0013	0.065	0.0014	0.0021	<0.0010
Benzene	ug/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo (a) anthracene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (a) pyrene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (b) fluoranthene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (g,h,i) perylene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (k) fluoranthene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Bicarbonate Alkalinity	mg/l	13.6	46.6	8.6	95	26.2	40.4	127	112	10.2
Calcium , Total as Ca	mg/l	16.8	10.2	16.7	38.4	14.6	14.2	43	41.1	12.3
Chloride as Cl	mg/l	433	33.5	13	22.6	17.7	20.8	16.8	21.9	22.3
Chromium , Total as Cr	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chrysene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Conductivity- Electrical 20C	uS/cm	1310	174	160	305	175	147	315	295	170
Copper, Total as Cu	mg/l	<0.009	<0.009	<0.009	<0.009	0.032	<0.009	<0.009	<0.009	<0.009
Cyanide, Total as CN	mg/l	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
Dibenz (a,h) anthracene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Oxygen, Fixed	mg/l	1.1	1.3	6.9	2.4	3.2	6.4	3.2	2.2	7.1
Fluoranthene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	0.015	<0.01	<0.01	<0.01
Fluorene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno (1,2,3) cd pyrene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Iron , Total as Fe	mg/l	0.38	<0.23	0.69	3.73	<0.23	9.47	0.49	1.25	<0.23
Lead , Total as Pb	mg/l	<0.006	<0.006	<0.006	<0.006	<0.006	0.006	0.017	0.121	<0.006
m&p Xylene	ug/l	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Magnesium, Total as Mg	mg/l	3.6	1.2	4.2	8.7	3.9	3	6.8	10.2	3.6
Manganese , Total as Mn	mg/l	0.29	0.015	0.217	3.5	1.37	2.52	0.817	1.04	0.122
Mercury, Total as Hg	mg/l	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Naphthalene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/l	<0.7	<0.7	1	<0.7	1	<0.7	<0.7	<0.7	0.9
o-Xylene	ug/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PAH, Total	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	0.038	<0.01	<0.01	<0.01
pH	pH units	6.2	7.5	6.1	6.9	6.2	6.4	7.6	7	6.9
Phenanthrene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	0.01	<0.01	<0.01	<0.01
Phenols Mono (Phenol Index)	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium , Total as K	mg/l	2.22	2.65	1.88	2.73	2.34	0.78	3.27	1.55	1.57

Reference	Unit	W1	W2	W3	W4	W5	W6	W7	W8	W9
Pyrene	ug/l	<0.01	<0.01	<0.01	<0.04	<0.01	0.013	<0.01	<0.01	<0.01
Selenium Ultra Low Total as Se	mg/l	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
Silver , Total as Ag	mg/l	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007

Table 5: Groundwater Quarterly and Six Monthly monitoring data (No EP Limits), Quarter 2

Reference	Unit	W1	W2	W3	W4	W5	W6	W7	W8	W9
Acenaphthene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Alkalinity as CaCO3	mg/l	25.2	46	29.4	106	22.2	19.6	127	101	32.2
Anthracene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Antimony Ultra Low Total as Sb	mg/l	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012
Arsenic, Ultra Low Total as As	mg/l	0.0053	<0.0010	0.006	0.017	0.0012	0.0062	0.001	0.0019	<0.0010
Benzene	ug/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo (a) anthracene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (a) pyrene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (b) fluoranthene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (g,h,i) perylene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (k) fluoranthene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bicarbonate Alkalinity	mg/l	25.2	46	29.4	106	22.2	19.6	127	101	32.2
Calcium , Total as Ca	mg/l	7.13	10.4	16.4	38.6	16.7	11.3	43.9	38.8	14.6
Chromium , Total as Cr	mg/l	0.002	<0.002	0.003	<0.002	<0.002	0.002	<0.002	<0.002	<0.002
Chrysene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper, Total as Cu	mg/l	0.012	<0.009	0.015	<0.009	0.029	0.026	<0.009	<0.009	<0.009
Dibenz (a,h) anthracene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Oxygen, Fixed	mg/l	2.4	<0.5	3	0.5	4.1	4.5	1.5	3.1	4.7
Fluoranthene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno (1,2,3) cd pyrene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron , Total as Fe	mg/l	1.55	<0.23	2.01	7.51	<0.23	1.74	0.31	0.76	0.39
Lead , Total as Pb	mg/l	<0.006	<0.006	0.025	<0.006	<0.006	0.019	0.016	0.071	<0.006
m&p Xylene	ug/l	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Magnesium, Total as Mg	mg/l	1.7	1.2	3.9	8.8	4.3	2.3	6.8	9.6	4.6
Manganese , Total as Mn	mg/l	0.312	0.009	0.573	3.59	0.663	0.189	0.773	0.945	0.161
Mercury, Total as Hg	mg/l	0.00002	<0.00001	<0.00010	<0.00010	0.00001	0.00001	<0.00001	<0.00001	<0.00001
Naphthalene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/l	<0.7	<0.7	<0.7	<0.7	0.9	<0.7	<0.7	<0.7	<0.7
o-Xylene	ug/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PAH, Total	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenols Mono (Phenol Index)	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium , Total as K	mg/l	1.43	2.69	1.37	2.56	2.39	0.98	2.9	1.34	1.18
Pyrene	ug/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium Ultra Low Total as Se	mg/l	0.0009	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
Silver , Total as Ag	mg/l	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
Sodium , Total as Na	mg/l	128	24.3	5.09	12.3	13.7	6.98	19.6	9.02	12.8

Table 6: Groundwater Quarterly monitoring data (No EP Limits), Quarter 3

Reference	Unit	W1	W2	W3	W4	W5	W6	W7	W8	W9
Acenaphthene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Alkalinity as CaCO3	mg/l	24.6	40.2	131	113	26.6	20	141	103	37.4
Anthracene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzene	ug/l	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo (a) anthracene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (a) pyrene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (b) fluoranthene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (g,h,i) perylene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (k) fluoranthene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bicarbonate Alkalinity	mg/l	24.6	40.2	131	113	26.6	20	141	103	37.4
Calcium , Total as Ca	mg/l	5.36	9.91	33.8	38.9	16.6	8.8	46.6	37.9	14
Chromium , Total as Cr	mg/l	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chrysene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper, Total as Cu	mg/l	0.019	<0.009	0.01	<0.009	0.031	0.018	<0.009	<0.009	<0.009
Dibenz (a,h) anthracene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Oxygen, Fixed	mg/l	4.9	1.7	<0.5	2.1	6.7	4.9	4.1	4.1	4.7
Fluoranthene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno (1,2,3) cd pyrene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron , Total as Fe	mg/l	2.42	<0.23	3.85	7.32	<0.23	2.64	1.08	0.82	<0.23
Lead , Total as Pb	mg/l	0.009	<0.006	0.015	<0.006	<0.006	0.034	0.024	0.045	<0.006
m&p Xylene	ug/l	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Magnesium, Total as Mg	mg/l	1.3	1.3	7.5	8.6	4.2	1.9	7.2	9.1	4.5
Manganese , Total as Mn	mg/l	0.29	0.022	2.77	3.47	1.26	0.753	1.17	0.898	0.109
Mercury, Total as Hg	mg/l	N/S	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Naphthalene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/l	<0.7	<0.7	<0.7	<0.7	<0.7	0.9	<0.7	<0.7	<0.7
o-Xylene	ug/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PAH, Total	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenols Mono (Phenol Index)	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium , Total as K	mg/l	1.14	4.11	3.16	2.8	2.48	0.77	2.68	1.24	0.95
Pyrene	ug/l	<0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver , Total as Ag	mg/l	0.0027	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
Sodium , Total as Na	mg/l	96.7	24.8	7.57	13.3	14.4	6.37	17.9	9.28	12.8

Table 7: Groundwater Quarterly monitoring data (No EP Limits), Quarter 4

Reference	Unit	W1	W2	W3	W4	W5	W6	W7	W8	W9
Acenaphthene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	-	-
Acenaphthylene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Alkalinity as CaCO3	mg/l	19.2	52	73.4	112	42.8	40.6	130	107	38.4
Anthracene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Antimony Ultra Low Total as Sb	mg/l	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
Arsenic, Ultra Low Total as As	mg/l	0.0023	0.0016	0.011	0.017	0.0058	0.036	0.056	0.0015	0.00046
Benzene	ug/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo (a) anthracene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Benzo (a) pyrene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Benzo (b) fluoranthene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Benzo (g,h,i) perylene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Benzo (k) fluoranthene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Bicarbonate Alkalinity	mg/l	19.2	52	73.4	112	42.8	40.6	130	107	38.4
Calcium , Total as Ca	mg/l	9.61	9.34	12.7	38.4	17	14.4	41.3	37.9	14.1
Chromium , Total as Cr	mg/l	<0.002	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	<0.002	<0.002
Chrysene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Copper, Total as Cu	mg/l	<0.009	<0.009	0.012	<0.009	0.022	0.023	<0.009	<0.009	<0.009
Dibenz (a,h) anthracene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Dissolved Oxygen, Fixed	mg/l	3.7	4.4	1.5	<0.5	1.9	5.5	3.5	3.6	5.5
Fluoranthene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Fluorene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Indeno (1,2,3) cd pyrene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Iron , Total as Fe	mg/l	0.66	1.39	7.82	5.69	3.84	1.28	7.62	0.83	<0.23
Lead , Total as Pb	mg/l	<0.006	<0.006	0.023	<0.006	0.024	0.006	0.094	0.01	<0.006
m&p Xylene	ug/l	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Magnesium, Total as Mg	mg/l	2.2	1.2	2.7	8.7	4.2	3.7	6.8	9.2	4.5
Manganese , Total as Mn	mg/l	0.318	0.031	2.94	3.45	1.78	3.04	1.55	0.949	0.087
Mercury, Total as Hg	mg/l	0.00003	<0.00001	<0.00010	<0.00001	0.00003	0.00001	0.00002	<0.00001	0.00001
Naphthalene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Nitrate as N	mg/l	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
o-Xylene	ug/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PAH, Total	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Phenanthrene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Phenols Mono (Phenol Index)	mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium , Total as K	mg/l	1.14	3.78	0.85	2.58	2.77	2.2	2.52	1.3	0.9
Pyrene	ug/l	<0.02	<0.02	<0.10	<0.02	<0.01	<0.01	<0.02	<0.01	-
Selenium Ultra Low Total as Se	mg/l	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Silver , Total as Ag	mg/l	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
Sodium , Total as Na	mg/l	148	23.8	8.11	12.8	6.19	12.8	13	9.75	12.6

Table 8: Groundwater Annual Hazardous Substances Suite (No EP Limits)

Parameter	unit	GW 1	GW 2	GW 3	GW 4	GW 5	GW 6	GW 7	GW 8	GW 9
1,1,1,2-Tetrachloroethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,1-Trichloroethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,2,2-Tetrachloroethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,2-Trichloroethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloropropene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2,3-Trichlorobenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2,3-Trichloropropane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2,4-Trichlorobenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2,4-Trimethylbenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dibromo-3-chloropropane	µg/l	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
1,2-Dibromoethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichlorobenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloroethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloropropane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,3,5-Trimethylbenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,3-Dichlorobenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,3-Dichloropropane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,4-Dichlorobenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
2,2-Dichloropropane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
2,3,6 - TBA	µg/l	<0.05	<0.05	<2.00	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05
2,4 - DB	µg/l	<0.05	<0.05	<2.00	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05
2,4,5 - T	µg/l	<0.05	<0.05	<2.00	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05
2-Chlorotoluene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
4-Chlorotoluene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromobenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromochloromethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromodichloromethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromoform	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromomethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromoxynil	µg/l	<0.05	<0.05	<2.00	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chlorobenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloroethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloroform	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloromethane	µg/l	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
cis-1,2-Dichloroethene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
cis-1,3-Dichloropropene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00

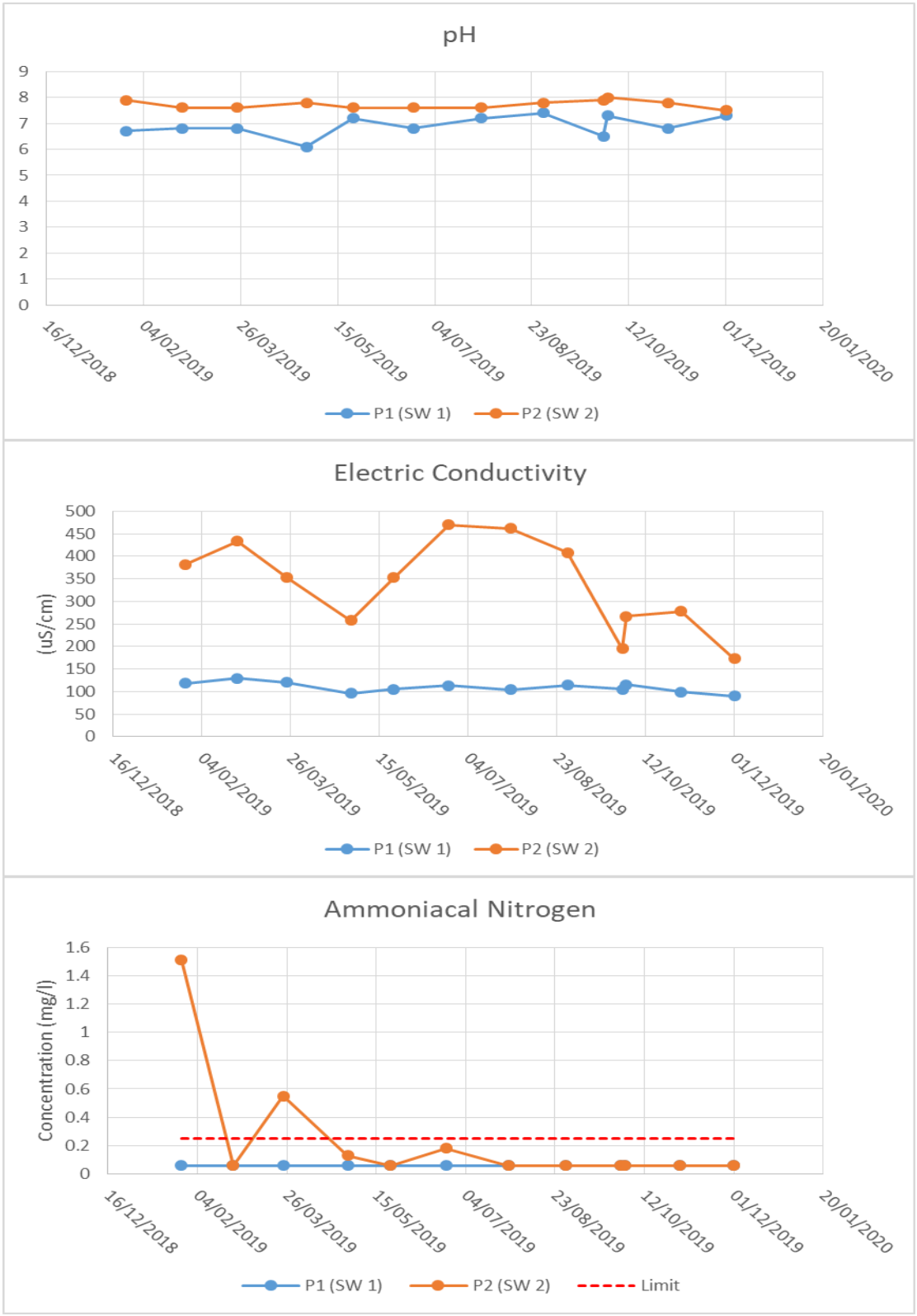
Parameter	unit	GW 1	GW 2	GW 3	GW 4	GW 5	GW 6	GW 7	GW 8	GW 9
Dibromochloromethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Dibromomethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Dicamba	µg/l	<0.05	<0.05	<2.00	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Dichloromethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Dichlorprop	µg/l	<0.05	<0.05	<2.00	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05
EH >C10 - C16	µg/l	<20	<20	168	<20	<10	23	<20	<10	-
EH >C16 - C24	µg/l	<20	<20	611	<20	32	<10	<20	<10	-
EH >C24 - C40	µg/l	<20	<20	961	<20	140	12	58	149	-
EH >C6 - C40	µg/l	<20	<20	1740	<20	172	35	58	149	-
EH >C6 - C8	µg/l	<20	<20	<100	<20	<10	<10	<20	<10	-
EH >C8 - C10	µg/l	<20	<20	<100	<20	<10	<10	<20	<10	-
Hexachlorobutadiene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ioxynil	µg/l	<0.05	<0.05	<2.00	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05
iso-Propylbenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
MCPA	µg/l	<0.05	<0.05	<2.00	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05
MCPB	µg/l	<0.05	<0.05	<2.00	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05
MTBE	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
n-butylbenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
n-propylbenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
p-isopropyltoluene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
sec-butylbenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Styrene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
tert-Butylbenzene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,3-Dichloropropene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Trichloroethene	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Trichlorofluoromethane	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Vinyl Chloride	µg/l	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Xylene, Total	µg/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00

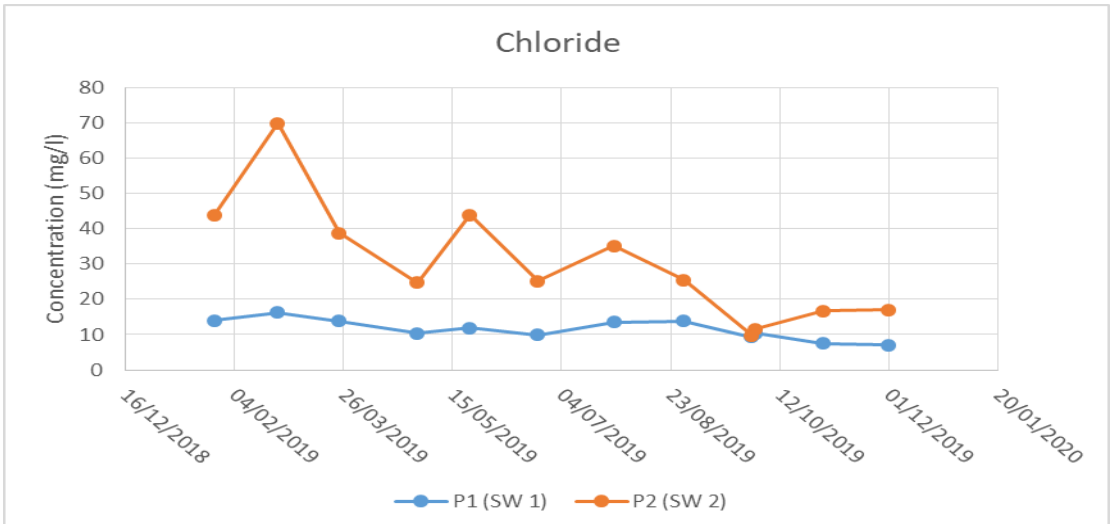
Appendix 5

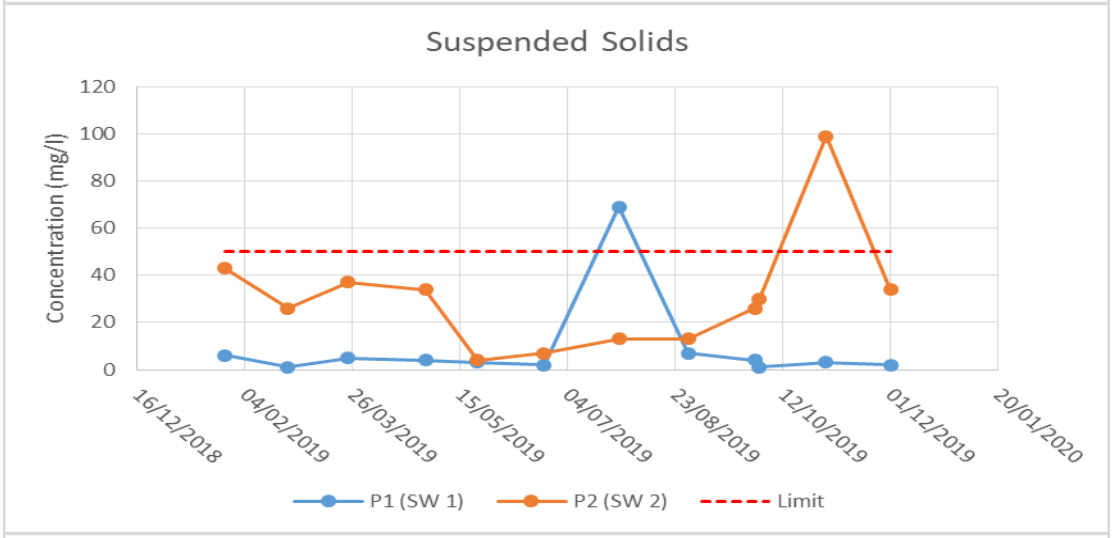
APPENDIX 5 – SURFACE WATER

Table 1: Monthly monitoring data

Parameter		pH	Conductivity - Electrical 20C	Ammoniacal Nitrogen as N (LL)	Chloride as Cl	Total Suspended Solids	BOD + ATU (5 day)	EH >C6 - C40	EH >C6 - C8	EH >C8 - C10	EH >C16 - C24	EH >C24 - C40	EH >C10 - C16
Location	**EP Limit**	**6 - 9**	**N/A**	**0.25**	**N/A**	**50**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
P1(SW1)	MIN	6.1	90.3	<0.06	7.1	1.0	<1	<10	<10	<10	<10	<10	<10
	MAX	7.4	129.0	<0.06	16.2	69.0	5.0	66.0	<40	<40	<40	46.0	<40
	AV	6.9	109.0	<0.06	11.5	8.9	1.8	31.5	<26.67	<26.67	27.4	29.8	<26.67
	COUNT	12	12	12	12	12	12	12	12	12	12	12	12
P2 (SW2)	MIN	7.5	173	<0.06	9.8	4	<1	12	<10	<10	12	<10	<10
	MAX	8	470	1.51	69.9	99	7	111	<40	<40	<40	89	<40
	AV	7.7	336.0	0.24	30.2	30.5	2.4	40.1	<28.33	<28.33	29.5	38.1	<28.33
	COUNT	12	12	12	12	12	12	12	12	12	12	12	12
P3 (SW 3)	**23-Jun-19**	6.2	115	0.19	<3.7	16	2	39	<20	<20	<20	39	<20


pH
9
8
7
6
5
4
3
2
1
0
16/12/2018
04/02/2019
26/03/2019
15/05/2019
04/07/2019
23/08/2019
12/10/2019
01/12/2019
20/01/2020
P1 (SW 1)
P2 (SW 2)
Electric Conductivity
(uS/cm)
500
450
400
350
300
250
200
150
100
50
0
16/12/2018
04/02/2019
26/03/2019
15/05/2019
04/07/2019
23/08/2019
12/10/2019
01/12/2019
20/01/2020
P1 (SW 1)
P2 (SW 2)
Ammoniacal Nitrogen
Concentration (mg/l)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
16/12/2018
04/02/2019
26/03/2019
15/05/2019
04/07/2019
23/08/2019
12/10/2019
01/12/2019
20/01/2020
P1 (SW 1)
P2 (SW 2)
Limit


Chloride
Concentration (mg/l)
80
70
60
50
40
30
20
10
0
16/12/2018
04/02/2019
26/03/2019
15/05/2019
04/07/2019
23/08/2019
12/10/2019
01/12/2019
20/01/2020
P1 (SW 1)
P2 (SW 2)


Suspended Solids
Concentration (mg/l)
120
100
80
60
40
20
0
16/12/2018
04/02/2019
26/03/2019
15/05/2019
04/07/2019
23/08/2019
12/10/2019
01/12/2019
20/01/2020
P1 (SW 1)
P2 (SW 2)
Limit

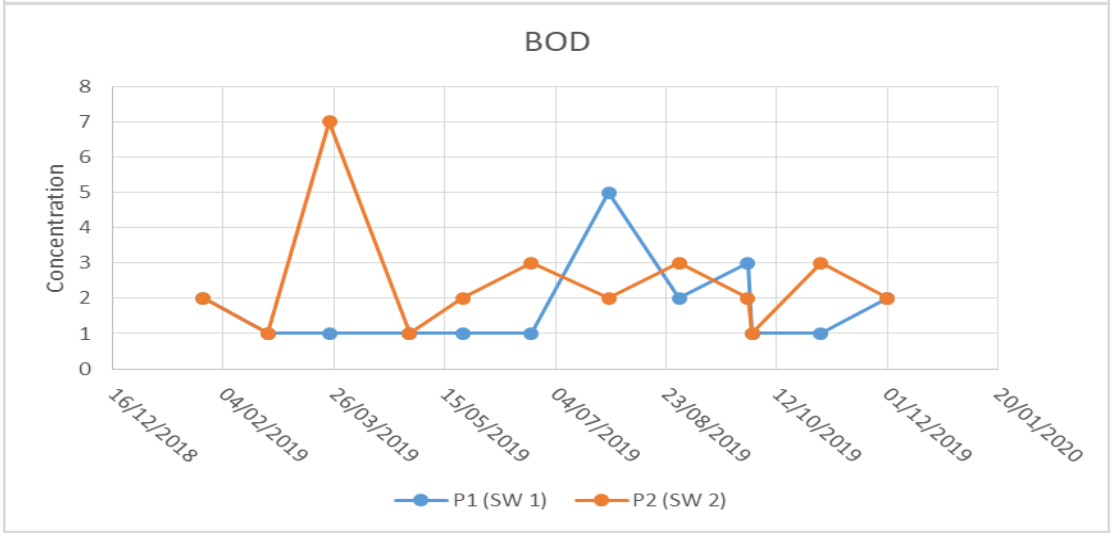

BOD
Concentration
8
7
6
5
4
3
2
1
0
16/12/2018
04/02/2019
26/03/2019
15/05/2019
04/07/2019
23/08/2019
12/10/2019
01/12/2019
20/01/2020
P1 (SW 1)
P2 (SW 2)

Table 2: Six monthly monitoring data, June

Sample Matrix	units	SW 1	SW 2	SW 3
1,1,1,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00
1,1,1-Trichloroethane	ug/l	<1.00	<1.00	<1.00
1,1,2,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00
1,1,2-Trichloroethane	ug/l	<1.00	<1.00	<1.00
1,1-Dichloroethane	ug/l	<1.00	<1.00	<1.00
1,1-Dichloroethene	ug/l	<1.00	<1.00	<1.00
1,1-Dichloropropene	ug/l	<1.00	<1.00	<1.00
1,2,3-Trichlorobenzene	ug/l	<1.00	<1.00	<1.00
1,2,3-Trichloropropane	ug/l	<1.00	<1.00	<1.00
1,2,4-Trichlorobenzene	ug/l	<1.00	<1.00	<1.00
1,2,4-Trimethylbenzene	ug/l	<1.00	<1.00	<1.00
1,2-Dibromo-3-chloropropane	ug/l	<2.00	<2.00	<2.00
1,2-Dibromoethane	ug/l	<1.00	<1.00	<1.00
1,2-Dichlorobenzene	ug/l	<1.00	<1.00	<1.00
1,2-Dichloroethane	ug/l	<1.00	<1.00	<1.00
1,2-Dichloropropane	ug/l	<1.00	<1.00	<1.00
1,3,5-Trimethylbenzene	ug/l	<1.00	<1.00	<1.00
1,3-Dichlorobenzene	ug/l	<1.00	<1.00	<1.00
1,3-Dichloropropane	ug/l	<1.00	<1.00	<1.00
1,4-Dichlorobenzene	ug/l	<1.00	<1.00	<1.00
2,2-Dichloropropane	ug/l	<1.00	<1.00	<1.00
2,3,6 - TBA	ug/l	<0.05	<0.05	<0.05
2,4 - D	ug/l	<0.05	<0.05	<0.05
2,4 - DB	ug/l	<0.05	<0.05	<0.05
2,4,5 - T	ug/l	<0.05	<0.05	<0.05
2-Chlorotoluene	ug/l	<1.00	<1.00	<1.00
4-Chlorotoluene	ug/l	<1.00	<1.00	<1.00
Benzene	ug/l	<1.00	<1.00	<1.00
Bromobenzene	ug/l	<1.00	<1.00	<1.00
Bromochloromethane	ug/l	<1.00	<1.00	<1.00
Bromodichloromethane	ug/l	<1.00	<1.00	<1.00
Bromoform	ug/l	<1.00	<1.00	<1.00
Bromomethane	ug/l	<1.00	<1.00	<1.00
Bromoxynil	ug/l	<0.05	<0.05	<0.05
Cadmium , Total as Cd	mg/l	0.0006	<0.0006	<0.0006
Carbon Tetrachloride	ug/l	<1.00	<1.00	<1.00
Chlorobenzene	ug/l	<1.00	<1.00	<1.00
Chloroethane	ug/l	<1.00	<1.00	<1.00
Chloroform	ug/l	<1.00	<1.00	<1.00
Chloromethane	ug/l	<2.00	<2.00	<2.00
cis-1,2-Dichloroethene	ug/l	<1.00	<1.00	<1.00
cis-1,3-Dichloropropene	ug/l	<1.00	<1.00	<1.00
COD (Total)	mg/l	20	28	26
Cyanide, Total as CN	mg/l	<0.009	<0.009	<0.009
Dibromochloromethane	ug/l	<1.00	<1.00	<1.00
Dibromomethane	ug/l	<1.00	<1.00	<1.00
Dicamba	ug/l	<0.05	<0.05	<0.05
Dichlorodifluoromethane	ug/l	<1.00	<1.00	<1.00
Dichloromethane	ug/l	<1.00	<1.00	<1.00
Dichlorprop	ug/l	<0.05	<0.05	<0.05
Dissolved Oxygen, Fixed	mg/l	9.1	10	8.2
Ethyl Benzene	ug/l	<1.00	<1.00	<1.00
Hexachlorobutadiene	ug/l	<1.00	<1.00	<1.00
Ioxynil	ug/l	<0.05	<0.05	<0.05
iso-Propylbenzene	ug/l	<1.00	<1.00	<1.00
m&p Xylene	ug/l	<1.00	<1.00	<1.00

Sample Matrix	units	SW 1	SW 2	SW 3
MCPA	ug/l	<0.05	<0.05	<0.05
MCPB	ug/l	<0.05	<0.05	<0.05
Mecoprop	ug/l	<0.04	<0.04	<0.04
MTBE	ug/l	<1.00	<1.00	<1.00
Naphthalene	ug/l	<1.00	<1.00	<1.00
n-butylbenzene	ug/l	<1.00	<1.00	<1.00
n-propylbenzene	ug/l	<1.00	<1.00	<1.00
o-Xylene	ug/l	<1.00	<1.00	<1.00
p-isopropyltoluene	ug/l	<1.00	<1.00	<1.00
sec-butylbenzene	ug/l	<1.00	<1.00	<1.00
Styrene	ug/l	<1.00	<1.00	<1.00
tert-Butylbenzene	ug/l	<1.00	<1.00	<1.00
Tetrachloroethene	ug/l	<1.00	<1.00	<1.00
Toluene	ug/l	<1.00	<1.00	<1.00

Sample Matrix		SW 1	SW 2	SW3
SVOC				
1,2,4-Trichlorobenzene	ug/l	<10.0	<4.0	<4.0
1,2-Dichlorobenzene	ug/l	<10.0	<4.0	<4.0
1,3-Dichlorobenzene	ug/l	<10.0	<4.0	<4.0
1,4-Dichlorobenzene	ug/l	<10.0	<4.0	<4.0
2,4,5-Trichlorophenol	ug/l	<10.0	<4.0	<4.0
2,4,6-Trichlorophenol	ug/l	<10.0	<4.0	<4.0
2,4-Dichlorophenol	ug/l	<10.0	<4.0	<4.0
2,4-Dimethylphenol	ug/l	<10.0	<4.0	<4.0
2,4-Dinitrotoluene	ug/l	<10.0	<4.0	<4.0
2,6-Dinitrotoluene	ug/l	<10.0	<4.0	<4.0
2-Chloronaphthalene	ug/l	<10.0	<4.0	<4.0
2-Chlorophenol	ug/l	<10.0	<4.0	<4.0
2-Methylnaphthalene	ug/l	<10.0	<4.0	<4.0
2-Methylphenol	ug/l	<10.0	<4.0	<4.0
2-Nitrophenol	ug/l	<10.0	<4.0	<4.0
3&4-Methylphenol	ug/l	<10.0	<4.0	<4.0
4-Bromophenyl Phenyl Ether	ug/l	<10.0	<4.0	<4.0
4-Chloro-3-methylphenol	ug/l	<10.0	<4.0	<4.0
4-Chlorophenyl phenyl ether	ug/l	<10.0	<4.0	<4.0
4-Nitrophenol	ug/l	<50.0	<20.0	<20.0
Acenaphthene	ug/l	<10.0	<4.0	<4.0
Acenaphthylene	ug/l	<10.0	<4.0	<4.0
Anthracene	ug/l	<10.0	<4.0	<4.0
Benzo(a)anthracene	ug/l	<10.0	<4.0	<4.0
Benzo(a)pyrene	ug/l	<10.0	<4.0	<4.0
Benzo(b)fluoranthene	ug/l	<10.0	<4.0	<4.0
Benzo(g,h,i)perylene	ug/l	<10.0	<4.0	<4.0
Benzo(k)fluoranthene	ug/l	<10.0	<4.0	<4.0
Benzyl Butyl Phthalate	ug/l	<10.0	<4.0	<4.0
Bis(2-chloroethoxy)methane	ug/l	<10.0	<4.0	<4.0
Bis(2-chloroethyl)ether	ug/l	<10.0	<4.0	<4.0
Bis(2-chloroisopropyl)ether	ug/l	<10.0	<4.0	<4.0
Bis(2-ethylhexyl)phthalate	ug/l	<50.0	<20.0	<20.0
Chrysene	ug/l	<10.0	<4.0	<4.0
Dibenz(a,h)anthracene	ug/l	<10.0	<4.0	<4.0
Dibenzofuran	ug/l	<10.0	<4.0	<4.0
Diethylphthalate	ug/l	<10.0	<4.0	<4.0
Dimethylphthalate	ug/l	<10.0	<4.0	<4.0
di-n-Butylphthalate	ug/l	<10.0	<4.0	<4.0
Di-n-octylphthalate	ug/l	<10.0	<4.0	<4.0

Sample Matrix		SW 1	SW 2	SW3
SVOC				
Diphenylamine	ug/l	<10.0	<4.0	<4.0
Fluoranthene	ug/l	<10.0	<4.0	<4.0
Fluorene	ug/l	<10.0	<4.0	<4.0
Hexachlorobenzene	ug/l	<10.0	<4.0	<4.0
Hexachlorobutadiene	ug/l	<10.0	<4.0	<4.0
Hexachloroethane	ug/l	<10.0	<4.0	<4.0
Indeno(1,2,3-c,d)pyrene	ug/l	<10.0	<4.0	<4.0
Isophorone	ug/l	<10.0	<4.0	<4.0
Naphthalene	ug/l	<20.0	<8.0	<8.0
Nitrobenzene	ug/l	<10.0	<4.0	<4.0
n-Nitrosodi-n-propylamine	ug/l	<10.0	<4.0	<4.0
Pentachlorophenol	ug/l	<10.0	<4.0	<4.0
Phenanthrene	ug/l	<10.0	<4.0	<4.0
Phenol	ug/l	<10.0	<4.0	<4.0
Pyrene	ug/l	<10.0	<4.0	<4.0

Table 3: Six monthly & annual monitoring data, December

Sample Matrix	units	SW 1	SW 2
Cadmium , Total as Cd	mg/l	<0.0006	<0.0006
Dissolved Oxygen, Fixed	mg/l	9.9	8.8
COD (Total)	mg/l	41	34
Cyanide, Total as CN	mg/l	<0.009	<0.009
2,3,6 - TBA	µg/l	<0.05	<0.10
2,4 - D	µg/l	<0.05	<0.10
2,4 - DB	µg/l	<0.05	<0.10
2,4,5 - T	µg/l	<0.05	<0.10
Bromoxynil	µg/l	<0.05	<0.10
Dicamba	µg/l	<0.05	<0.10
Dichlorprop	µg/l	<0.05	<0.10
Ioxynil	µg/l	<0.05	<0.10
MCPA	µg/l	<0.05	<0.10
MCPB	µg/l	<0.05	<0.10
Mecoprop	µg/l	<0.04	<0.08
1,1,1,2-Tetrachloroethane	µg/l	<1.00	<1.00
1,1,1-Trichloroethane	µg/l	<1.00	<1.00
1,1,2,2-Tetrachloroethane	µg/l	<1.00	<1.00
1,1,2-Trichloroethane	µg/l	<1.00	<1.00
1,1-Dichloroethane	µg/l	<1.00	<1.00
1,1-Dichloroethene	µg/l	<1.00	<1.00
1,1-Dichloropropene	µg/l	<1.00	<1.00
1,2,3-Trichlorobenzene	µg/l	<1.00	<1.00
1,2,3-Trichloropropane	µg/l	<1.00	<1.00
1,2,4-Trichlorobenzene	µg/l	<1.00	<1.00
1,2,4-Trimethylbenzene	µg/l	<1.00	<1.00
1,2-Dibromo-3-chloropropane	µg/l	<2.00	<2.00
1,2-Dibromoethane	µg/l	<1.00	<1.00
1,2-Dichlorobenzene	µg/l	<1.00	<1.00
1,2-Dichloroethane	µg/l	<1.00	<1.00
1,2-Dichloropropane	µg/l	<1.00	<1.00
1,3,5-Trimethylbenzene	µg/l	<1.00	<1.00
1,3-Dichlorobenzene	µg/l	<1.00	<1.00
1,3-Dichloropropane	µg/l	<1.00	<1.00
1,4-Dichlorobenzene	µg/l	<1.00	<1.00
2,2-Dichloropropane	µg/l	<1.00	<1.00
2-Chlorotoluene	µg/l	<1.00	<1.00
4-Chlorotoluene	µg/l	<1.00	<1.00

Sample Matrix	units	SW 1	SW 2
Benzene	µg/l	<1.00	<1.00
Bromobenzene	µg/l	<1.00	<1.00
Bromochloromethane	µg/l	<1.00	<1.00
Bromodichloromethane	µg/l	<1.00	<1.00
Bromoform	µg/l	<1.00	<1.00
Bromomethane	µg/l	<1.00	<1.00
Carbon Tetrachloride	µg/l	<1.00	<1.00
Chlorobenzene	µg/l	<1.00	<1.00
Chloroethane	µg/l	<1.00	<1.00
Chloroform	µg/l	<1.00	<1.00
Chloromethane	µg/l	<2.00	<2.00
cis-1,2-Dichloroethene	µg/l	<1.00	<1.00
cis-1,3-Dichloropropene	µg/l	<1.00	<1.00
Dibromochloromethane	µg/l	<1.00	<1.00
Dibromomethane	µg/l	<1.00	<1.00
Dichlorodifluoromethane	µg/l	<1.00	<1.00
Dichloromethane	µg/l	<1.00	<1.00
Ethyl Benzene	µg/l	<1.00	<1.00
Hexachlorobutadiene	µg/l	<1.00	<1.00
iso-Propylbenzene	µg/l	<1.00	<1.00
m&p Xylene	µg/l	<1.00	<1.00
MTBE	µg/l	<1.00	<1.00
Naphthalene	µg/l	<1.00	<1.00
n-butylbenzene	µg/l	<1.00	<1.00
n-propylbenzene	µg/l	<1.00	<1.00
o-Xylene	µg/l	<1.00	<1.00
p-isopropyltoluene	µg/l	<1.00	<1.00
sec-butylbenzene	µg/l	<1.00	<1.00
Styrene	µg/l	<1.00	<1.00
tert-Butylbenzene	µg/l	<1.00	<1.00
Tetrachloroethene	µg/l	<1.00	<1.00
Toluene	µg/l	<1.00	<1.00
trans-1,2-Dichloroethene	µg/l	<1.00	<1.00
trans-1,3-Dichloropropene	µg/l	<1.00	<1.00
Trichloroethene	µg/l	<1.00	<1.00
Trichlorofluoromethane	µg/l	<1.00	<1.00
Vinyl Chloride	µg/l	<0.500	<0.500
Xylene, Total	µg/l	<1.00	<1.00

Appendix 6

Appendix 6. Dust Monitoring Results

ALS Environmental Ltd
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Mr Williams
Potters Waste Management
Potters Yard
Severn Road
Welshpool SY21 7BE
Powys

01 February 2019

Test Report: COV/1665919/2019

Dear Mr Williams

Analysis of your sample(s) submitted on 28 January 2019 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: P. Johal

Title: Coventry Operations Manager

Report Summary

Mr David Williams
Potters Waste Management
Potters Yard
Severn Road
Welshpool
Powys
SY21 7BE

Date of Issue: **01 February 2019**

Report Number: **COV/1665919/2019** Issue **1** This issue replaces all previous issues

Job Description: Waste Water Analysis

Job Location: Waste Water Analysis

Number of Samples included in this report **3**

Job Received: **28 January 2019**

Number of Test Results included in this report **21**

Analysis Commenced: **31 January 2019**

Signed:

Name: **P. Johal** Date: **01 February 2019**

Title: **Coventry Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

Certificate of Analysis

Report Number: **COV/1665919/2019** Issue **1**
Laboratory Number: **17897820** Sample **1** of **3**

Sample Source: **Potters Waste Management**
Sample Point Description: **Potters Waste**
Sample Description: **1**
Sample Matrix: **Dust**
Sample Date/Time: **26 January 2019**
Sample Received: **28 January 2019**
Analysis Complete: **01 February 2019**

Test Description	Result	Units	Analysis Date	Accreditation		Method
Description of Dust	Analyst Com	Text	31/01/2019	N	Cov	74
Date In	26/01/19	dd/mm/yy	31/01/2019	N	Cov	FIELD
Date Out	16/12/18	dd/mm/yy	31/01/2019	N	Cov	FIELD
Number of Days Exposed	41		31/01/2019	N	Cov	FIELD
Mass of Undissolved Solids	10.3	mg	31/01/2019	N	Cov	74
Deposited Dust, Total, Calc.	<10	mg/m2/day	31/01/2019	N	Cov	74
Frisbee Diameter	227	mm	31/01/2019	N	Cov	FIELD

Analyst Comments for 17897820: DUST COMMENTS Medium, brown deposition

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Name: **P. Johal** Date: **01 February 2019**
Title: **Coventry Operations Manager**

Certificate of Analysis

Report Number: **COV/1665919/2019** Issue **1**
Laboratory Number: **17897821** Sample **2** of **3**

Sample Source: **Potters Waste Management**
Sample Point Description: **Potters Waste**
Sample Description: **2**
Sample Matrix: **Dust**
Sample Date/Time: **26 January 2019**
Sample Received: **28 January 2019**
Analysis Complete: **01 February 2019**

Test Description	Result	Units	Analysis Date	Accreditation		Method
Description of Dust	Analyst Com	Text	31/01/2019	N	Cov	74
Date In	26/01/19	dd/mm/yy	31/01/2019	N	Cov	FIELD
Date Out	16/12/18	dd/mm/yy	31/01/2019	N	Cov	FIELD
Number of Days Exposed	41		31/01/2019	N	Cov	FIELD
Mass of Undissolved Solids	18.7	mg	31/01/2019	N	Cov	74
Deposited Dust, Total, Calc.	11	mg/m2/day	31/01/2019	N	Cov	74
Frisbee Diameter	227	mm	31/01/2019	N	Cov	FIELD

Analyst Comments for 17897821: DUST COMMENTS Medium, brown deposition

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Name: **P. Johal** Date: **01 February 2019**
Title: **Coventry Operations Manager**

Certificate of Analysis

Report Number: **COV/1665919/2019** Issue **1**
Laboratory Number: **17897822** Sample **3** of **3**

Sample Source: **Potters Waste Management**
Sample Point Description: **Potters Waste**
Sample Description: **3**
Sample Matrix: **Dust**
Sample Date/Time: **26 January 2019**
Sample Received: **28 January 2019**
Analysis Complete: **01 February 2019**

Test Description	Result	Units	Analysis Date	Accreditation		Method
Description of Dust	Analyst Com	Text	31/01/2019	N	Cov	74
Date In	26/01/19	dd/mm/yy	31/01/2019	N	Cov	FIELD
Date Out	16/12/18	dd/mm/yy	31/01/2019	N	Cov	FIELD
Number of Days Exposed	41		31/01/2019	N	Cov	FIELD
Mass of Undissolved Solids	24.2	mg	31/01/2019	N	Cov	74
Deposited Dust, Total, Calc.	15	mg/m2/day	31/01/2019	N	Cov	74
Frisbee Diameter	227	mm	31/01/2019	N	Cov	FIELD

Analyst Comments for 17897822: DUST COMMENTS Medium, green and brown deposition. Algae

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Name: **P. Johal** Date: **01 February 2019**
Title: **Coventry Operations Manager**

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ALS Environmental Ltd
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Mr Williams
Potters Waste Management
Potters Yard
Severn Road
Welshpool SY21 7BE
Powys

11 July 2019

Test Report: COV/1717874/2019

Dear Mr Williams

Analysis of your sample(s) submitted on 25 May 2019 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: P. Johal

Title: Coventry Operations Manager

Report Summary

Mr David Williams
Potters Waste Management
Potters Yard
Severn Road
Welshpool
Powys
SY21 7BE

Date of Issue : **29 May 2019**

Report Number :**COV/1717874/2019** Issue **1** This issue replaces all previous issues

Number of Samples included in report: **3**

Number of Test Results included in rep **21**

Site Name : **Waste Water Analysis**
Job Received : **25 May 2019**

Analysis Commenced : **28 May 2019**
Order Number : **B1772POT2**

Signed : 

Name : **P. Johal**

Title : **Coventry Operations Manager**

Date : **29 May 2019**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

Certificate of Analysis

Report Number: **COV/1717874/2019 Issue 1**
Site Name: **Waste Water Analysis**

Determinand	Units	Method/ Analysis Site		Dust					
				18257561 Dust Sample 1		18257562 Dust Sample 2		18257563 Dust Sample 3	
Date In	dd/mm/yy	FIELD	Cov	N	23/05/19	N	23/05/19	N	23/05/19
Date Out	dd/mm/yy	FIELD	Cov	N	29/04/19	N	29/04/19	N	29/04/19
Deposited Dust, Total, Calc.	mg/m2/day	74	Cov	N	<10	N	21	N	30
Description of Dust	Text	74	Cov	N	{/*}Light, green and brown deposition. Algae {*/}	N	{/*}Heavy, green and brown deposition. Algae {*/}	N	{/*}Heavy, green and brown deposition. Algae {*/}
Frisbee Diameter	mm	FIELD	Cov	N	230	N	230	N	230
Mass of Undissolved Solids	mg	74	Cov	N	5.7	N	20.7	N	29.5
Number of Days Exposed		FIELD	Cov	N	24	N	24	N	24

Signed :

Name : **P. Johal** Date : **29 May 2019**

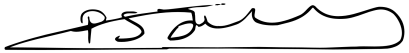
Title : **Coventry Operations Manager**

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for

ANALYST COMMENTS FOR REPORT COV/1717874/2019 Issue 1 This issue replaces all previous issues

Date of Issue: **29 May 2019**

Sample No	Analyst Comments
18257561	DUST COMMENTS Light, green and brown deposition. Algae
18257562	DUST COMMENTS Heavy, green and brown deposition. Algae
18257563	DUST COMMENTS Heavy, green and brown deposition. Algae

Signed: 

Name: **P. Johal** Date: **29 May 2019**

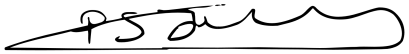
Title: **Coventry Operations Manager**

DETERMINAND COMMENTS FOR REPORT COV/1717874/2019

ISSUE 1 This issue replaces all previous issues

Date of Issue : 29 May 2019

Sample No	Description	Determinand	Comments
18257561	Dust Sample 1	Description of Dust	{/*}Light, green and brown deposition. Algae{*/}
18257562	Dust Sample 2	Description of Dust	{/*}Heavy, green and brown deposition. Algae{*/}
18257563	Dust Sample 3	Description of Dust	{/*}Heavy, green and brown deposition. Algae{*/}

Signed: 

Name: **P. Johal** Date: **29 May 2019**

Title: **Coventry Operations Manager**

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Mr Williams
Potters Waste Management
Potters Yard
Severn Road
Welshpool SY21 7BE
Powys

06 August 2019

Test Report: COV/1748285/2019

Dear Mr Williams

Analysis of your sample(s) submitted on 29 July 2019 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: P. Johal

Title: Coventry Operations Manager

Report Summary

Mr David Williams
Potters Waste Management
Potters Yard
Severn Road
Welshpool
Powys
SY21 7BE

Date of Issue : **06 August 2019**

Report Number :**COV/1748285/2019** Issue **1** This issue replaces all previous issues

Number of Samples included in report: **3**

Number of Test Results included in rep **21**

Site Name : **Waste Water Analysis**
Job Received : **29 July 2019**

Analysis Commenced : **05 August 2019**
Order Number : **B1772POT2**

Signed : 

Name : **P. Johal**
Title : **Coventry Operations Manager**

Date : **06 August 2019**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

Certificate of Analysis

Report Number: **COV/1748285/2019 Issue 1**
Site Name: **Waste Water Analysis**

Determinand	Units	Method/ Analysis Site		Dust					
				18450038		18450039		18450040	
				1		2		3	
Date In	dd/mm/yy	FIELD	Cov	N	28/07/2019	N	28/07/2019	N	28/07/2019
Date Out	dd/mm/yy	FIELD	Cov	N	23/06/2019	N	23/06/2019	N	23/06/2019
Deposited Dust, Total, Calc.	mg/m2/day	74	Cov	N	34	N	39	N	17
Description of Dust	Text	74	Cov	N	{/*}Medium brown deposition. {*/}	N	{/*}Heavy green deposition. Algae.{*/}	N	{/*}Medium green deposition. Algae.{*/}
Frisbee Diameter	mm	FIELD	Cov	N	230	N	230	N	230
Mass of Undissolved Solids	mg	74	Cov	N	49.3	N	56.4	N	24.9
Number of Days Exposed		FIELD	Cov	N	35	N	35	N	35

Signed :

Name : **P. Johal**

Date : **06 August 2019**

Title : **Coventry Operations Manager**

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for

ANALYST COMMENTS FOR REPORT COV/1748285/2019 Issue 1

This issue replaces all previous issues

Date of Issue: **06 August 2019**

Sample No		Analyst Comments
18450038	DUST COMMENTS	Medium brown deposition.
18450039	DUST COMMENTS	Heavy green deposition. Algae.
18450040	DUST COMMENTS	Medium green deposition. Algae.

Signed: 

Name: **P. Johal** Date: **06 August 2019**

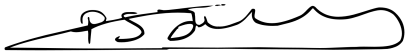
Title: **Coventry Operations Manager**

DETERMINAND COMMENTS FOR REPORT COV/1748285/2019

ISSUE 1 This issue replaces all previous issues

Date of Issue : 06 August 2019

Sample No	Description	Determinand	Comments
18450038	1	Description of Dust	{/*}Medium brown deposition. {*/}
18450039	2	Description of Dust	{/*}Heavy green deposition. Algae.{*/}
18450040	3	Description of Dust	{/*}Medium green deposition. Algae.{*/}

Signed: 

Name: **P. Johal** Date: **06 August 2019**

Title: **Coventry Operations Manager**

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